Appendix A:
Existing Transportation Conditions – Ramp Area Details

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1 Introduction

1.1 Study Background

The I-5 Ramp Reconfiguration Study is part of the Move Ahead Washington transportation package that also directed the Washington State Department of Transportation (WSDOT) to form a modern vision for the I-5 corridor by developing an actionable I-5 Master Plan from the Oregon border to the Canadian border. The Plan will result in implementing projects, policies, and strategies to improve travel, the economy, and livability.

In spring 2023, the Washington Legislature directed WSDOT to conduct an I-5 Ramp Reconfiguration Study in partnership with the City of Seattle and informed by Lid I-5 interested parties, to be completed by December 1, 2024 (ESHB 1125, Section 219, Subsection 9(c)).

1.2 Study Purpose

This study serves as a building block for future work conducted during WSDOT's I-5 Master Plan, the City's lid planning work, and other efforts by:

- Summarizing the known existing transportation conditions in the study area to create foundational understanding.
- Describing the range of positive, negative, or neutral transportation implications of potential future ramp changes based on the existing conditions.
- Recommending future work or analysis needed to better understand the potential transportation implications of future ramp changes and identifying which entities will lead the work.

1.3 Study Area

The study area includes key on- and off-ramps on I-5 in Downtown Seattle and the University District as identified in the proviso. This section provides a general context for the study area followed by existing transportation conditions details for each study ramp. The existing conditions considered include:

- Equity and demographics
- Walking, biking, and rolling conditions
- Transit conditions
- Key destinations
- Traffic volumes and patterns
- Transportation safety
- Emergency access

1.4 Study Ramps

This study considers 19 ramps in 12 locations, listed in Table 1, from south to north. Eleven ramps are located in the Downtown segment between 6th Avenue and Yale Avenue (Figure 1), and eight border the Wallingford Neighborhood and the University District, north of Lake Union, in the University District segment (Figure 2). The following sections discuss each ramp area individually.

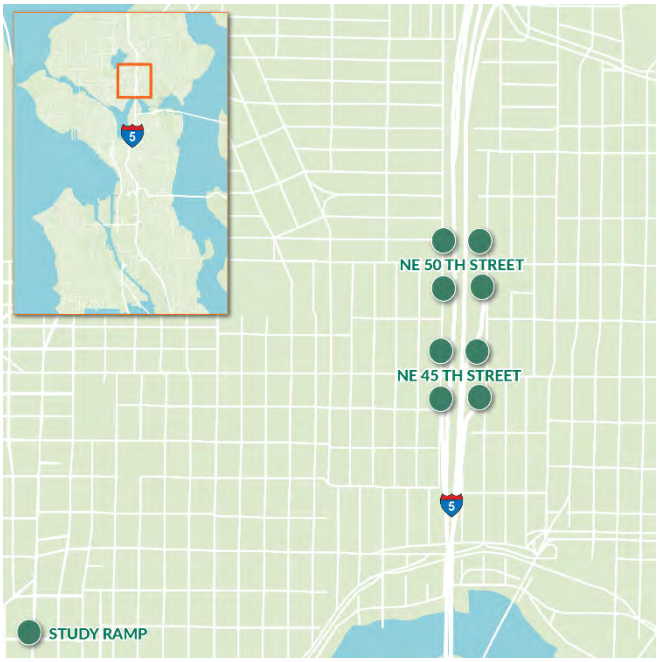
Table 1. Study Ramps

Downtown Seattle Segment	University District Segment
• 6th Avenue on-ramp • James Street off-ramp • Cherry Street on-ramp • Madison Street off-ramp • Spring Street on-ramp • Seneca Street off-ramp • University Street on-ramp • Union Street off-ramp • Olive Way off- and on-ramps • Yale Avenue on-ramp	• NE 45th Street northbound off-ramp • NE 45th Street northbound on-ramp • NE 45th Street southbound off-ramp • NE 45th Street southbound on-ramp • NE 50th Street northbound off-ramp • NE 50th Street northbound on-ramp • NE 50th Street southbound off-ramp • NE 50th Street southbound on-ramp

Figure 1. Downtown Segment Study Ramps

Data: Seattle Department of Transportation (SDOT)

Figure 2. University District Segment Study Ramps



Data: SDOT

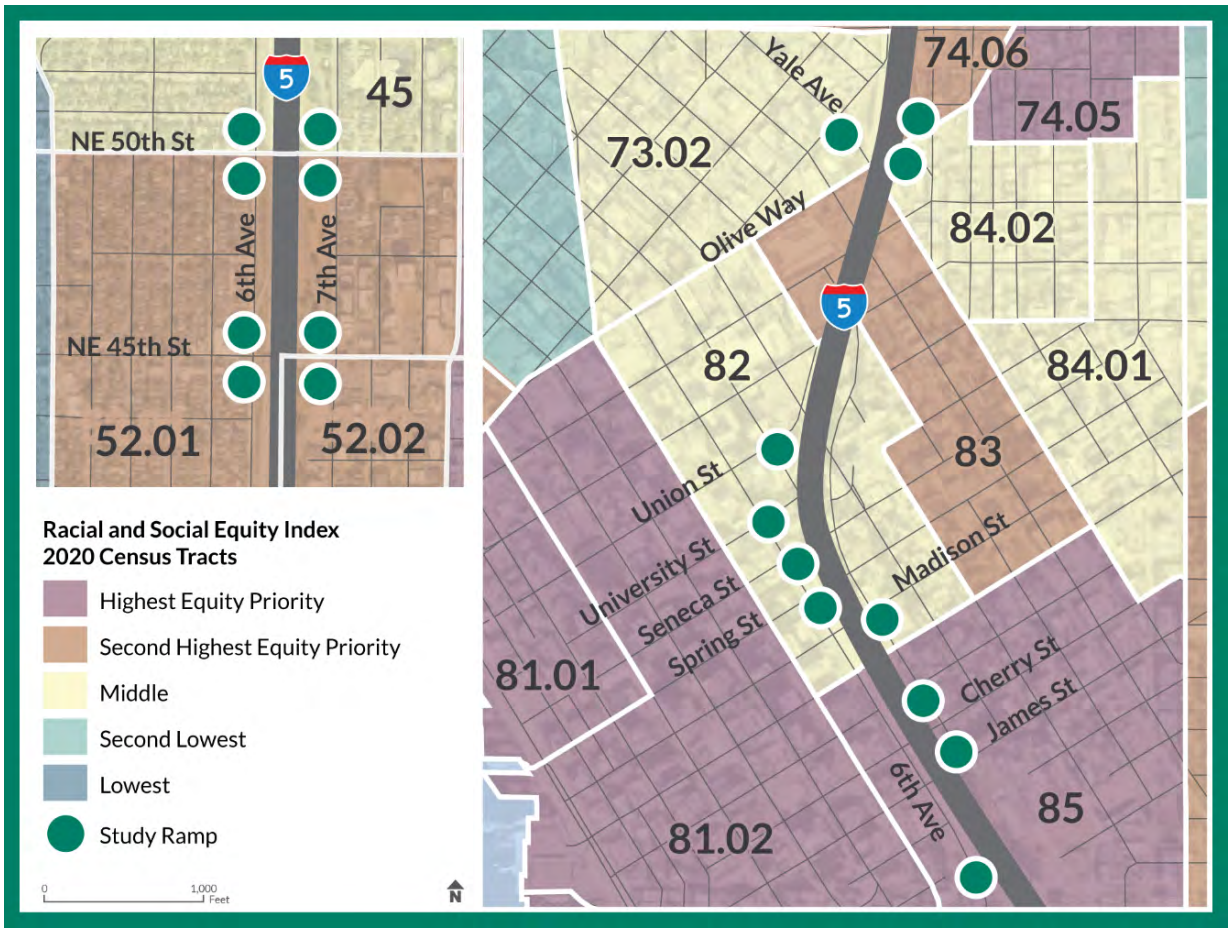
1.5 Summary of Data and Methods

1.5.1 Equity and Demographics Methods

Demographic data was provided by the 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series, and retrieved through the City of Seattle's Neighborhood Profiles service.

The City of Seattle uses the Racial and Social Equity Index (RSEI)[1] to help identify where priority populations, as identified by the City's Racial and Social Justice Initiative (RSJI)[2], make up larger proportions of community members. This index uses 2017-2021 Census[3] data on race, ethnicity, and other demographic information. The index provides a way to prioritize allocating City resources to advance equity, consistent with the Racial and Social Justice Initiative principles. A snapshot of the RSE index is included below in Figure 3.

Figure 3. City of Seattle's Race and Social Equity Index Snapshot



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

[1] https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073.

[2] About - RSJI | seattle.gov

[3] 2017-2021 5-Year American Community Survey Estimates, U.S. Census Bureau; 2020 Decennial Census, U.S. Census Bureau

1.5.2 Traffic Volumes and Patterns Methods

Average Daily Volume

Traffic data was collected from multiple sources. This data informed the implications of potential future ramp changes and recommendations for future study. Traffic volumes were collected from the WSDOT 2022 Ramp and Roadway Traffic Volume Report (updated in 2023), supplemented by data from mobile devices (StreetLight data). Mobile devices also provided origin/destination trip data. SDOT reported in 2023 that 2022 daily traffic volumes had returned to 86% of pre-COVID levels.[4]

Average weekday volumes (AWD) were computed from Tuesday through Thursday data. AM and PM peaks correspond to the highest hourly volumes during high-traffic periods, generally from 7:00 to 8:00 AM and from 5:00 to 6:00 PM, respectively. According to the Highway Capacity Manual (HCM), the maximum theoretical capacity for a single-lane ramp is 1,800 vehicles per hour (vph).

Further details regarding traffic volumes and patterns are available upon request.

Origins and Destinations

The study area was separated into 12 zones based on City districts, major streets, and local context (Figure 4). Zones represent general areas of the City where trips begin or end near study ramps. Four highway "gates" (shown as circles in Figure 4) were created that represent trips that enter or leave the study area through a specific point, including I-5 North End, I-5 South End, I-520 East End, and I-90 East End. The most recent available data for this study included March 1, 2023, to May 31, 2023.

Two types of analysis were performed using data from a third-party service that provides cellular, GPS, and other data: (1) analyzing the origin-destination trips between each study ramp zone and (2) analyzing routes from trip origins to on-ramps and from off-ramps to trip destinations. Later sections discuss these in detail for each ramp.

[4] SDOT 2023 Traffic Report. https://www.seattle.gov/documents/Departments/SDOT/About/DocumentLibrary/Reports/2023_Traffic_Report.pdf

Figure 4. Traffic Study Zones

Data: WSDOT

1.5.3 Safety Methods

The WSDOT Disclosure Request Center[5] crash data reviewed for this study included the 5-year period spanning January 2019 through December 2023. This section combines crash data for cars and trucks.

Crash Severity

The severity of crashes is separated into six categories. These include:

- No Apparent Injury
- Possible Injury
- Suspected Minor Injury
- Suspected Serious Injury
- Fatality
- Unknown

Crash Type

The type of crashes is separated into six categories that reflect the type of objects involved and the angle of contact. These include:

- **Rear End:** These occur when a vehicle crashes into the one in front of it. They are often caused by distracted driving or failure to maintain a safe following distance.
- **Head-On:** These happen when the fronts of two vehicles hit each other. They are often severe and can occur when a driver crosses into oncoming traffic or goes the wrong direction on a road.
- **Sideswipe:** These involve a vehicle brushing against the side of another vehicle, often due to lane drifting or failure to check blind spots before changing lanes.
- **Angle:** These happen when two vehicles hit at an angle, often at intersections or when one vehicle fails to yield the right of way.
- **Fixed Object:** These single-vehicle crashes occur when a vehicle hits a non-moving object, like a tree or a pole.
- **Pedestrian/Bike**: These occur when a vehicle collides with a pedestrian or bicycle and can result in serious injuries or fatalities.

1.5.4 Pedestrian, Bicycle, and Transit Volume Methods

Pedestrian, bicycle, and transit volume data was obtained from the 2020 I-5 Lid Feasibility Study.

1.5.5 Freight Data Methods

Freight data was obtained from the City of Seattle Transportation Plan.

[5] https://wsdot.mycusthelp.com/WEBAPP/_rs/(S(tkzpbbpef0u3czex0aif5m2s))/SupportHome.aspx?sSessionID=

1.5.6 Walking/Rolling Conditions Methods

Pedestrian environment conditions were obtained from City GIS data, the City of Seattle Transportation Plan, aerial photography, and high-level field observations.

1.5.7 Bicycling Conditions Methods

Bicycling conditions were obtained from City GIS data, the City of Seattle Transportation Plan, aerial photography, and high-level field observations.

1.5.8 Transit Data Methods

Transit data, including pending bus route and service changes, were provided by Metro, Sound Transit, Community Transit, and City of Seattle staff.

1.5.9 Key Destinations Methods

Key destinations were obtained from the Seattle Department of Neighborhoods Landmarks Map and SpaceLab NW.

1.5.10 Emergency Access Methods

Emergency access connections were identified by City of Seattle staff.

2 Existing Transportation Conditions

The following sections include detailed information about existing transportation conditions for each study ramp area, listed from south to north.

2.1 6th Avenue On-Ramp

The 6th Avenue on-ramp is located near the intersection of Yesler Way and 6th Avenue (Figure 5). The left lane of southbound 6th Avenue diverges south of Jefferson Street to merge with I-5 (Figure 6). The ramp is one lane and not metered. 6th Avenue continues southbound as a single lane and widens to two lanes, where it meets Yesler Way. The nearest southbound on-ramps are Spring Street, approximately 0.5 miles to the north, and I-90, approximately 0.75 miles to the south.

Figure 5. 6th Ave. On-Ramp Study Area

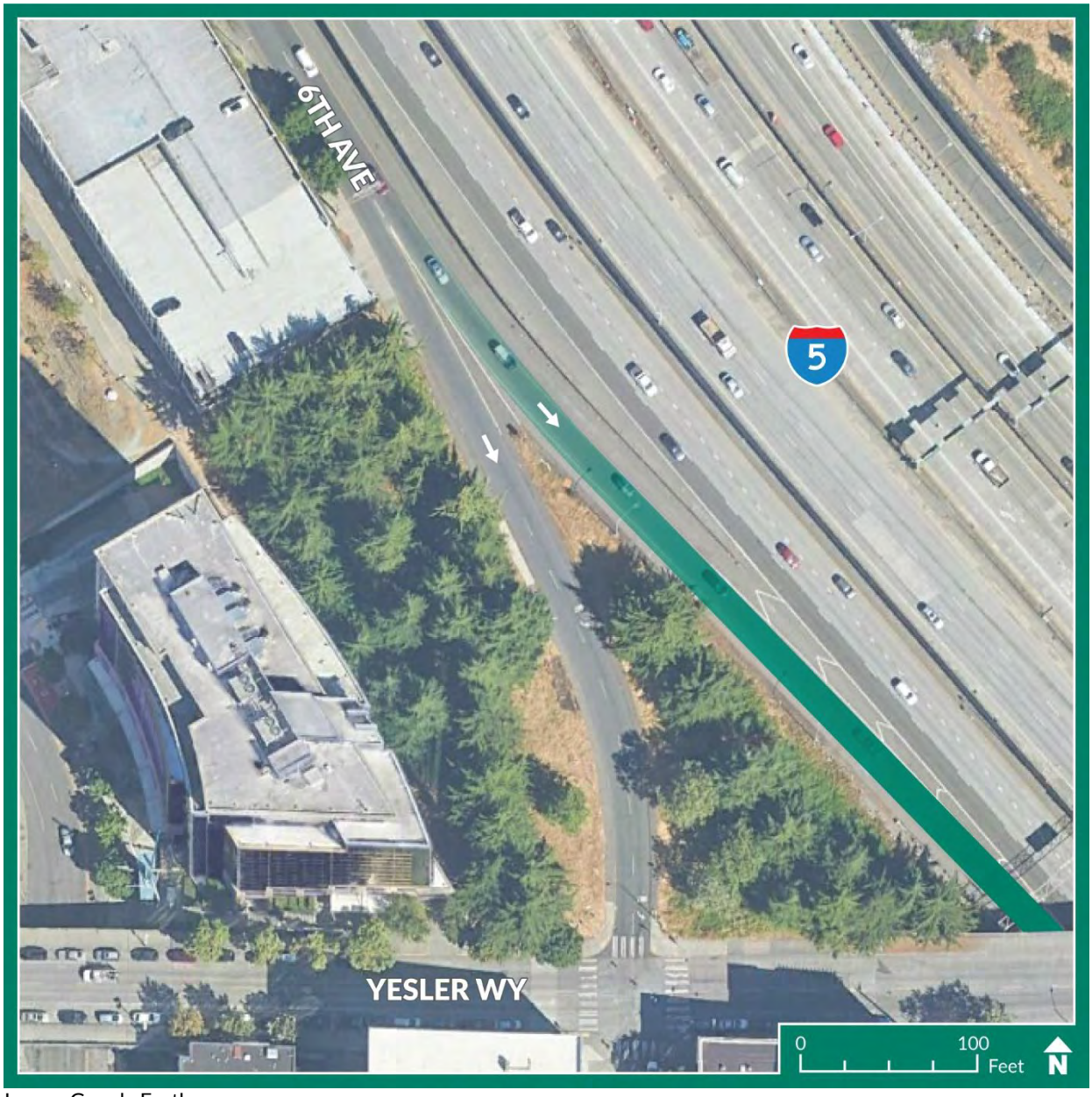


Image: Google Earth

Figure 6. 6th Ave. On-Ramp Entrance, Looking South

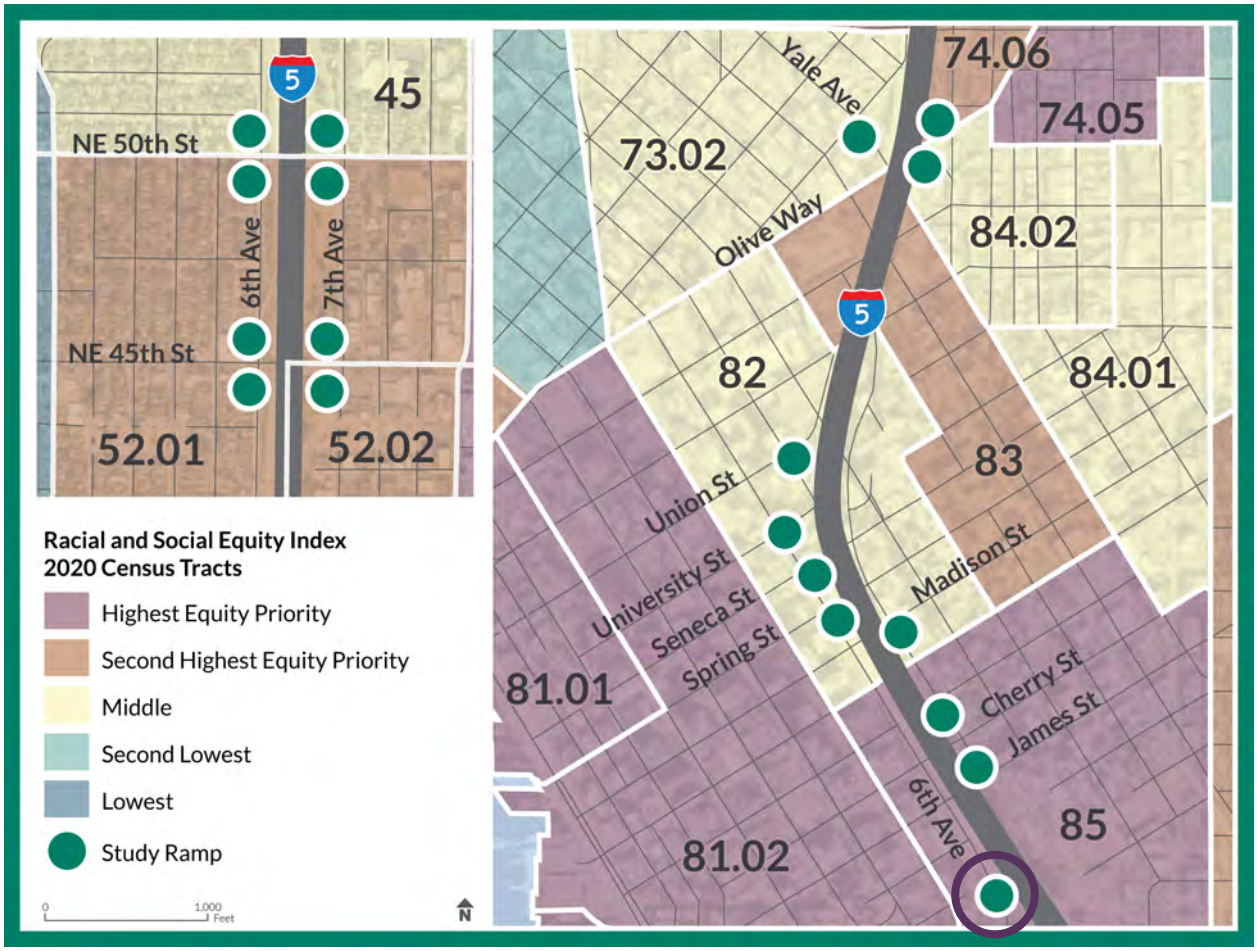
Source: 2024 Google

Sidewalks, marked crossings, curb ramps, and frequent east-west and north-south transit services are typically present around the 6th Avenue on-ramp. East-west bicycle facilities are present on Yesler Way, and northbound facilities are present on 5th Avenue. Specific characteristics of the 6th Avenue on-ramp study area are addressed in the following sections.

2.1.1 Equity and Demographic Composition

The area around the 6th Avenue on-ramp is rated by the RSEI as Highest Equity Priority (Figure 7).

Figure 7. City of Seattle's Race and Social Equity Index Snapshot – 6th Ave. On-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the 6th Avenue on-ramp is generally within Census Tract 85, which includes approximately 111 acres bordering 5th Avenue to the west, Yesler Way to the south, Broadway to the east, and Marion Street to the north. Table 2 provides details about this Census Tract and its relationship to the City.

Census Tract 85 is almost twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and less affluent than the City as a whole. Rents are lower than the City average, and the proportion of renters is higher; however, renters are less burdened (30% or more of income spent on housing). Census Tract 85 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

Table 2. Demographic Comparison: Census Tract 85

Demographic	Census Tract 85	Seattle
Population	4,314	734,471
Occupied Housing Units	1,932	345,184
Average Household Size	2.23	2.13
Density (People/Acre)	38.7	13.7
Density (Housing/Acre)	22.5	6.9
Female	35%	49%
Male	65%	51%
People of Color	48%	39%
Hispanic or Latino	10.5%	7.5%
Median Age	32.7	36.5
Under 18	6%	14%
65 and Over	17%	13%
Median Household Income	$71,875	$120,338
Per Capita Income	$48,932	$77,630
Unemployed	3.6%	4.2%
% Below 200% Poverty	36%	18%
Renter Households	89%	56%
Median Gross Rent	$1,661	$1,968
Burdened Renters	38%	44%
Speak a Language Other than English	24%	23%
Bachelor's Degree or Higher	43%	67%
Population with a Disability	19%	10%
Households Without a Vehicle	44%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.1.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and curb ramps that are compliant with the Americans with Disabilities Act (ADA) are typically present around the 6th Avenue on-ramp (Figure 8). 5th Avenue is the primary north-south bicycle route through this area of Downtown. Specific gaps and other aspects of these networks are addressed later in this section.

Figure 8. Existing Bicycle and Pedestrian Facilities Near 6th Ave. On-Ramp

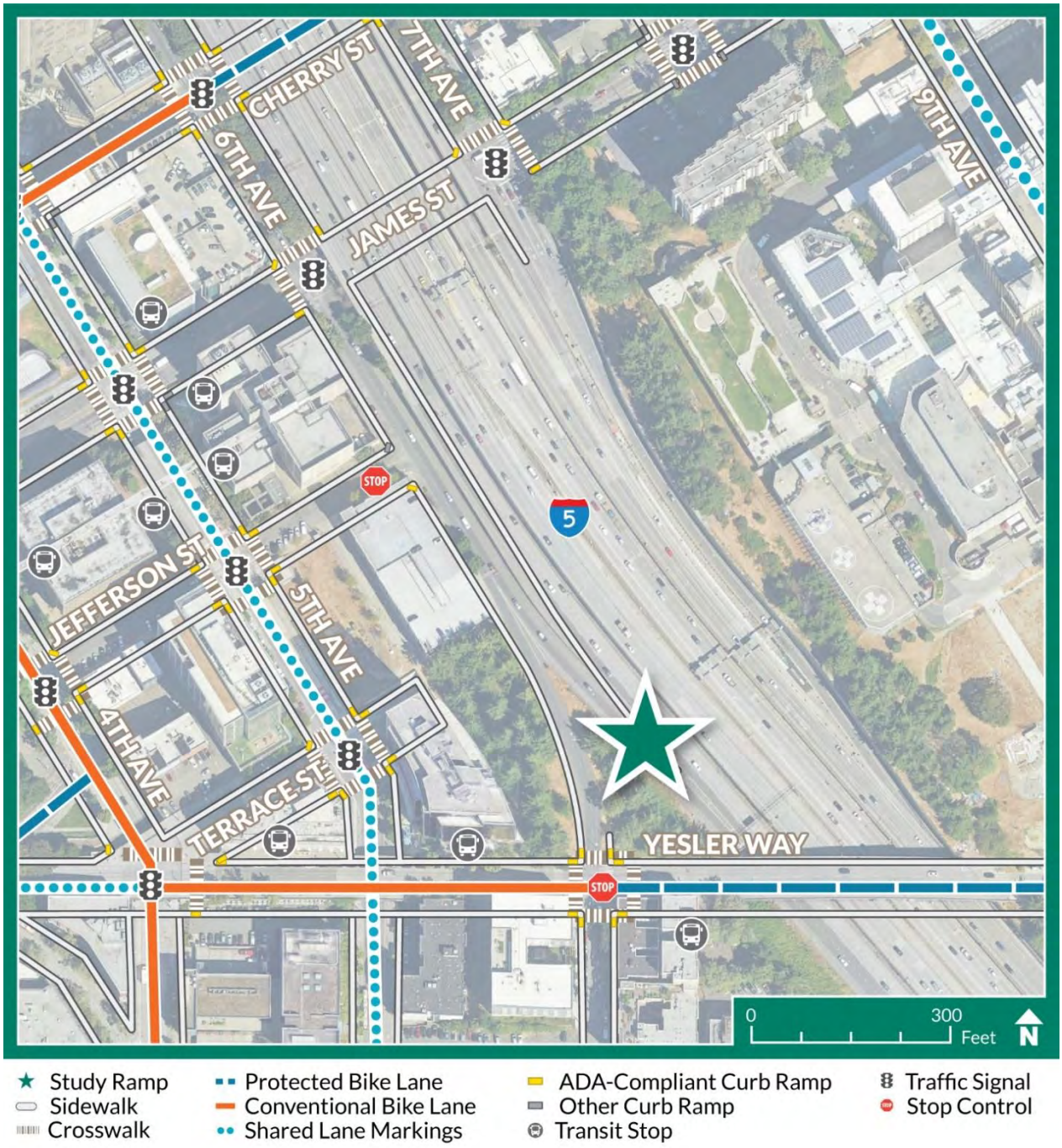


Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the 6th Avenue on-ramp features sidewalks that are approximately 6 to 14 feet wide. Sidewalks are widest on the east side of 6th Avenue between Jefferson Street and the on-ramp and narrowest on both sides of 6th Avenue between the on-ramp and Yesler Way. Sidewalks are present on all blocks except the east side of 6th Avenue, north of Yesler Way.

Crosswalks

Most crossings feature signal-controlled, twin-stripe continental crosswalks (Figure 9). The exceptions include:

- The west side of 6th Avenue crosses Jefferson Street, which is uncontrolled and unmarked (Figure 10).
- The intersection of Yesler Way and 6th Avenue is stop-controlled with marked crosswalks.

Crossing distances range from 20 to 50 feet.

Figure 9. Marked, Stop-Controlled Intersection of Yesler Way and 6th Ave., Looking West

Source: 2024 Google

Figure 10. Unmarked Crossing, 6th Ave. at Jefferson St., Looking Southwest

Source: 2024 Google

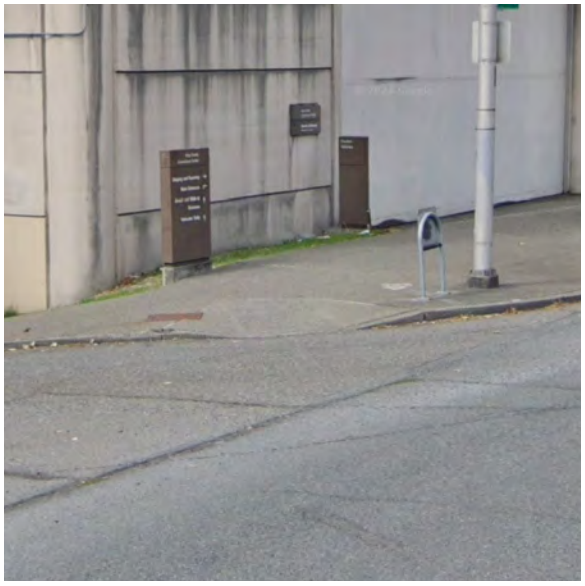
Curb Ramps

Most crossings near the 6th Avenue on-ramp feature curb ramps, although the type and orientation vary. The orientation of some curb ramps is in line with the crosswalk, while others are angled toward the center of the intersection. Some ramps are ADA-compliant (Figure 11), while others are non-compliant (Figure 12).

Figure 11. ADA-Compliant Curb Ramp at Yesler Way and 6th Ave.

Source: 2024 Google

Figure 12. Non-ADA-Compliant Curb Ramp at Jefferson St and 6th Ave.



Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the 6th Avenue on-ramp features north-south bicycle facilities on 5th Avenue and 4th Avenue (Figure 13) and east-west bicycle facilities on Yesler Way (Figure 15). 4th Avenue is part of the Center City Bike Network, featuring a two-way protected bike lane north of Jefferson Street. All street segments near the 6th Avenue on-ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High[6]. Specific bicycle facilities are listed below:

Protected Bike Lanes

- 4th Avenue north of Jefferson Street

Conventional Bike Lanes

- Yesler Way eastbound, west of 6th Avenue
- Yesler Way westbound east of 6th Avenue
- 4th Avenue south of Jefferson Street

Shared Lane Markings

- 5th Avenue (Figure 15)

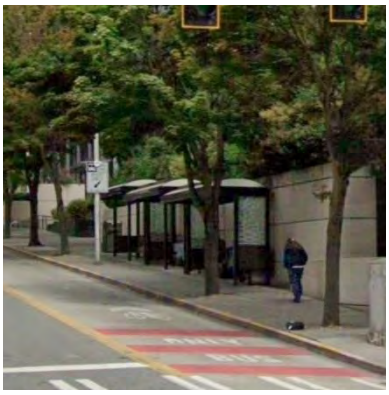
Figure 13. Protected Bike Lane on 4th Ave. at Jefferson St., Looking Northwest

Source: 2024 Google

Figure 14. Conventional Bike Lane on Yesler Way at 6th Ave. Looking Southwest

Source: 2024 Google

Figure 15. Shared Lane Markings on 5th Ave. Looking Northwest



Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on 4th Avenue and 5th Avenue[7].

[6] Bicycle Level of Traffic Stress - Transportation | seattle.gov

[7] Bicycle Master Plan - Transportation | seattle.gov

2.1.3 Transit Conditions

The area around the 6th Avenue on-ramp features a range of route types with varying frequencies (Figure 16). Several frequent north-south Metro and Sound Transit lines run along 5th Avenue. Frequent east-west frequent service runs on James Street. Less frequent east-west service runs on Yesler Way. Several transit stops are present near the 6th Avenue on-ramp. The sections below describe the existing transit network in greater detail.

Figure 16. Existing Transit Network Near 6th Ave. On-Ramp

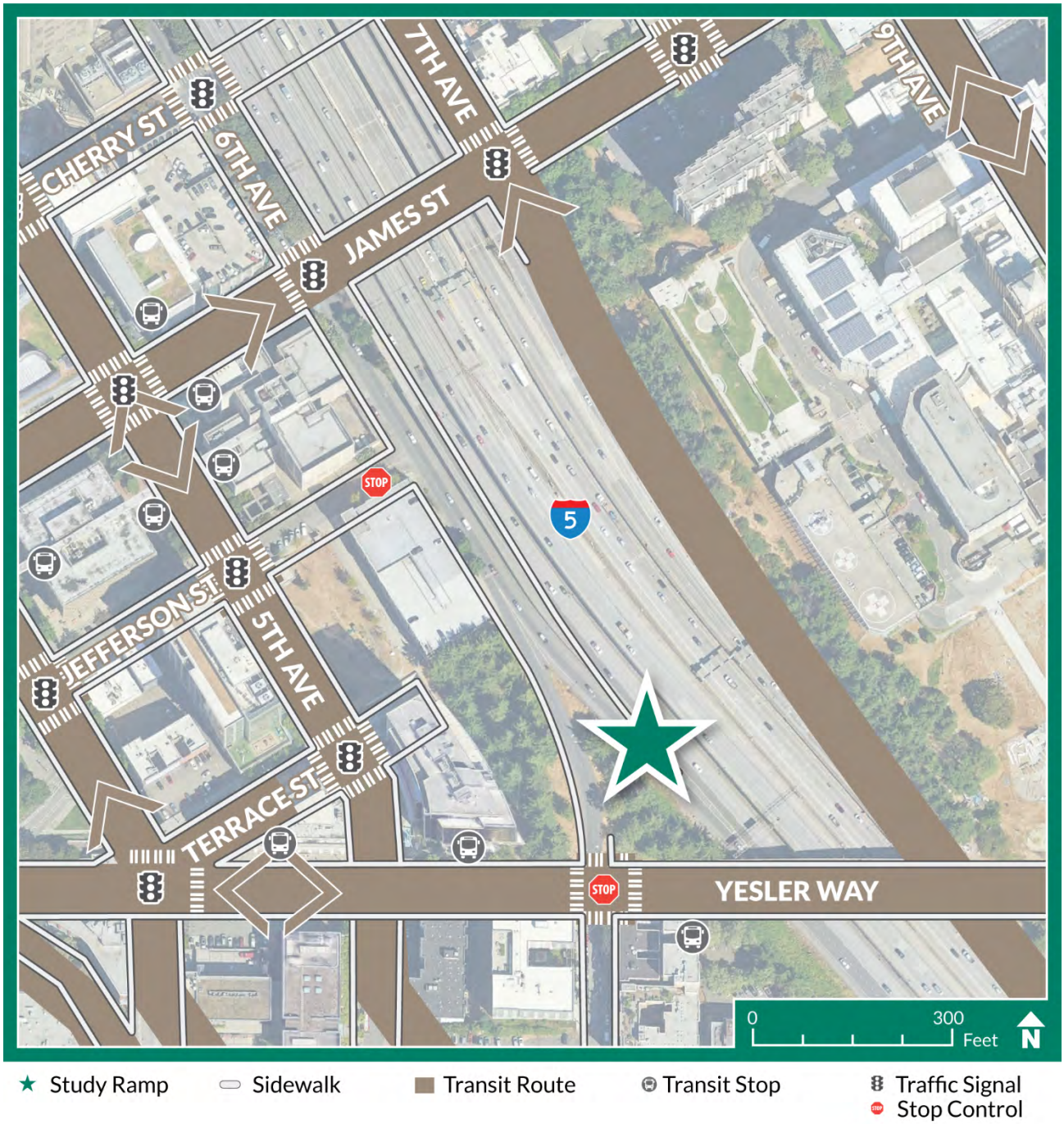


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Several Metro Lines provide service to streets near the 6th Avenue on-ramp, including James Street, Yesler Way, and 5th Avenue. Three Sound Transit Lines and six Community Transit Lines run along 5th Avenue. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the 6th Avenue on-ramp include:

- Yesler Way at 5th Avenue serving Metro Line 27.
- Terrace Street at 5th Avenue serving Metro D Line and Community Transit Lines 412, 413, 416, 421, 425, and 435.
- 5th Avenue at Jefferson Street serving Metro Lines 257, 311, and the DART 630; Sound Transit Lines 510, 545; and Community Transit Lines 412, 413, 416, 421, 425, and 435.
- James Street at 5th Avenue serving Metro Lines 3 and 4.

Existing Headways and Span-of-Service

Frequent transit service near the 6th Avenue on-ramp includes north-south Sound Transit Lines 510, 545, and 550 that generally travel on 5th Avenue southbound in the morning and northbound in the early evening with headways of 15 minutes or less during peak hours. Metro Lines 3 and 4 travel east-west along James Street with headways of 10 minutes or less during peak hours. Metro RapidRide D Line accesses Terrace Street to return northbound on 3rd Avenue, with headways at the Terrace Street stop of 10 minutes or less during peak hours.

Other transit service near the 6th Avenue on-ramp includes east-west Metro Line 27, which runs on Yesler Way from the early morning until evening with headways of approximately 30 minutes in the westbound direction and 15 minutes or less in the eastbound direction during peak hours. Several Community Transit Lines travel southbound on 5th Avenue from in the morning with headways of 15 to 40 minutes. Northbound return trips for these lines travel eastbound on Terrace Street and northbound on 5th Avenue from the afternoon to the evening, with headways of 15 to 40 minutes.

Table 3 lists specific service spans and headways as of June 2024.

Table 3. Existing Transit Headways, Span-of-Service, and Days of Service Near 6th Ave. On-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
3 SB	4:34 AM	3:48 AM	8-60	Yes
3 NB	3:59 AM	4:18 AM	7-60	Yes
4 SB	6:01 AM	1:48 AM	5-30	Yes
4 NB	5:05 AM	1:17 AM	7-30	Yes
27 EB	5:30 AM	9:21 PM	12-31	Yes
27 WB	5:53 AM	9:07 PM	29-32	Yes
DART 630 WB	6:00 AM	8:45 AM	40	No
DART 630 EB	4:00 PM	6:30 PM	35	No
DART D Line SB	5:00 AM	4:30 AM	10-60	Yes
DART D Line NB	4:00 AM	3:40 AM	8-60	Yes
987 NB	6:45 AM	8:05 AM	20	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	20	No
510 NB	2:30 PM	7:45 PM	10-20	No
545 EB	5:04 AM	12:35 AM	10-60	Yes
545 WB	4:27 AM	12:05 AM	10-60	Yes
550 EB	5:00 AM	12:58 AM	15-30	Yes
550 WB	4:54 AM	12:51 AM	15-30	Yes
Community Transit				
412 SB	5:00 AM	9:06 AM	30-65	No
412 NB	2:40 PM	6:53 PM	42-50	No
413 SB	5:05 AM	9:57 AM	15-50	No
413 NB	2:05 PM	7:25 PM	11-55	No
416 SB	5:45 AM	8:44 AM	35-40	No
416 NB	3:20 PM	6:43 PM	43-51	No
421 SB	4:35 AM	8:54 AM	35	No
421 NB	2:35 PM	7:06 PM	20-65	No
425 SB	4:35 AM	8:54 AM	35	No
425 NB	2:35 PM	7:06 PM	20-65	No
435 SB	5:35 AM	8:59 AM	40-45	No

Line	Begin	End	Headway (Minutes)	Weekend Service
435 NB	3:35 PM	6:50 PM	40-45	No

NB = Northbound, SB = Southbound

Planned Transit Improvements

The Seattle Transit Master Plan[8] identifies Yesler Way as part of Priority Bus Corridor 7, connecting Downtown Seattle and the Madrona neighborhood. A Priority Bus Corridor could include features like transit-only lanes, electrification, in-lane bus stops, and improved pedestrian facilities. The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the 6th Avenue on-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[9].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[8] https://www.seattle.gov/transportation/document-library/citywide-plans/modal-plans/transit-master-plan

[9] Ballard Link Extension | Project map and summary | Sound Transit

2.1.4 Key Destinations

Several destinations are located near the 6th Avenue on-ramp (Figure 17). Civic locations include the King County Administration Building, King County Adult Detention, King County Chinook Building, and Seattle's Passport Agency. Several recreational and cultural landmarks are nearby, including the Nippon Kan Theater, Goat Hill Park, and the historic Yesler Building. People use the ramp to access medical facilities, Downtown Seattle, and the Duwamish neighborhood.

Figure 17. Key Destinations Near 6th Ave. On-Ramp

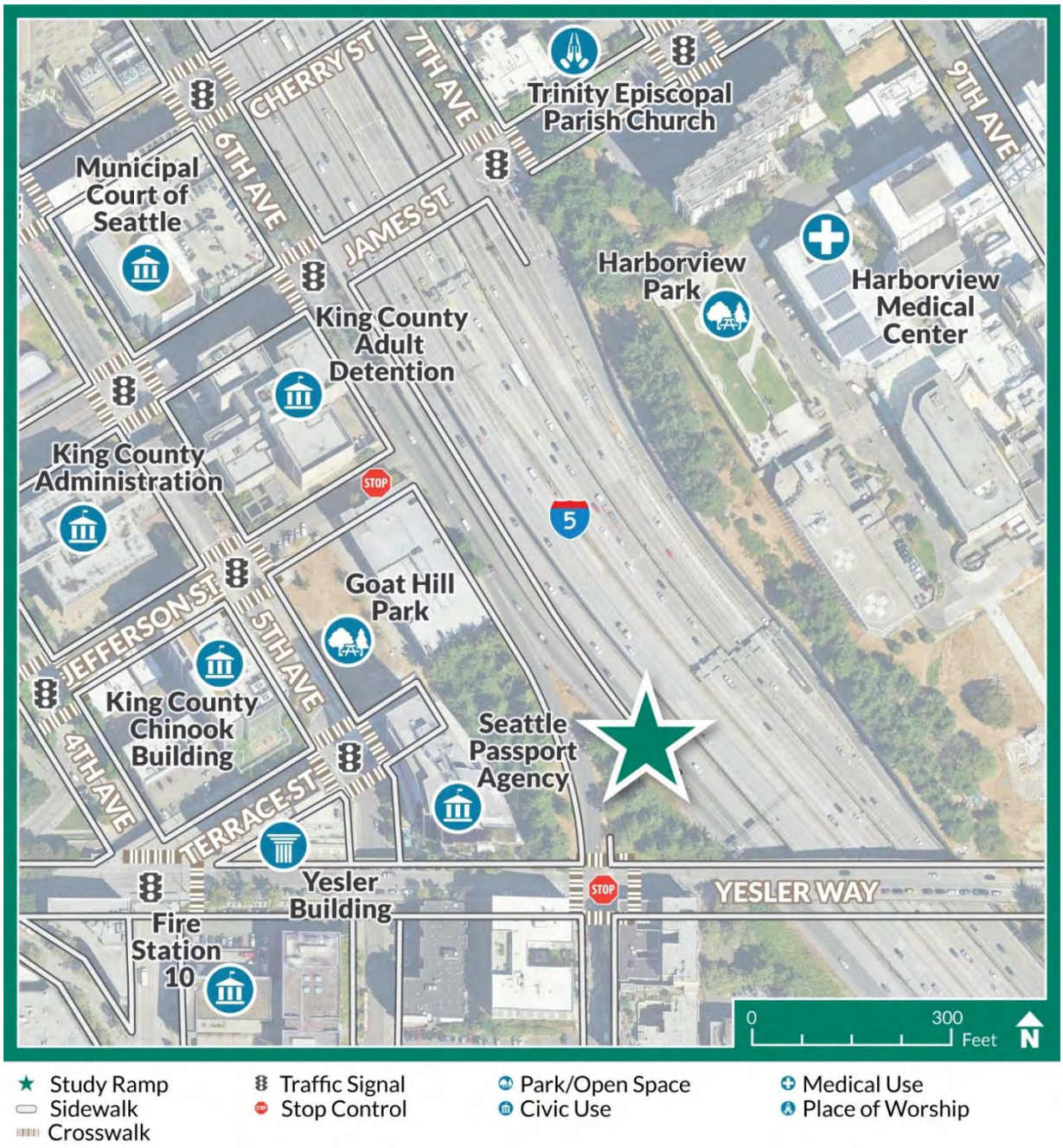


Image: Google Earth
Data: City of Seattle

2.1.5 Emergency Access

Harborview Medical Center is located near James Street across I-5 from the 6th Avenue on-ramp. James Street is the most common access point between the Harborview Medical Center and I-5. Hospital traffic, including emergency vehicles, access James Street from multiple directions, including southbound traffic exiting at Marion Street, southbound traffic entering via 6th Avenue, northbound traffic entering at Cherry Street, and northbound traffic exiting at James Street.

Figure 18. Harborview Medical Center I-5 Access Near 6th Ave. On-Ramp

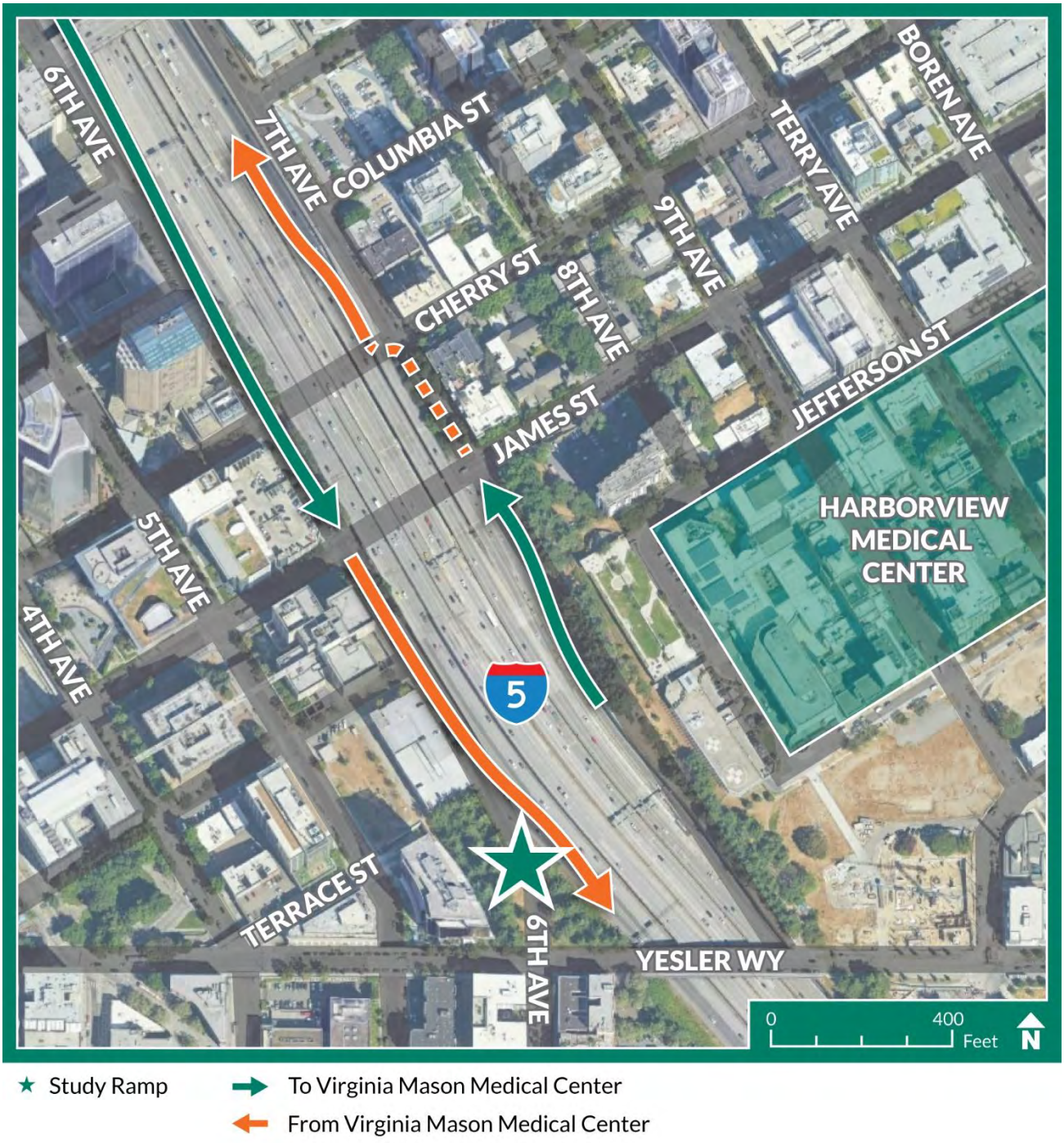


Image: Google Earth

2.1.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic counts were retrieved from the WSDOT 2022 Ramp and Roadway Traffic Volume Report. AM and PM peaks correspond to 60-minute periods of highest average traffic volumes, generally from 7:00 to 8:00 AM and from 5:00 to 6:00 PM, respectively. Table 4 shows that average weekday (AWD) volumes for the 6th Avenue on-ramp include 21,450 daily trips, the highest of all Downtown segment ramps. AM peak hour volume is 60% of the maximum theoretical capacity, and PM peak hour volume is 108% of the maximum theoretical capacity.

Table 4. Average Weekday Volumes for 6th Ave. On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	1,080	60%
On-Ramp	PM	1,940	108%
On-Ramp	AWD	21,450	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

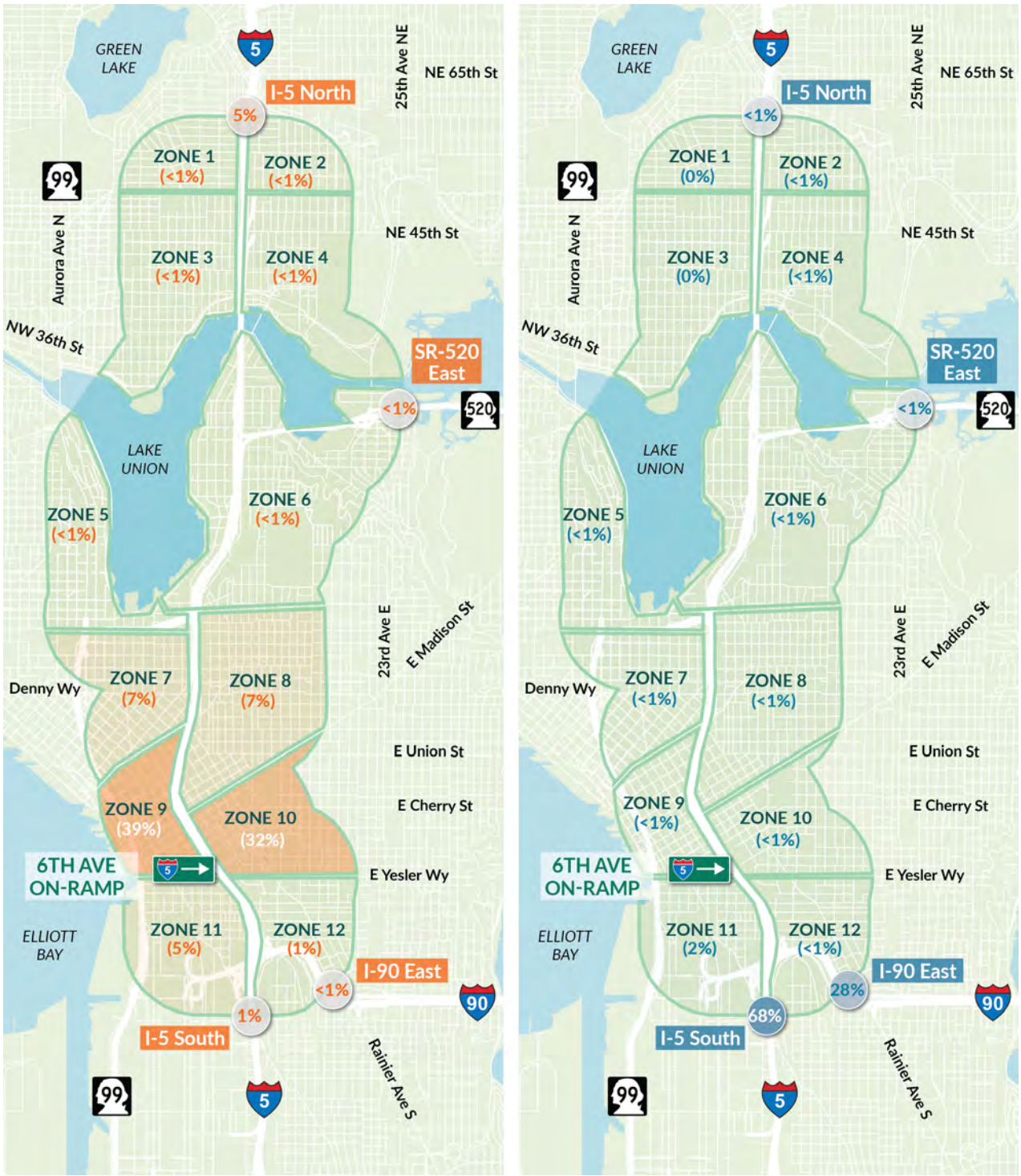
The 6th Avenue on-ramp is located within Zone 9. Figure 19 shows the traffic volumes traveling between Zone 9 and the other study area zones. The highest volumes traveling to and from Zone 9 are from Zones 7, 11, and 10 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 19. Origin and Destination Trips to and from Zone 9, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 20 shows a subset of trips between Zone 9 and other study area zones that access the 6th Street on-ramp; specifically, 39% of trips that access the 6th Avenue on-ramp within Zone 9 have origins within Zone 9, and 32% have origins within Zone 10. 68% of trips that access the 6th Avenue on-ramp have destinations south of the study area, and 27% have destinations east of the study area.

Figure 20. Origin and Destination Trips to and from 6th Ave. On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 21 shows the routes and relative volumes for traffic traveling from the 6th Avenue on-ramp. Most trips that access the ramp travel south beyond the study area via I-5 or east beyond the study area via I-90.

Figure 21. Trip Routes from 6th Ave. On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

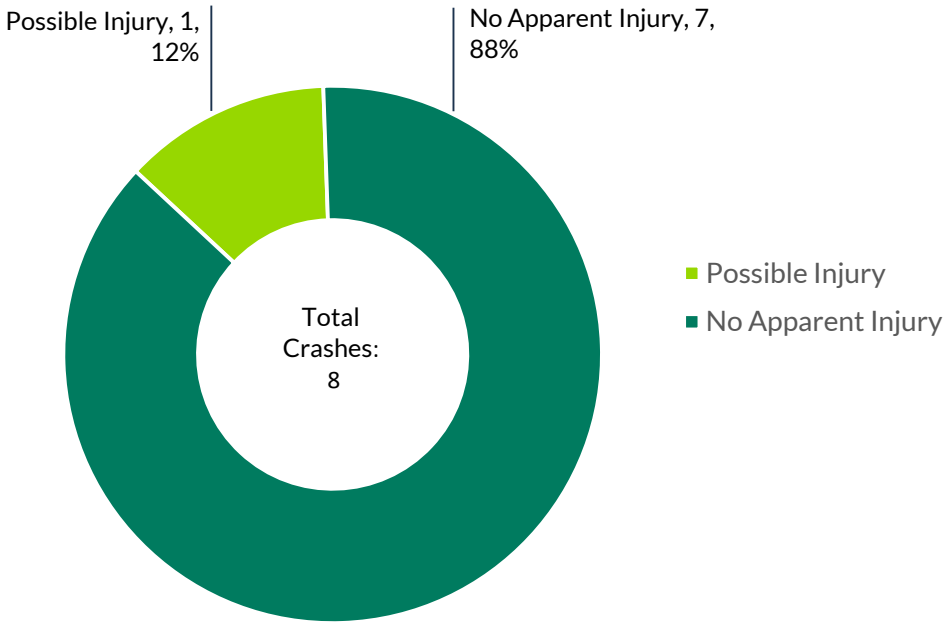
2.1.7 Safety

The crash data reviewed for this study was generated for the 5-year period spanning January 2019 through December 2023 and retrieved from the WSDOT Disclosure Request Center. This section combines crash data for cars and trucks. There were eight reported crashes within 200 feet of the 6th Avenue on-ramp during the period.

Crash Severity

Figure 22 shows that most crashes reported near the 6th Avenue on-ramp during the study period reported no apparent injury (88%).

Figure 22. Crash Severity, 6th Ave. On-Ramp Study Area, Jan. 2019 through Dec. 2023

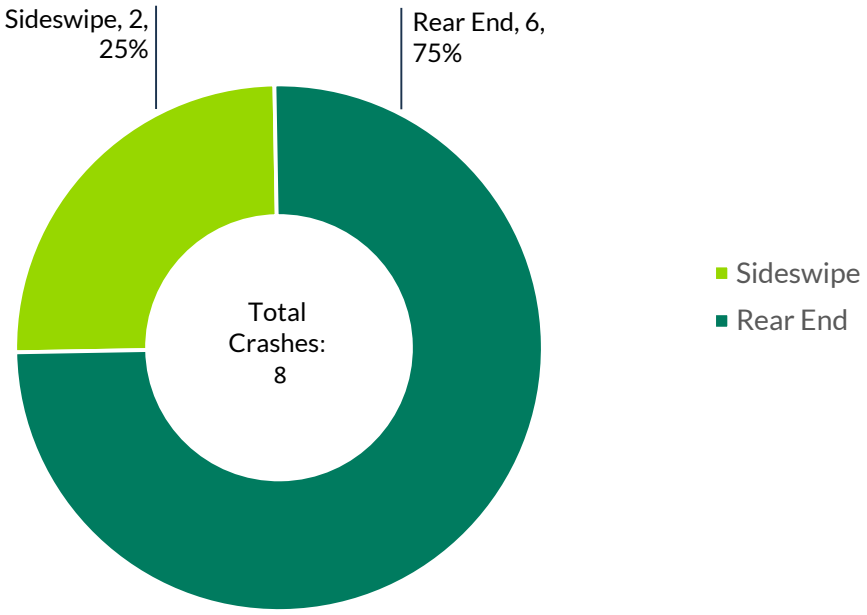


Data: WSDOT

Crash Type

Figure 23 shows that most reported crashes near the 6th Avenue on-ramp during the study period were rear end (75%), and the remaining crashes were sideswipe (25%).

Figure 23. Crash Type, 6th Ave. On-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.2 James Street Off-Ramp

The James Street northbound off-ramp is located at the intersection of James Street and 7th Avenue (Figure 24). The ramp is one lane until it approaches James Street, where it splits into three. Traffic can either continue northbound along 7th Avenue or make eastbound or westbound turns onto James Street (Figure 25). The nearest northbound off-ramps are Madison Street, approximately 0.25 miles to the north, and I-90, approximately 2.0 miles to the south.

Figure 24 James St. Off-Ramp Study Area

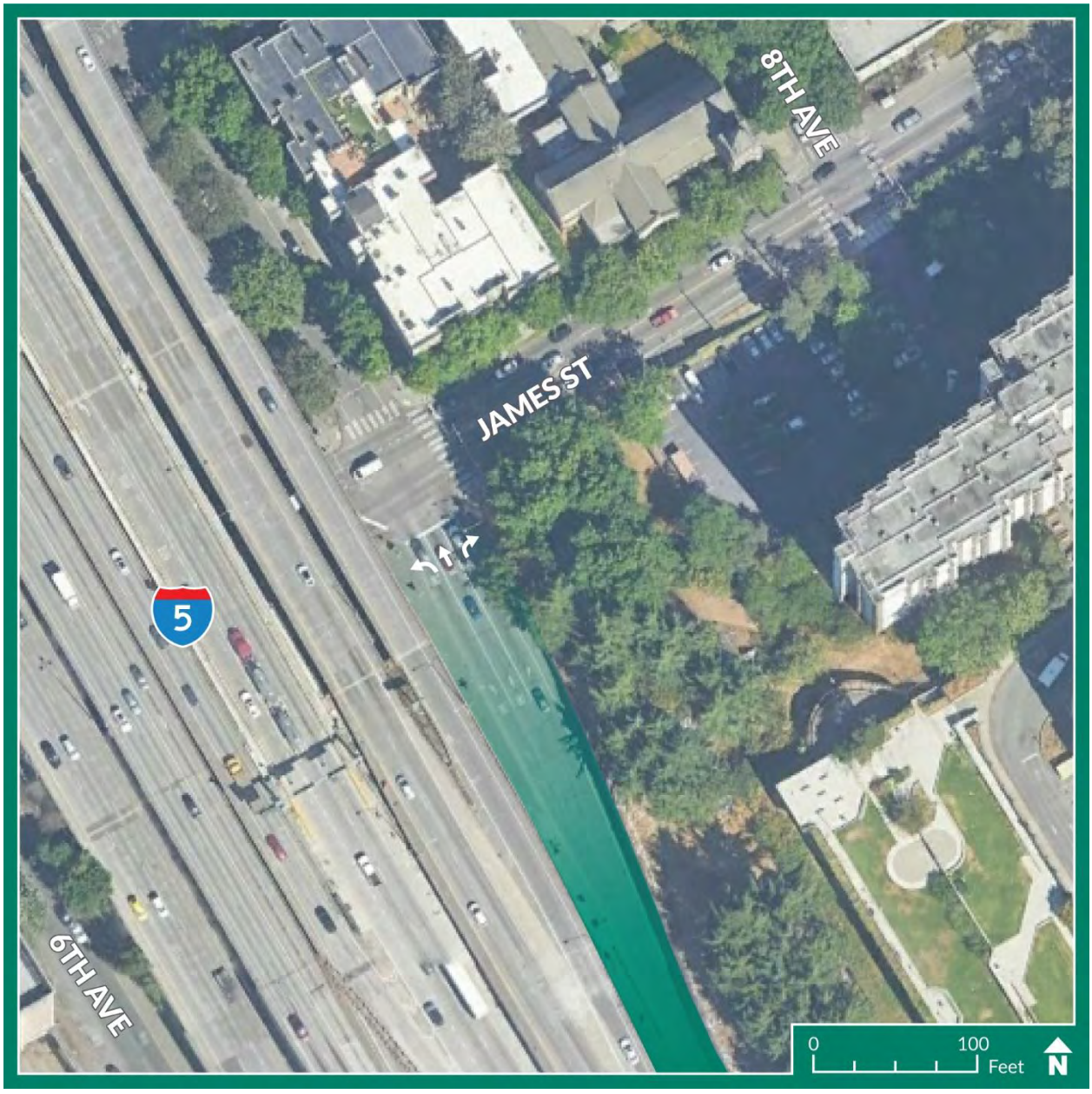


Image: Google Earth

Figure 25 James St. Off-Ramp Terminal, Looking South

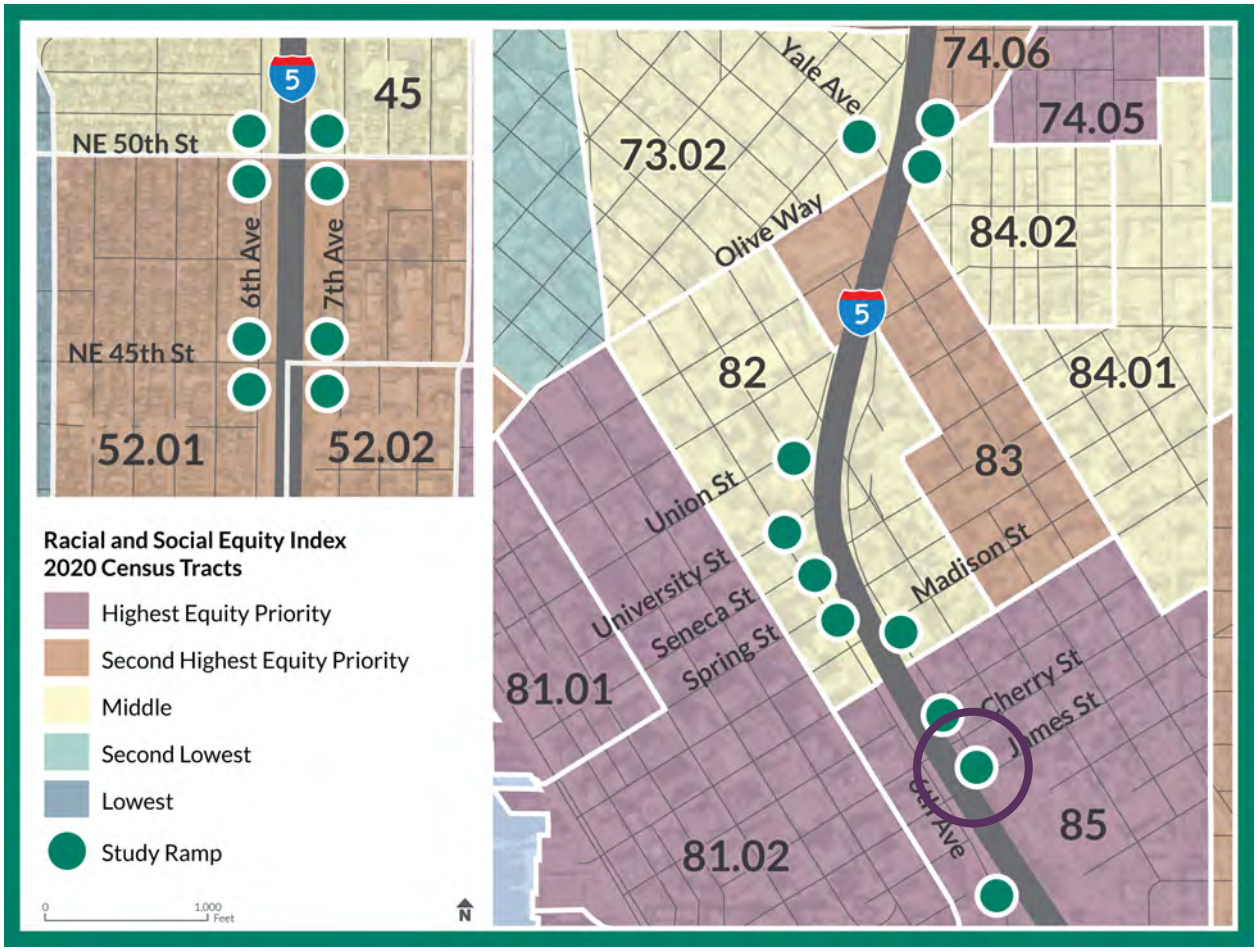
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the James Street off-ramp, although there is one sidewalk gap on 7th Avenue north of Cherry Street. North-south bicycle facilities are present on 9th Avenue and 7th Avenue, and east-west bicycle facilities are present on Cherry Street. Frequent east-west transit service is present on James Street, and frequent north-south transit service is present on 5th Avenue and 9th Avenue. Specific features of the James Street off-ramp study area are discussed in the following sections.

2.2.1 Equity and Demographic Composition

The area around the James Street off-ramp is rated by the RSEI as Highest Equity Priority (Figure 26).

Figure 26. City of Seattle's Race and Social Equity Index Snapshot – James St. Off-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the James Street off-ramp is generally within Census Tract 85, which includes approximately 111 acres bordering 5th Avenue to the west, Yesler Way to the south, Broadway to the east, and Marion Street to the north. Details about this Census Tract and its relationship to the City are provided in Table 2 in Section 2.1.1.

Census Tract 85 is almost twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and less affluent than the City as a whole. Rents are lower than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 85 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.2.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the James Street off-ramp (Figure 27). The two primary north-south bicycle facilities in this area of Downtown are 9th and 7th Avenues. Cherry Street is the primary east-west bicycle facility west of 7th Avenue. Specific gaps and other aspects of these networks are addressed later in this section.

Figure 27. Existing Bicycle and Pedestrian Facilities Near James St. Off-Ramp

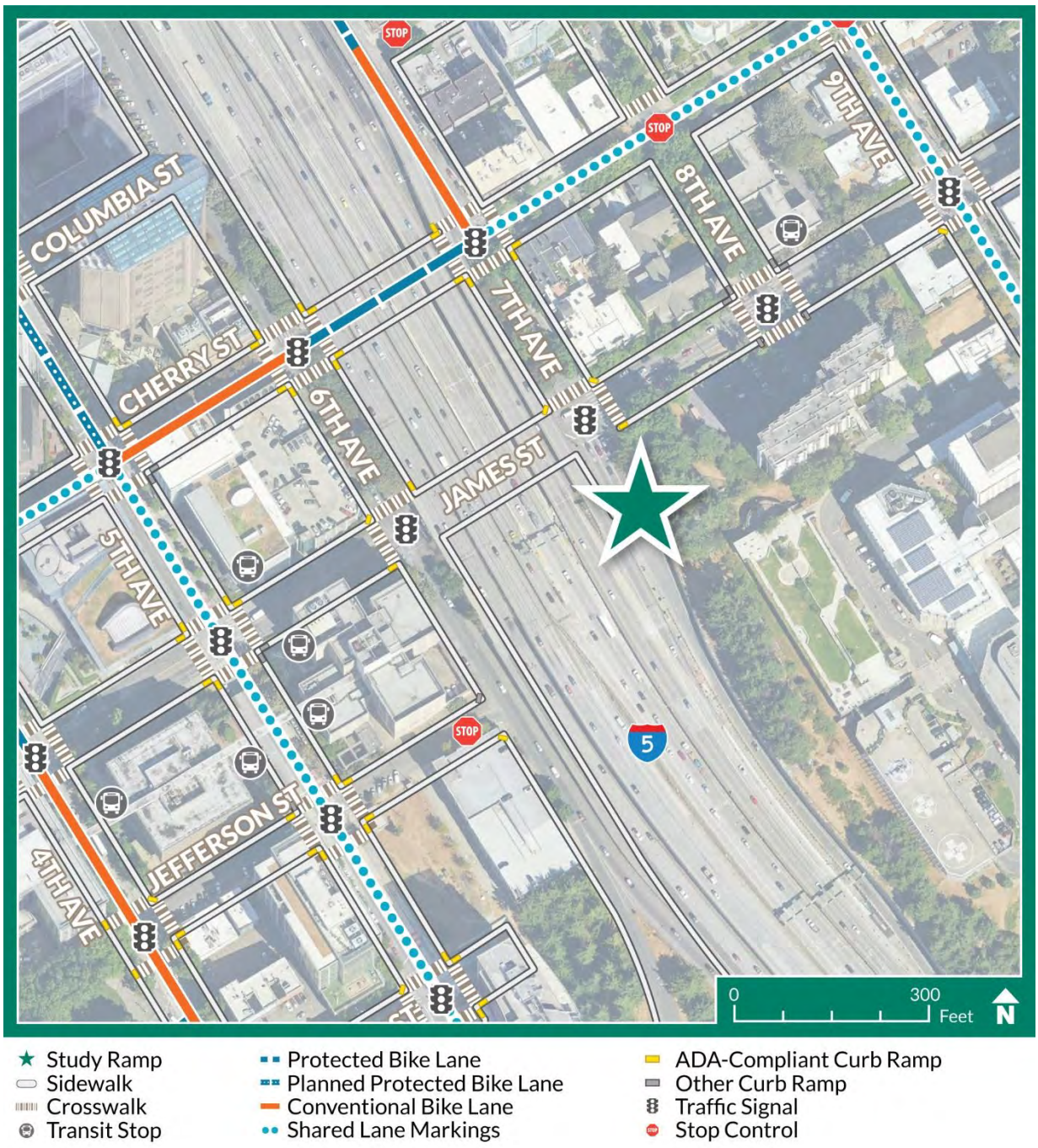


Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the James Street off-ramp features sidewalks that are approximately 6 to 10 feet wide. Sidewalks are widest on the west side of 8th Avenue north of James Street and narrowest on the east side of 9th Avenue between James and Cherry Streets. Sidewalks are present on all blocks except for the west side of 7th Avenue north of Cherry Street and the east side of 6th Avenue north of Columbia Street.

Crosswalks

Most crossings in the area near the James Street off-ramp feature signal-controlled, twin-stripe continental crosswalks (Figure 28). The intersection of 9th Avenue and Cherry Street is stop-controlled with twin-stripe continental crosswalks (Figure 29). Multiple crossings are unmarked or closed where James Street intersects 6th Avenue and 7th Avenue (Figure 30). Crossing distances in the area range from 30 to 60 feet long.

Figure 28. Marked Crossings, 7th Ave. and Cherry St., Looking North

Source: 2024 Google

Figure 29. Four-Way Stop at 9th Ave. and Cherry St., Looking East

Source: 2024 Google

Figure 30. Closed Crosswalk, James St. and 6th Ave., Looking East

Source: 2024 Google

Curb Ramps

All crossings near the James Street off-ramp feature curb ramps, although the type and orientation vary. Most curb ramps are in line with the crosswalk, while some are oriented towards the center of the intersection. Most curb ramps are ADA-compliant (Figure 31), while others are not compliant (Figure 32).

Figure 31. ADA-Compliant Curb Ramp, 8th Ave. and Cherry St.

Source: 2024 Google

Figure 32. Non-ADA-Compliant Curb Ramp, James St., and 8th Ave.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the James Street off-ramp features north-south facilities on 5th Avenue, 7th Avenue north of Cherry Street, and 9th Avenue. East-west facilities are present on Cherry Street, west of 7th Avenue. All street segments near the James Street off-ramp have Bicycle Level of Traffic Stress ratings from Medium to High except for 8th Avenue between James and Madison Streets, which has a rating of Medium-Low[10]. Specific bike facilities are listed below:

Protected Bike Lanes

- Cherry Street between 6th Avenue and 7th Avenue
- 7th Avenue north of Columbia Street (Figure 33)

Conventional Bike Lanes

- Cherry Street east of 6th Avenue
- 7th Avenue between Columbia Street and Cherry Street (Figure 34)

Shared Lane Markings

- 5th Avenue

[10] Bicycle Level of Traffic Stress - Transportation | seattle.gov

- 9th Avenue, two directions (Figure 35)

Figure 33. Protected Bike Lane on 7th Ave. North of Columbia St., Looking North

Source: 2024 Google

Figure 34. Conventional Bike Lane, 7th Ave. at Cherry St., Looking North

Source: 2024 Google

Figure 35. Shared Lane Markings on 9th Ave., Looking North

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on 4th Avenue and 5th Avenue[11].

[11] Bicycle Master Plan - Transportation | seattle.gov

2.2.3 Transit Conditions

The area around the James Street off-ramp features several transit routes with a range of route types and varying frequencies (Figure 36). Metro Line 987 exits I-5 at the ramp and continues north on 7th Avenue. Metro runs several frequent transit lines east-west along James Street and north-south along 5th and 9th Avenues. Community Transit runs less frequent lines north-south along 5th Avenue (Table 5). The sections below describe the existing transit network in greater detail.

Figure 36. Existing Transit Network Near James St. Off-Ramp

Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Eight Metro Lines provide service near the James Street off-ramp, including James Street and 5th Avenue. Six Community Transit Lines also run along 5th Avenue. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the James Street off-ramp include:

- 9th Avenue at Jefferson Street serving Metro Lines 3, 4, 60, 193, 302, 303, and 322.
- James Street at 8th Avenue serving Metro Lines 3 and 4.
- 5th Avenue at James Street serving Metro Lines 3, 4, 257, 302, 303, 311, and 322 and Community Transit Lines 412, 413, 416, 421, 425, and 435.

Existing Headways and Span-of-Service

Frequent transit service near the James Street off-ramp includes Metro Lines providing east-west service along James Street and north-south service along 9th Avenue and 5th Avenue, most with headways of 10 minutes or less during peak hours. Some lines operate 24 hours a day, seven days a week.

Other transit service near the James Street off-ramp include Community Transit Lines that run along 5th Avenue early in the morning and evening with approximately 30-minute headways.

Table 5 lists specific service spans and headways as of June 2024.

Table 5. Existing Transit Headways, Span-of-Service, and Days of Service Near James St. Off-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
3 SB	4:35 AM	3:50 AM	8-60	Yes
3 NB	4:00 AM	4:15 AM	7-60	Yes
4 SB	6:00 AM	1:50 AM	5-30	Yes
4 NB	5:05 AM	1:15 AM	7-30	Yes
60 SB	6:05 AM	1:00 AM	10-35	Yes
60 NB	4:15 AM	11:35 PM	12-40	Yes
193 SB	3:10 PM	8:35 PM	20-90	No
193 NB	5:20 AM	9:00 AM	10-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
302 SB	5:30 AM	8:45 AM	15-20	No
302 NB	3:30 PM	8:30 PM	20-50	No
303 SB	5:30 AM	8:45 AM	15-20	No
303 NB	3:30 PM	8:30 PM	20-50	No
322 SB	5:45 AM	9:45 AM	30	No
322 NB	4:00 PM	8:30 PM	15-30	No
987 NB	6:45 AM	8:05 AM	20	No
Community Transit				
412 SB	5:00 AM	9:06 AM	30-65	No
412 NB	2:40 PM	6:53 PM	42-50	No
413 SB	5:05 AM	9:57 AM	15-50	No
413 NB	2:05 PM	7:25 PM	11-55	No
416 SB	5:45 AM	8:44 AM	35-40	No
416 NB	3:20 PM	6:43 PM	43-51	No
421 SB	4:35 AM	8:54 AM	35	No
421 NB	2:35 PM	7:06 PM	20-65	No
425 SB	4:35 AM	8:54 AM	35	No
425 NB	2:35 PM	7:06 PM	20-65	No
435 SB	5:35 AM	8:59 AM	40-45	No
435 NB	3:35 PM	6:50 PM	40-45	No

NB = Northbound, SB = Southbound

Planned Transit Improvements

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the James Street off-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[12].

The transit route using the James Street off-ramp (Metro Line 987) will see significantly reduced service, and routes using 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[12] Ballard Link Extension | Project map and summary | Sound Transit

2.2.4 Key Destinations

Several destinations are located near the James Street off-ramp (Figure 37). There are several civic organizations, such as the Municipal Court of Seattle, King County Adult Detention, and the King County Administration Building. There are two medical facilities, Skyline Health Services and Harborview Medical Center; one public space, Harborview Park; and one faith-based organization, the Trinity Episcopal Church. People use the ramp to access medical facilities, Downtown Seattle, and Duwamish.

Figure 37. Key Destinations Near James St. Off-Ramp

Image: Google Earth. Data: City of Seattle

2.2.5 Emergency Access

Harborview Medical Center is located near James Street. James Street is the most common access point between the Harborview Medical Center and I-5. Hospital traffic, including emergency vehicles, access James Street from multiple directions, including southbound traffic exiting at Marion Street, southbound traffic entering via 6th Avenue, northbound traffic entering at Cherry Street, and northbound traffic exiting at James Street.

Figure 38. Harborview Medical Center I-5 Access Near James St. Off-Ramp

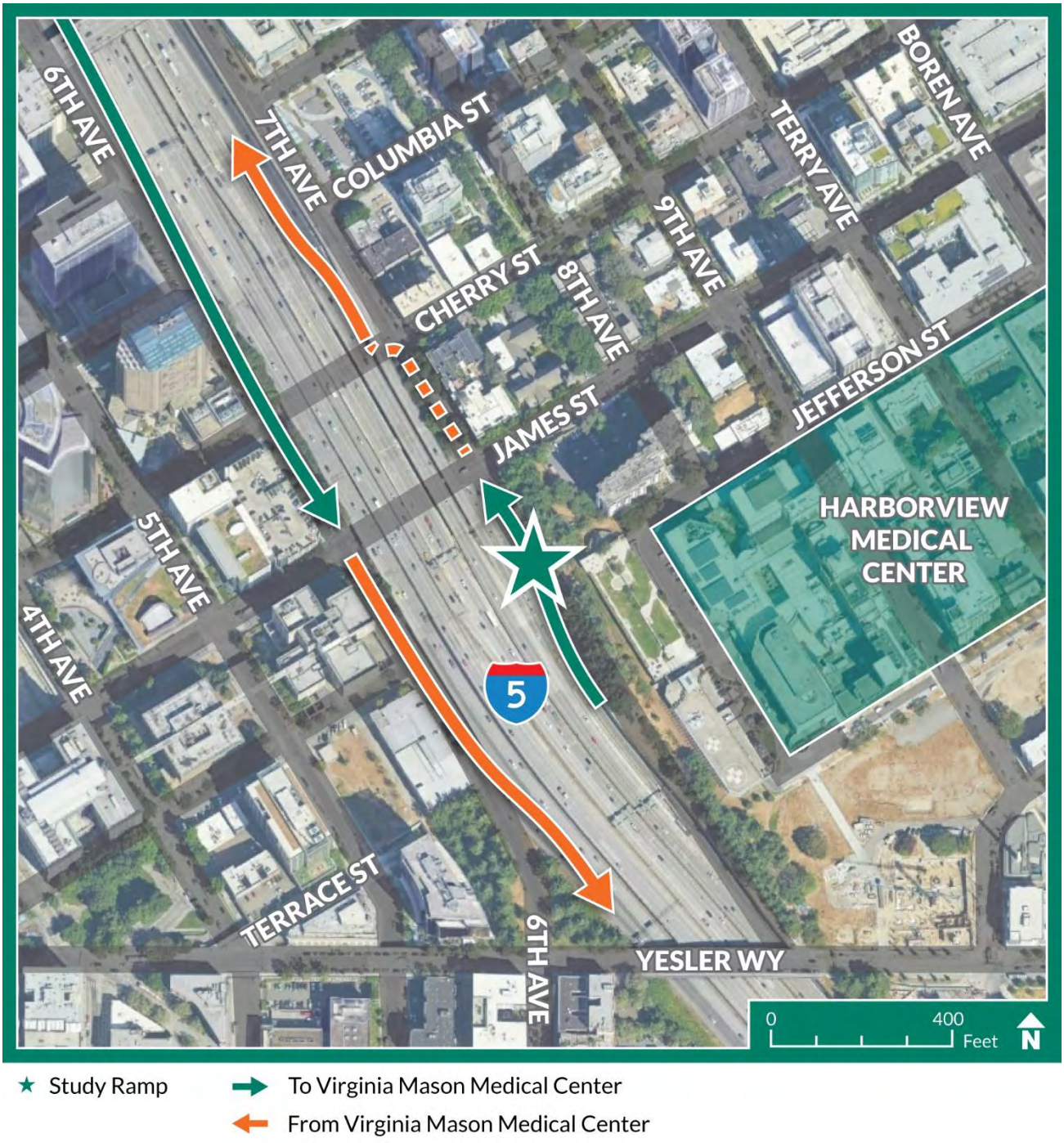


Image: Google Earth

2.2.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the James Street off-ramp include 12,330 daily trips (Table 6), approximately average for Downtown segment ramps and 57% the volume of the highest Downtown segment ramp. AM peak hour volume is 60% of the maximum theoretical capacity, and PM peak hour volume is 42% of the maximum theoretical capacity.

Table 6. Average Weekday Volumes for James St. Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	1,080	60%
Off-Ramp	PM	760	42%
Off-Ramp	AWD	12,330	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

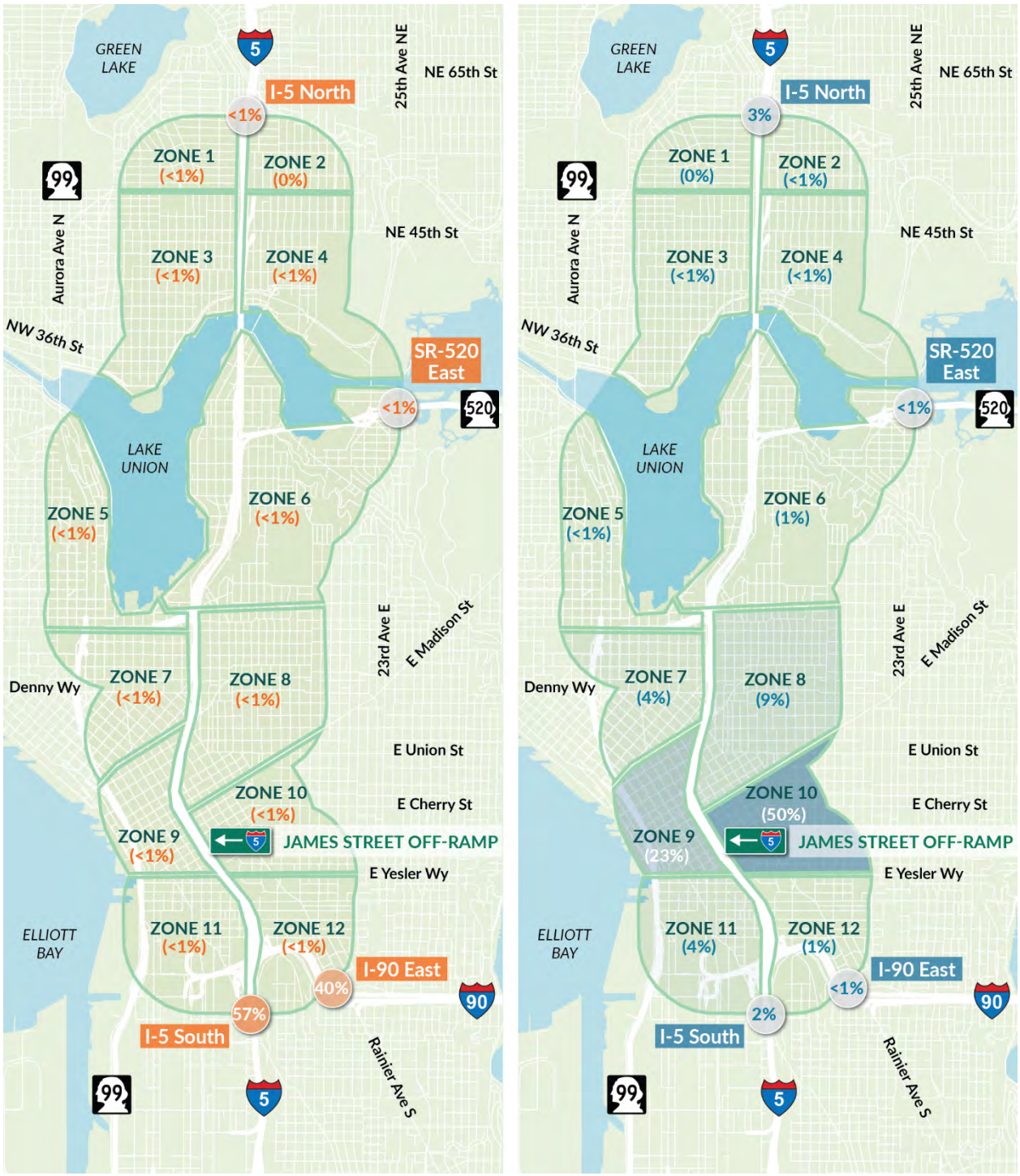
The James Street off-ramp is located within Zone 10. Figure 39 shows the traffic volumes traveling between Zone 10 and the other study area zones. The highest volumes traveling to and from Zone 10 are from Zone 8 and from beyond the study area to the south, north, and east via I-5 and I-90.

Figure 39. Origin and Destination Trips to and from Zone 10, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 40 shows a subset of trips between Zone 10 and other study area zones that access the James Street off-ramp specifically. 57% of origin trips that access the James Street off-ramp within Zone 10 have origins south of the study area, and 40% have origins east of the study area. 50% of trips that access the James Street off-ramp have destinations within Zone 10, and 23% have destinations within Zone 9.

Figure 40. Origin and Destination Trips to and from James St. Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 41 shows the routes and relative volumes for traffic traveling to the James Street off-ramp. Most trips that access the James Street off-ramp are traveling from south of the study area via I-5 or from east of the study area via I-90.

Figure 41. Trip Routes to James St. Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

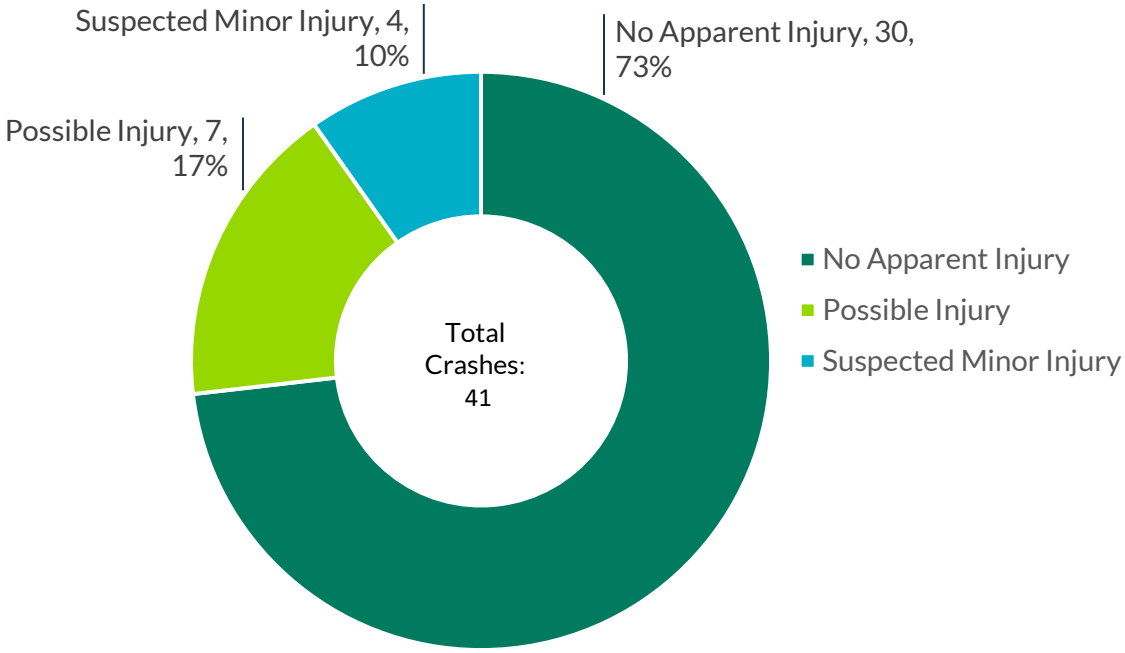
2.2.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 41 reported crashes within 200 feet of the James Street off-ramp during the period.

Crash Severity

Figure 42 shows that most crashes near the James Street off-ramp during the study period reported no apparent injury (73%).

Figure 42. Crash Severity, James St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023

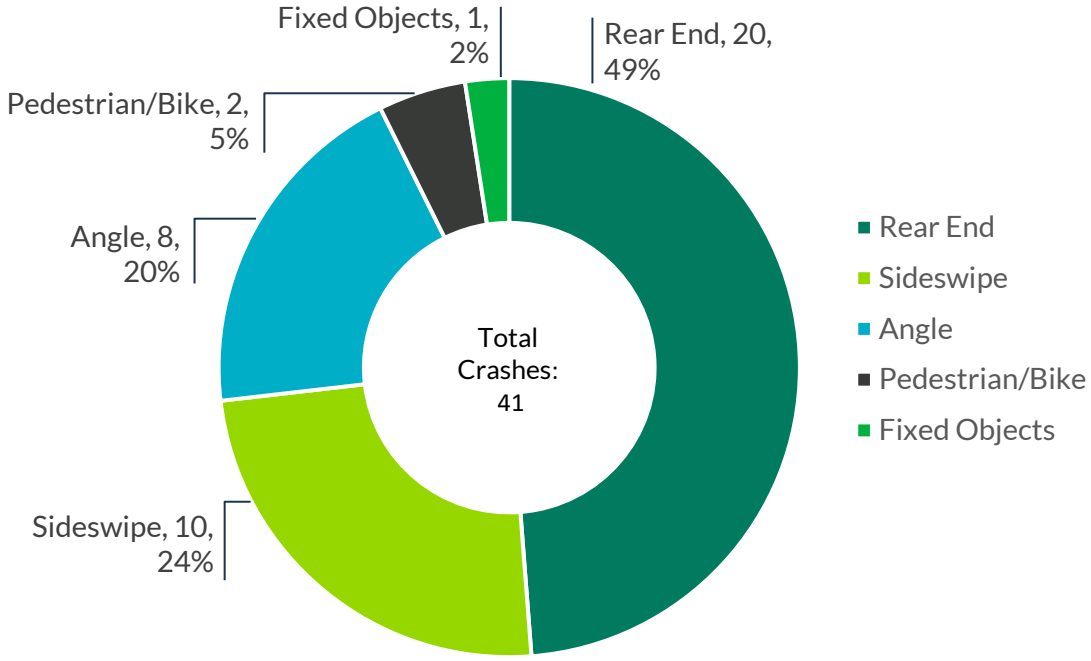


Data: WSDOT

Crash Type

Figure 43 shows that the most common crash type was rear end (49%), followed by sideswipe (24%). There were two reported pedestrian/bike crashes during the study period.

Figure 43. Crash Type, James St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.3 Cherry Street On-Ramp

The Cherry Street on-ramp is located below the elevated structure of I-5 between 6th Avenue and 7th Avenue (Figure 44). Traffic can access the on-ramp from Cherry Street from both eastbound and westbound directions (Figure 45) as well as northbound from 7th Avenue (Figure 46). Cherry Street is one-way eastbound with two travel lanes west of 7th Avenue. These lanes diverge, with one continuing eastbound on Cherry Street and the other merging with I-5. Cherry Street is bi-directional east of 7th Avenue, and westbound traffic can either turn north on 7th Avenue or continue west onto the on-ramp. The leftmost lane of northbound 7th Avenue merges with the on-ramp north of the intersection. The ramp is one lane and not metered. The nearest northbound on-ramps are University Street, approximately 0.5 miles to the north, and I-90, approximately 0.75 miles to the south.

Figure 44. Cherry St. On-Ramp Study Area

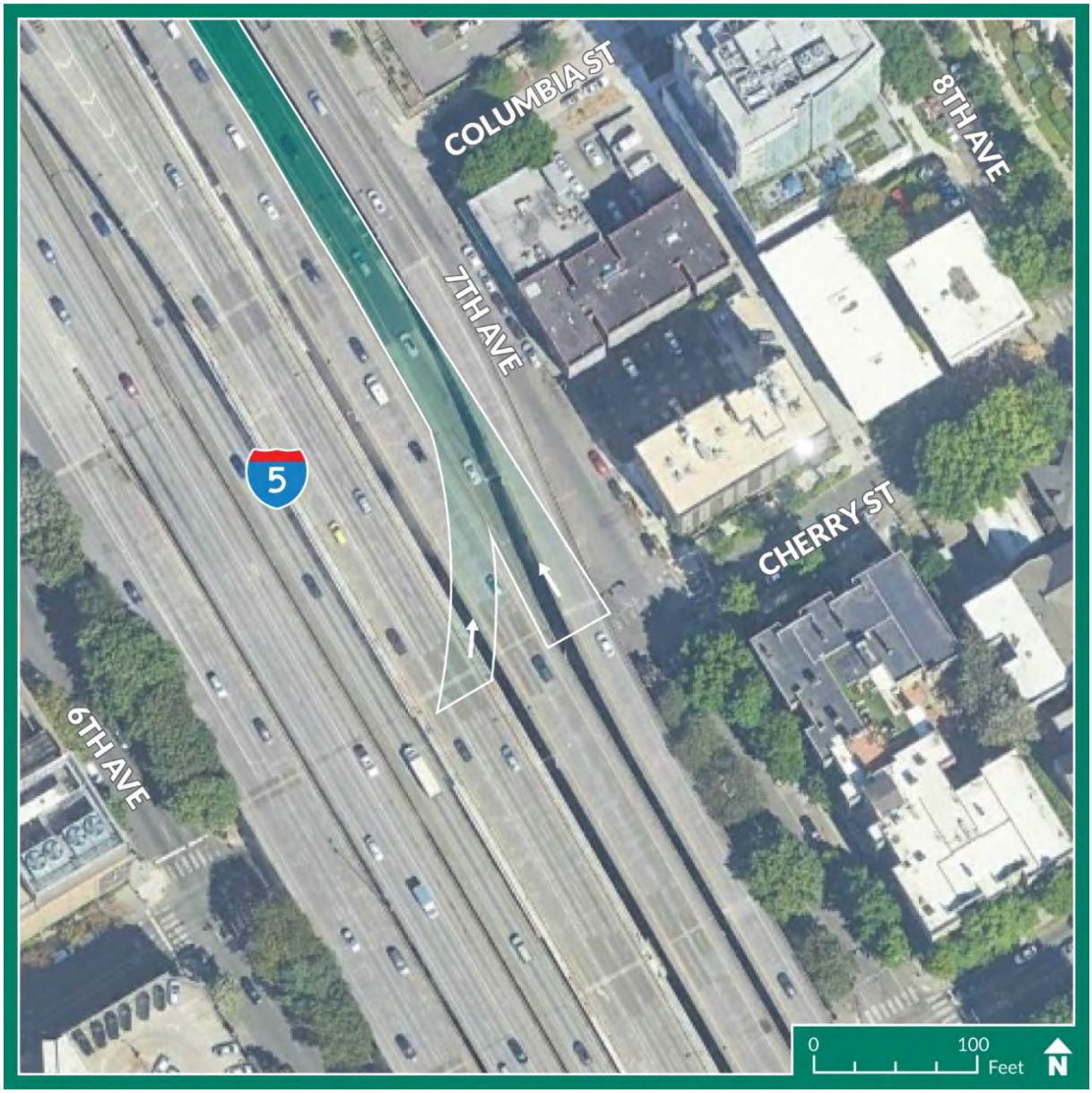


Image: Google Earth

Figure 45. – Cherry St. On-Ramp Diverging from Eastbound Cherry St.

Source: 2024 Google

Figure 46. 7th Ave. Left Lane Diverging to Merge with On-Ramp Entrance

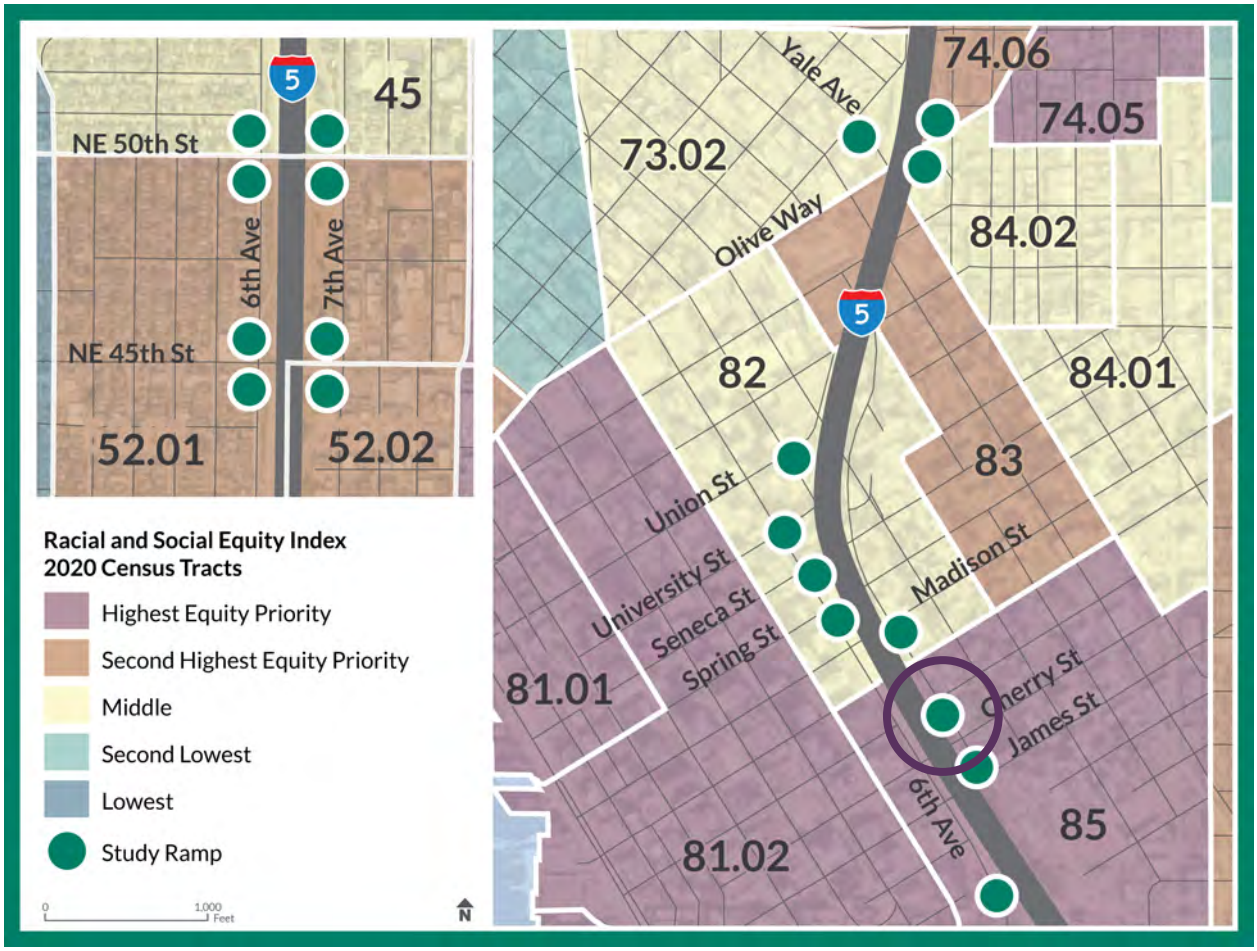
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Cherry Street on-ramp. East-west bicycle facilities are present on Cherry Street, and northbound facilities are present on 7th Avenue. Frequent east-west and north-south transit services are present near the ramp. Specific features of the Cherry Street on-ramp study area are discussed in the following sections.

2.3.1 Equity and Demographic Composition

The area around the Cherry Street on-ramp is rated by the RSEI as Highest Equity Priority (Figure 47).

Figure 47. City of Seattle's Race and Social Equity Index Snapshot – Cherry St. On-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Cherry Street on-ramp is generally within Census Tract 85, which includes approximately 111 acres bordering 5th Avenue to the west, Yesler Way to the south, Broadway to the east, and Marion Street to the north. Details about this Census Tract and its relationship to the City are provided in Table 2 in Section 2.1.1.

Census Tract 85 is almost twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and less affluent than the City as a whole. Rents are lower than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 85 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.3.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Cherry Street on-ramp (Figure 48). 7th Avenue is the primary north-south bicycle route through this area, and Cherry Street is the primary east-west route. Specific gaps and other aspects of these networks are listed later in this section.

Figure 48. Existing Bicycle and Pedestrian Facilities Near Cherry St. On-Ramp

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Cherry Street on-ramp features sidewalks that are approximately 6 to 10 feet wide. Sidewalks are widest on both sides of Cherry Street beneath the elevated structure and narrowest on the east side of 7th Avenue south of Cherry Street. Sidewalks are present on all blocks except for the west side of 7th Avenue north of Cherry Street and the east side of 6th Avenue north of Columbia Street.

Crosswalks

Most intersections are signal-controlled, while some are stop-controlled. Most crossings feature twin-stripe continental crosswalks (Figure 49). Exceptions exist at the intersections of Cherry Street and 8th Avenue (Figure 50), which is stop-controlled, and James Street as it crosses 6th Avenue and 7th Avenue, where several legs are either unmarked or closed (Figure 51). These include:

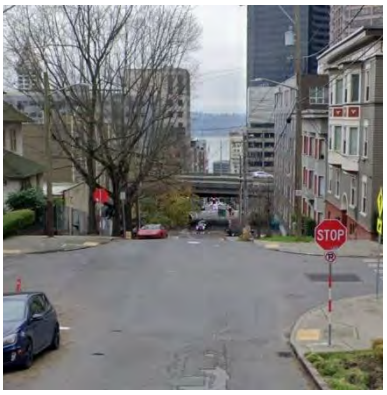
- James Street and 6th Avenue – south and east legs closed.
- James Street and 7th Avenue – west and south legs closed.

Crossing distances range from 15 to 80 feet.

Figure 49. Cherry St. Crossing 7th Ave., Looking South

Source: 2024 Google

Figure 50. Four-Way Stop, Cherry St. and 8th Ave. Looking West



Source: 2024 Google

Figure 51. Closed Crosswalk, James St Crossing 6th Ave., Looking East

Source: 2024 Google

Curb Ramps

Most crossings near the Cherry Street on-ramp feature curb ramps, although the type and orientation vary. The orientation of some curb ramps is in line with the crosswalk, while others are angled toward the center of the intersection. Some ramps are ADA-compliant (Figure 52), while others are non-compliant (Figure 53). Some crossings include ADA-related features but may not be fully compliant (Figure 54).

Figure 52. ADA-Compliant Curb Ramp, Cherry St., and 8th Ave.

Source: 2024 Google

Figure 53. Non-ADA-Compliant Curb Ramp, James St., and 8th Ave.

Source: 2024 Google

Figure 54. Curb Ramp, Cherry St., and 6th Ave.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Cherry Street on-ramp features north-south bicycle facilities on 7th Avenue and east-west bicycle facilities on Cherry Street (Figure 48). All street segments near the Cherry Street on-ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High,[13] except for 8th Avenue between James Street and Madison Street, which is rated as Low. Specific bicycle facilities are listed below:

Protected Bike Lanes

- Cherry Street between 6th Avenue and 7th Avenue (Figure 55)
- 7th Avenue between Marion Street and Columbia Street

Conventional Bike Lanes

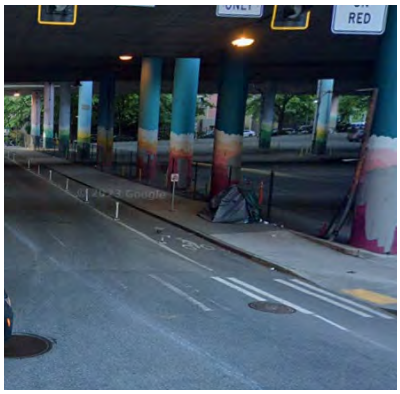
- South side of Marion Street east of 7th Avenue
- 7th Avenue between Columbia Street and Cherry Street (Figure 56)
- Cherry Street between 5th Avenue and 6th Avenue

Shared Lane Markings

- 5th Avenue south of Cherry Street
- Cherry Street west of 5th Avenue
- North side of Marion Street between 7th Avenue and 8th Avenue
- 9th Avenue (Figure 57)

[13] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 55. Protected Bike Lane, Cherry St. East of 7th Ave., Looking East



Source: 2024 Google

Figure 56. Conventional Bike Lane, 7th Ave. North of Cherry St., Looking North

Source: 2024 Google

Figure 57. Shared Lane Markings, 9th Ave at Cherry St., Looking North

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes for 5th Avenue and 4th Avenue, connecting to existing Cherry Street facilities[14]. Protected bike lanes are planned for Cherry Street and Yesler Way.

[14] Bicycle Master Plan - Transportation | seattle.gov

2.3.3 Transit Conditions

The area around the Cherry Street on-ramp features a transit network with a range of route types and varying frequencies (Figure 58). Several frequent service Metro Lines run southbound along 5th Avenue. Frequent east-west service runs along James Street. Less frequent north-south service runs along 9th Avenue. Several transit stops are present near the Cherry Street on-ramp. The sections below describe the existing transit network in greater detail.

Figure 58. Existing Transit Network Near Cherry St. On-Ramp

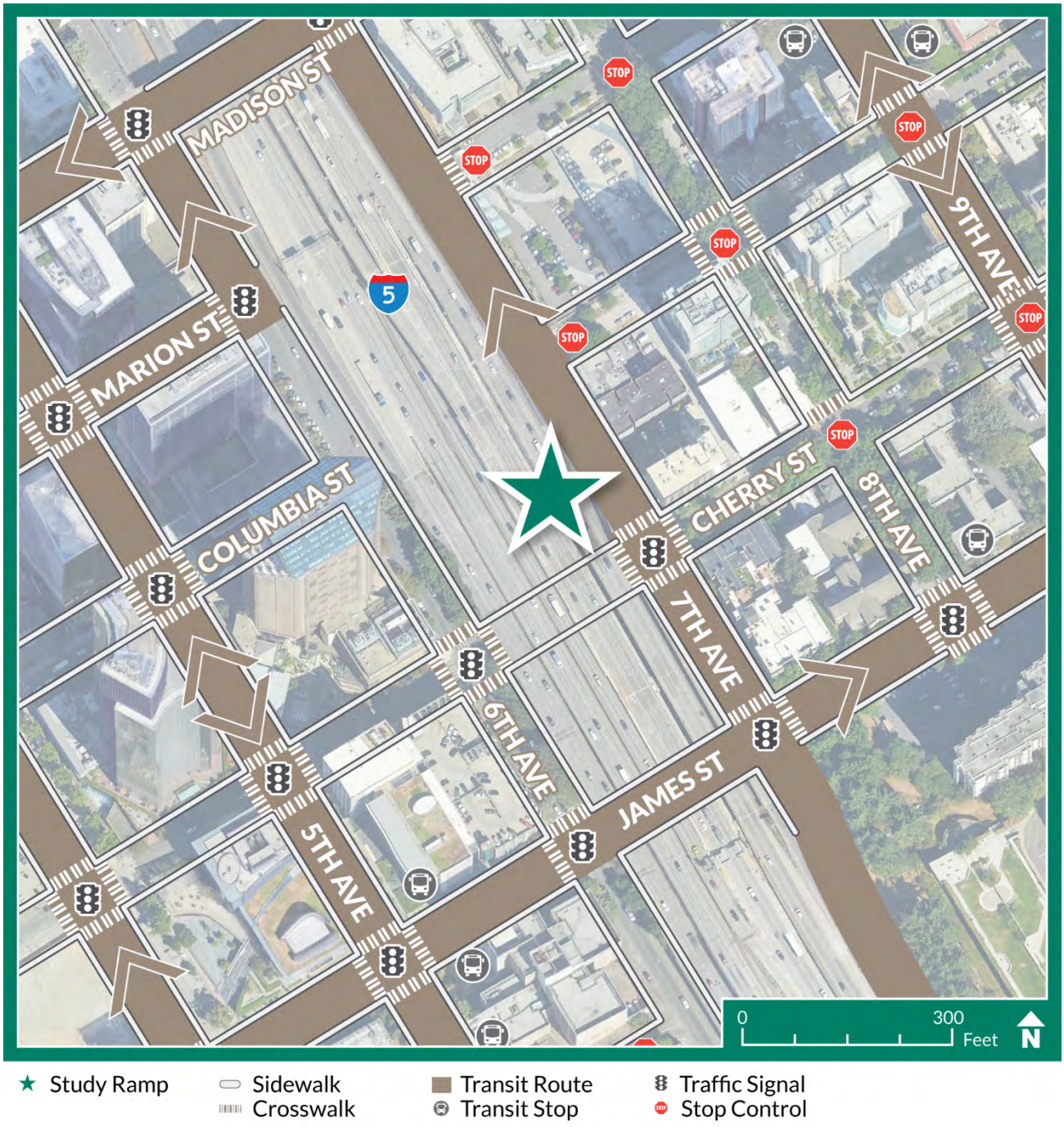


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Seven Metro Lines provide service on streets near the Cherry Street on-ramp, including James Street, 5th Avenue, 7th Avenue, and 9th Avenue. Several run throughout the day, seven days a week, while others run in the mornings and evenings on weekdays. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the Cherry Street on-ramp include:

- James Street at 5th Avenue serving Metro Lines 3 and 4.
- James Street at 8th Avenue serving Metro Lines 3 and 4.
- Cherry Street at 9th Avenue serving Metro Lines 60, 193, 302, 303, 322.
- Columbia Street at 9th Avenue serving Metro Lines 60, 302, 303, and 322.

Existing Headways and Span-of-Service

Frequent transit service near the Cherry Street on-ramp includes Metro Lines providing frequent north-south service along 9th Avenue, southbound service along 5th Avenue, and east-west service along James Street. These lines generally operate with 5–15-minute headways during peak times and 15–60-minute headways throughout the rest of the day. These operate seven days a week.

Other frequent service near the Cherry Street on-ramp includes Metro Lines providing less frequent north-south service along 9th Avenue. These weekday lines generally operate with 10-40-minute headways in the morning and evening.

Table 7 lists specific service spans and headways as of June 2024.

Table 7. Existing Transit Headways, Span-of-Service, and Days of Service Near Cherry St. On-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
3 SB	4:34 AM	3:50 AM	8-60	Yes
3 NB	3:59 AM	4:20 AM	7-60	Yes
4 SB	6:01 AM	1:50 AM	5-30	Yes
4 NB	5:05 AM	1:15 AM	7-30	Yes
60 SB	6:06 AM	1:00 AM	11-35	Yes
60 NB	4:14 AM	11:35 PM	12-40	Yes
193 SB	3:09 PM	8:35 PM	20-90	No
193 NB	5:20 AM	9:00 AM	10-30	No
302 SB	5:30 AM	8:45 AM	15-20	No
302 NB	3:30 PM	8:30 PM	20-50	No
303 SB	5:30 AM	8:45 AM	15-20	No
303 NB	3:30 PM	8:30 PM	20-50	No
322 SB	5:45 AM	9:45 AM	30	No
322 NB	4:00 PM	8:30 PM	15-30	No
987 NB	6:45 AM	8:05 AM	20	No

NB = Northbound, SB = Southbound

Planned Transit Improvements

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Cherry Street on-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[15].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[15] Ballard Link Extension | Project map and summary | Sound Transit

2.3.4 Key Destinations

Several destinations are located near the Cherry Street on-ramp (Figure 59). Civic locations include SDOT offices and the Municipal Court of Seattle. There is one medical facility, Skyline Health Services; one public space, Harborview Park; and one faith-based organization, Trinity Episcopal Church. People use the ramp to access medical facilities, Downtown Seattle, South Lake Union, and the Chinatown-International District.

Figure 59. Key Destinations Near Cherry St. On-Ramp

Image: Google Earth
Data: City of Seattle

2.3.5 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Cherry Street on-ramp include 12,780 daily trips (Table 8), the average for Downtown segment ramps, and 60% of the volume of the highest Downtown segment ramp. AM peak hour volume is 45% of the maximum theoretical capacity, and PM peak hour volume is 70% of the maximum theoretical capacity.

Table 8. Average Weekday Volumes for Cherry St. On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	810	45%
On-Ramp	PM	1,260	70%
On-Ramp	AWD	12,780	

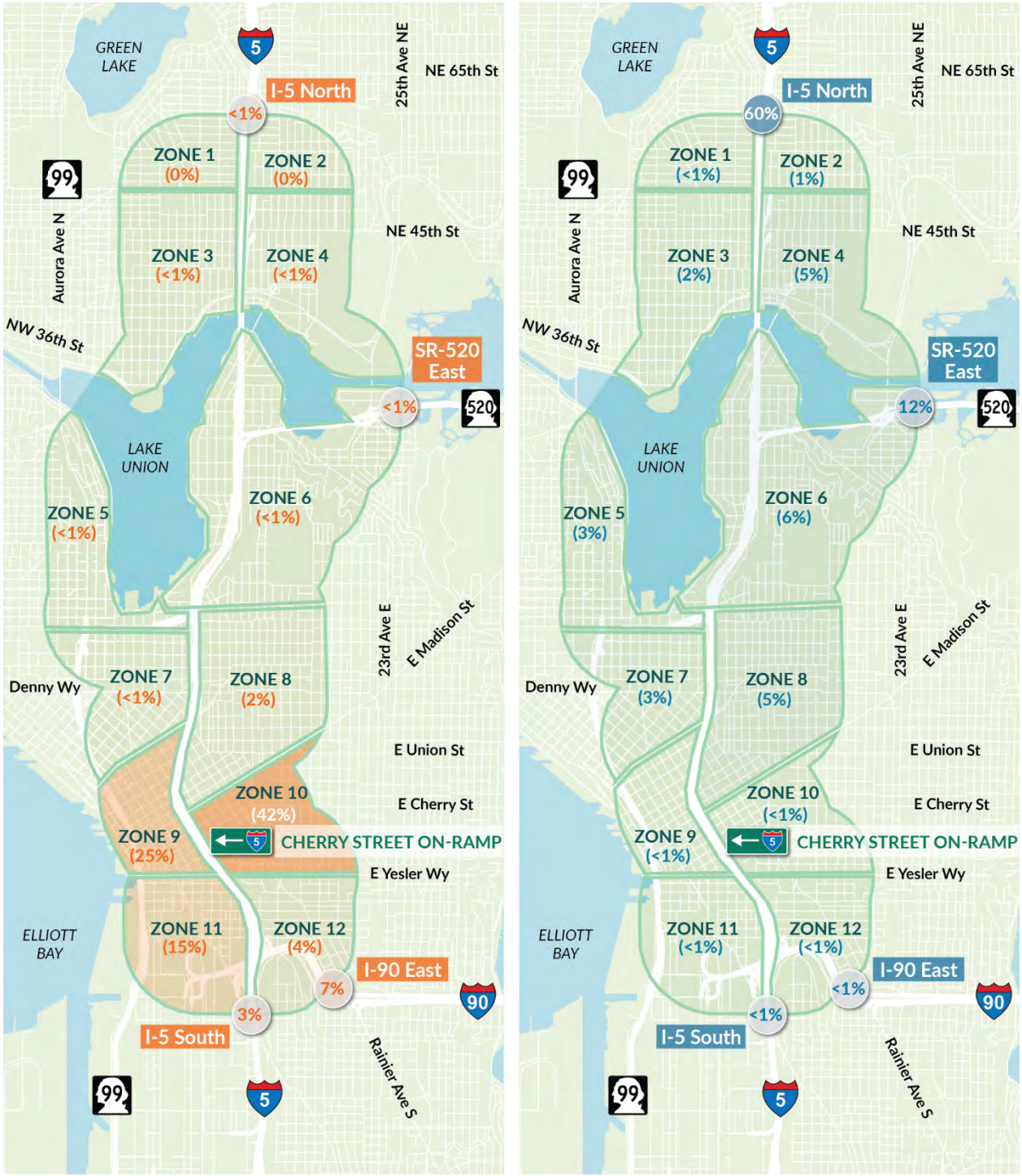
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Cherry Street on-ramp is located within Zone 10. Figure 39 in Section 2.2.7 shows the traffic volumes traveling between Zone 10 and the other study area zones. The highest volumes traveling to and from Zone 10 are from Zone 8 and from beyond the study area to the south, north, and east via I-5 and I-90.

Figure 60 shows a subset of trips between Zone 10 and other study area zones that access the Cherry Street on-ramp specifically. 42% of trips that access the Cherry Street on-ramp have origins within Zone 10, and 25% have origins within Zone 9. 60% of trips that access the Cherry Street on-ramp travel to destinations north of the study area and 12% travel to destinations east of the study area.

Figure 60. Origin and Destination Trips to and from Cherry St. On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 61 shows the routes and relative volumes for traffic traveling to the Cherry Street on-ramp. Most trips that access the ramp travel north beyond the study area via I-5.

Figure 61. Trip Routes from Cherry St. On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

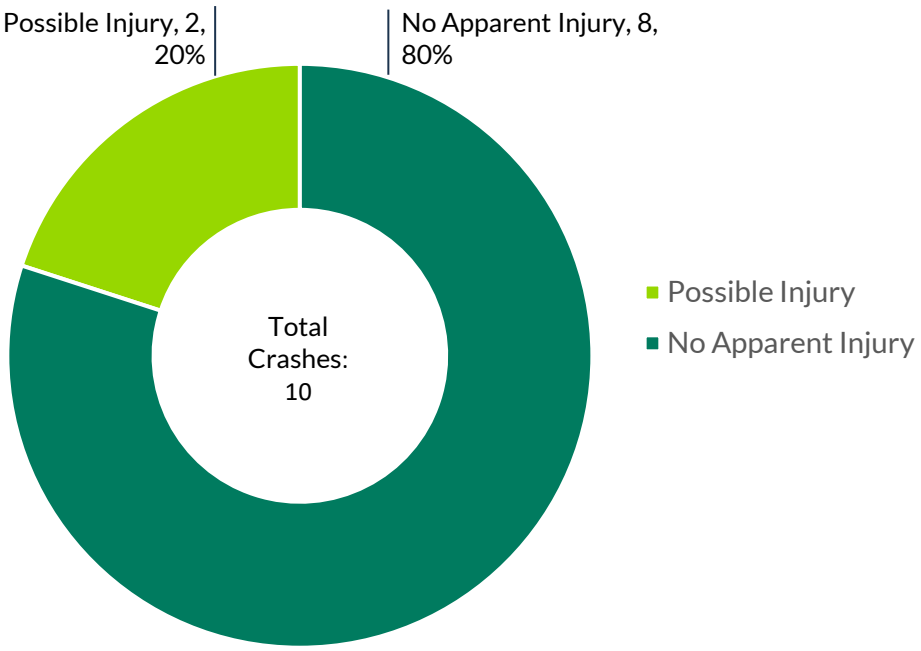
2.3.6 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 10 reported crashes within 200 feet of the Cherry Street on-ramp during the period.

Crash Severity

Figure 62 shows that most crashes near the Cherry Street on-ramp during the study period reported no apparent injury (80%).

Figure 62. Crash Severity, Cherry St. On-Ramp Study Area, Jan. 2019 through Dec. 2023

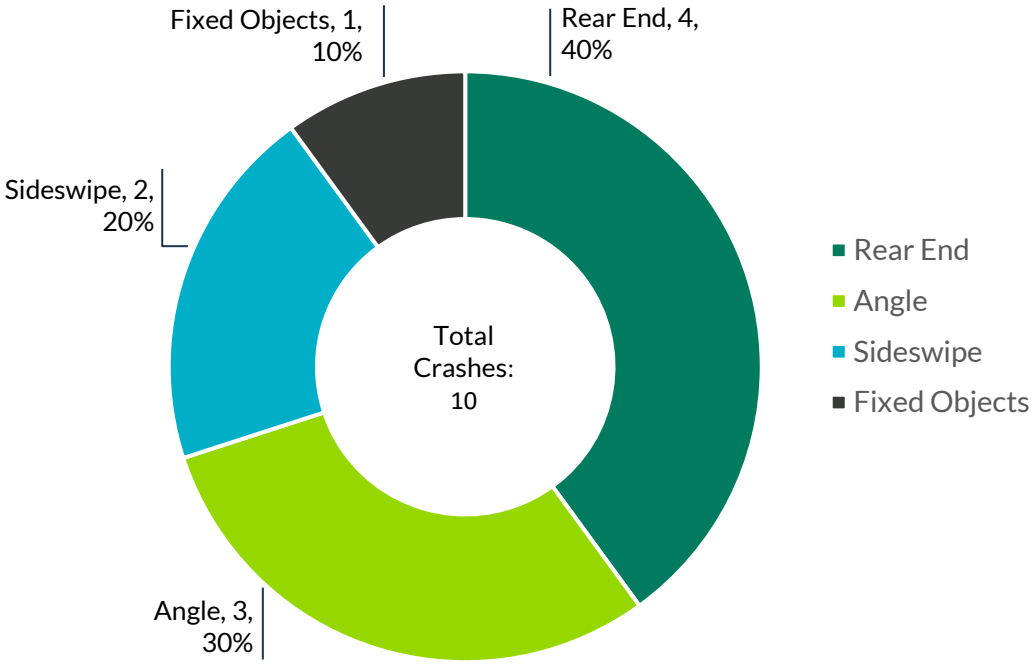


Data: WSDOT

Crash Type

Figure 63 shows that the most common crash type reported near the Cherry Street on-ramp during the study period was rear end (40%), followed by angle (30%).

Figure 63. Crash Type, Cherry St. On-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.4 Madison Street Off-Ramp

The Madison Street northbound off-ramp is located near the intersection of Madison Street and 7th Avenue (Figure 64). The off-ramp merges with northbound 7th Avenue at the Madison Street intersection. A concrete curb prevents off-ramp traffic from weaving into the right lane to make right turns onto Marion Street (Figure 65). The 7th Avenue rightmost lane must turn right onto Marion Street. The ramp is one lane until it merges with 7th Avenue, one block south of Madison Street, and expands into three lanes. The nearest northbound off-ramps are Madison Street, approximately 0.25 miles to the north, and James Street, approximately 0.25 miles to the south.

Figure 64. Madison St. Off-Ramp Study Area

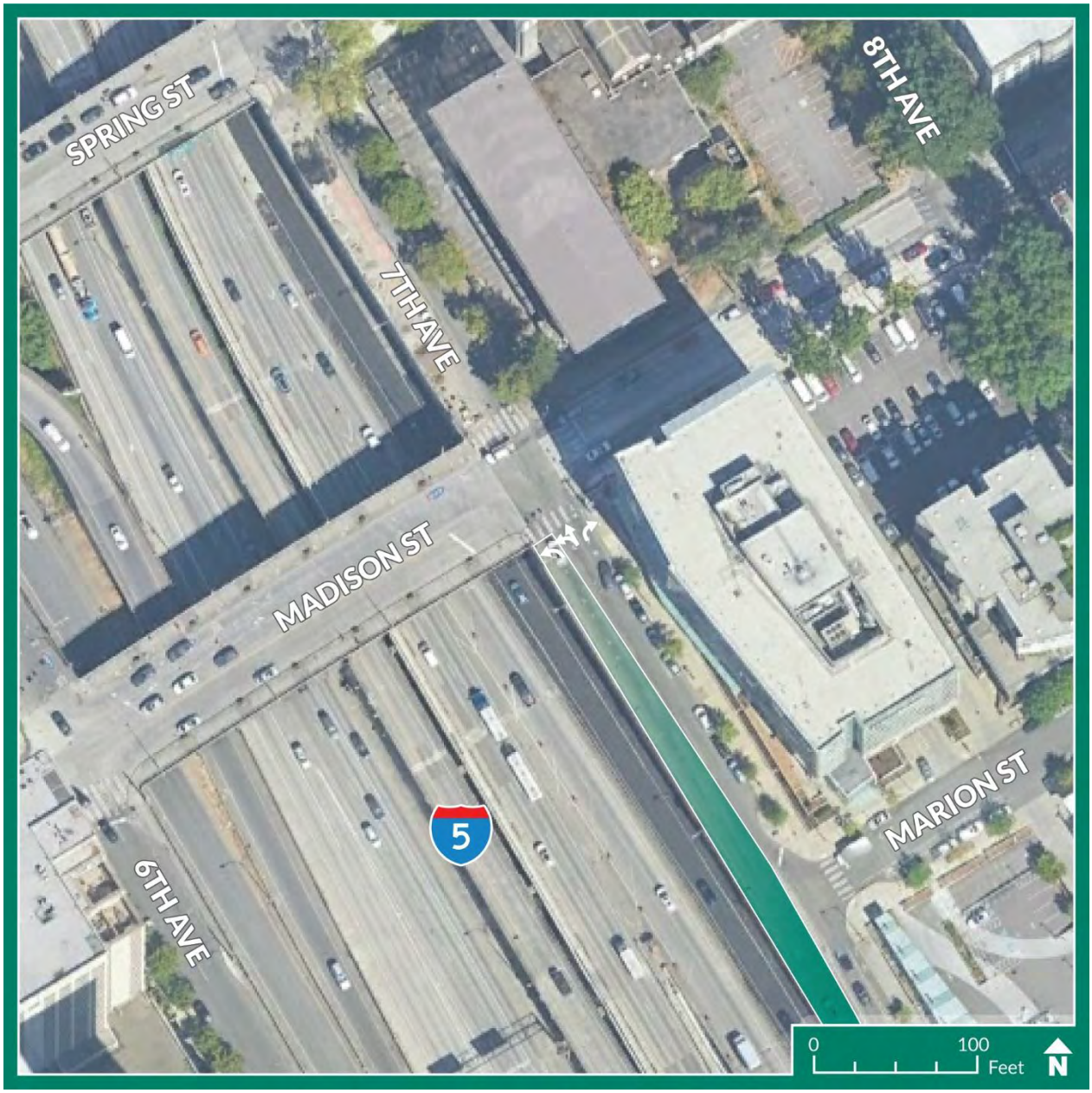


Image: Google Earth

Figure 65. Madison St. Off-Ramp with Traffic Separator at Marion St., Looking South

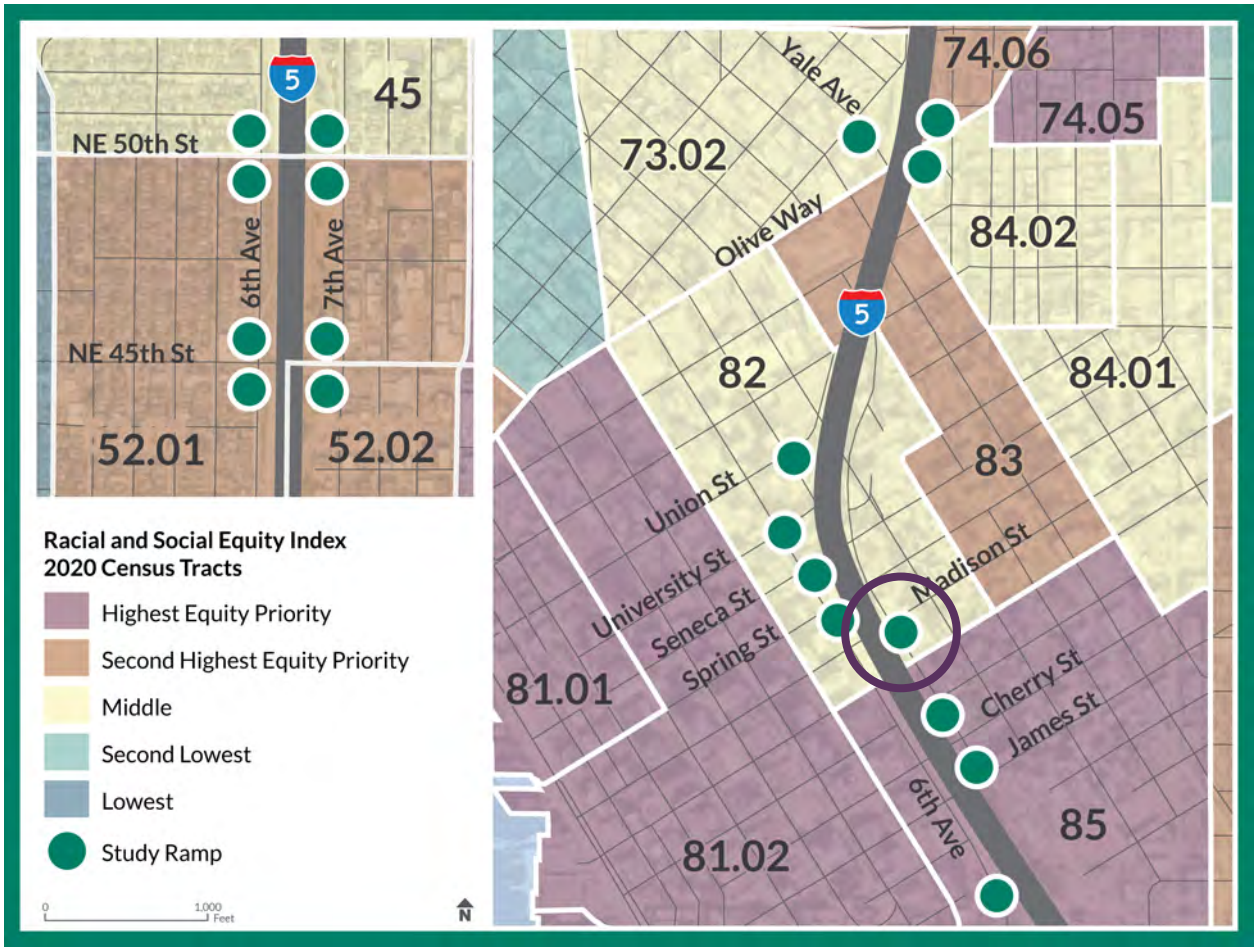
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Madison Street off-ramp, although there are significant sidewalk gaps on 6th Avenue and 7th Avenue. East-west bicycle facilities are present on Spring Street, Seneca Street, and Marion Street, and frequent east-west and north-south transit services are present throughout the area. Specific features of the Madison Street off-ramp study area are discussed in the following sections.

2.4.1 Equity and Demographic Composition

The area around the Madison Street off-ramp is rated by the RSEI as Middle Equity Priority (Figure 66).

Figure 66. City of Seattle's Race and Social Equity Index Snapshot – Madison St. Off-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Madison Street off-ramp is generally within Census Tract 82, which includes approximately 93 acres bordering 5th Avenue to the west, Marion Street to the south, 9th Avenue to the east, and Olive Way to the north. Details about this Census Tract and its relationship to the City are provided in Table 9 below.

Census Tract 82 is over twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 82 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

Table 9. Demographic Comparison: Census Tract 82

Demographic	Census Tract 82	Seattle
Population	4,567	734,471
Occupied Housing Units	2,929	345,184
Average Household Size	1.56	2.13
Density (People/Acre)	49.2	13.7
Density (Housing/Acre)	38.5	6.9
Female	46%	49%
Male	54%	51%
People of Color	45%	39%
Hispanic or Latino	4.1%	7.5%
Median Age	32.5	36.5
Under 18	4%	14%
65 and Over	15%	13%
Median Household Income	$123,208	$120,338
Per Capita Income	$107,824	$77,630
Unemployed	7.9%	4.2%
% Below 200% Poverty	16%	18%
Renter Households	88%	56%
Median Gross Rent	$2,349	$1,968
Burdened Renters	39%	44%
Speak a Language Other than English	29%	23%
Bachelor's Degree or Higher	77%	67%
Population with a Disability	15%	10%
Households Without a Vehicle	55%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.4.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Madison Street off-ramp (Figure 67). Spring Street and Madison Street are the primary east-west bicycle routes through this part of Downtown. Specific gaps and other aspects of these networks are listed later in this section.

Figure 67. Existing Bicycle and Pedestrian Facilities Near Madison St. Off-Ramp

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Madison Street off-ramp features sidewalks that are approximately 4 to 14 feet wide. Sidewalks are widest on the east side of 7th Avenue south of Madison Street and narrowest on the east side of 6th Avenue between Madison Street and Marion Street. Sidewalks are present on all blocks except the east side of 6th Avenue between Madison Street and Spring Street and the west side of 7th Avenue.

Crosswalks

Most crossings feature signal-controlled, twin-stripe continental crosswalks (Figure 68). The exceptions are those intersections near the Madison Street off-ramp and the Spring Street on-ramp (Figure 69), where several crossings are closed. These include:

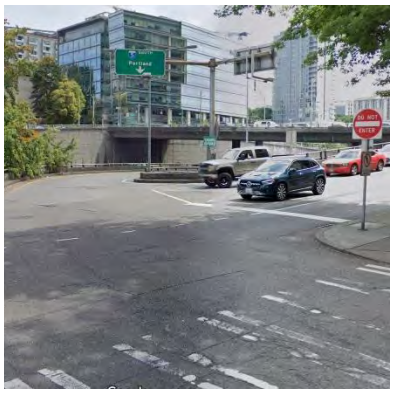
- 6th Avenue and Spring Street - south leg closed.
- 6th Avenue and Madison Street – east and north legs closed.
- 7th Avenue and Madison Street – west leg closed.
- 7th Avenue and Spring Street – west leg closed.

8th Avenue intersections at Marion Street and Spring Street are stop-controlled (Figure 70). Crossing distances range from 32 to 52 feet.

Figure 68. Marked Crosswalk, Spring St. and 5th Ave., Looking North

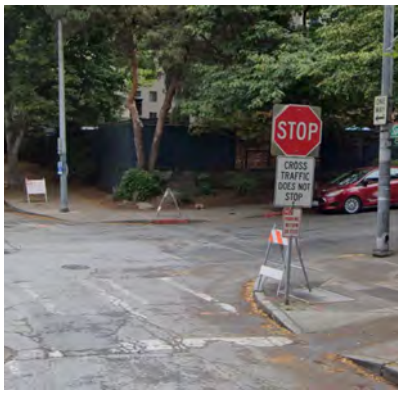
Source: 2024 Google

Figure 69. Closed Crossing, Spring St. and 6th Ave., Looking West



Source: 2024 Google

Figure 70. Stop-Controlled Intersection with Unmarked Crossing, Spring St. and 8th Ave., Looking North



Source: 2024 Google

Curb Ramps

Most crossings near the Madison Street off-ramp feature curb ramps, although the type and orientation vary. The orientation of some curb ramps is in line with the crosswalk, while others are angled toward the center of the intersection. Some ramps are ADA-compliant (Figure 71), while others are non-compliant (Figure 72). Some crossings include ADA-related features but may not be fully compliant (Figure 73).

Figure 71. ADA-Compliant Curb Ramp, 7th Ave., and Spring St.

Source: 2024 Google

Figure 72. Non-ADA-Compliant Curb Ramp, 7th Ave. and Madison St.

Source: 2024 Google

Figure 73. Curb Ramp, 8th Ave. and Marion St.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Madison Street off-ramp features east-west bicycle facilities on Spring Street and Marion Street and north-south bicycle facilities on 7th Avenue (Figure 67). All street segments near the Madison Street off-ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High,[16] except for Marion Street between 7th and 8th Avenues, which has a rating of Medium-Low. Specific bicycle facilities are listed below:

Conventional Bike Lanes

- Spring Street west of 6th Avenue and east of 7th Avenue (Figure 74)
- Eastbound Marion Street between 7th Avenue and 8th Avenue

Shared Lane Markings

- Seneca Street
- Spring Street between 6th Avenue and 7th Avenue
- Westbound Marion Street east of 7th Avenue (Figure 75)
- Eastbound Marion Street east of 8th Avenue

[16] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 74. Conventional Bike Lane, Spring St. East of 7th Ave., Looking East

Source: 2024 Google

Figure 75. Shared Lane Markings, Marion St. at 7th Ave., Looking West

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes shared lane markings on 5th Avenue and protected bike lanes on Hubbell Place north of Spring Street[17]. Protected bike lanes are planned for Spring Street and Seneca Street.

[17] Bicycle Master Plan - Transportation | seattle.gov

2.4.3 Transit Conditions

The area around the Madison Street off-ramp features a dense transit network with a range of route types with varying frequencies (Figure 76). Frequent east-west routes run along and parallel to Madison Street. 5th Avenue has several southbound frequent and daily routes. Several transit stops are present near the Spring Street ramp, including a stop on Spring Street elevated above the ramp. The sections below describe the existing transit network in greater detail.

Figure 76. Existing Transit Network Near Madison St. Off-Ramp

Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Nine Metrolines service streets near the Madison Street off-ramp, including Madison Street, Spring Street, Seneca Street, 5th Avenue, 6th Avenue, and 9th Avenue. Five Sound Transit Lines also run along 5th Avenue. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the Madison Street off-ramp include:

- Spring Street at 5th Avenue serving Metro Lines 302, 303, 322, and 630; Sound Transit Lines 510, 545, 577, 578, and 592.
- Spring Street at 6th Avenue serving Metro Line 2.
- Spring Street at 9th Avenue serving Metro Lines 193, 302, 303, and 322.
- Madison Street at 8th Avenue/ 5th Avenue serving Metro Line 12.
- Marion Street at 5th Avenue serving Metro Lines 257, 311, and 630, and Sound Transit Lines 510 and 545.

Existing Headways and Span-of-Service

Frequent transit service near the Madison Street off-ramp includes Metro Lines 2 and 13 that run east on Spring Street and west on Seneca Street from the early morning to late evening with headways of 10 minutes or less during peak hours. Sound Transit Line 510 travels south along 5th Avenue from early morning to mid-morning with headways of generally 15 to 30 minutes. Sound Transit Lines 577 exits I-5 at the Seneca Street off-ramp and travels north on 4th Avenue with trips from early morning to mid-morning and headways of 10-20 minutes.

Other transit service near the Madison Street off-ramp includes Metro DART Route 630, which runs west on Seneca Street and north-south on 5th Avenue twice in the morning and twice in the early evening with headways of over an hour. Metro Lines 162, 257, and 311 exit I-5 at the Seneca Street off-ramp and travel north on 6th Avenue with northbound trips from mid-afternoon to mid-evening and headways from 20 to 50 minutes. Sound Transit Lines 578 and 592 exit I-5 at the Seneca Street off-ramp and travel north on 4th Avenue. Line 578 has trips from mid-morning to late evening with headways of 20 to 30 minutes. Line 592 runs from early morning to mid-morning with headways of 30 minutes. Sound Transit Lines 510 and 545 run south on 5th Avenue from early morning to late morning with headways of 15-30 minutes.

Community Transit Lines generally run twice a day, southbound in the morning, with a return northbound trip in the afternoon or evening. Headways vary from 15 to 105 minutes, with 30 minutes between most arrivals.

There are transit reliability challenges for routes on Madison Street and Spring Street, where they cross I-5. Table 10 lists specific service spans and headways as of June 2024.

Table 10. Existing Transit Headways, Span-of-Service, and Days of Service Near Madison St. Off-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
2 SB	5:00 AM	1:45 AM	10-30	Yes
2 NB	4:30 AM	1:15 AM	10-20	Yes
12 SB	6:00 AM	12:00 AM	10-30	Yes
12 NB	5:30 AM	12:15 AM	10-40	Yes
193 SB	3:10 PM	8:40 PM	10-90	No
193 NB	5:20 AM	9:00 AM	10-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
302 SB	5:30 AM	7:15 AM	30-45	No
302 NB	3:30 PM	5:45 PM	40	No
303 SB	5:30 AM	8:00 AM	30-60	No
303 NB	3:50 PM	7:50 PM	30-40	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
322 SB	5:45 AM	8:50 AM	30	No
322 NB	4:00 PM	7:40 PM	30-60	No
DART 630 WB	6:00 AM	8:45 AM	40	No
DART 630 EB	4:00 PM	6:30 PM	35	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	15-30	No
510 NB	2:30 PM	7:45 PM	15-30	No
545 EB	5:00 AM	12:30 AM	30	Yes
545 WB	4:30 AM	12:00 AM	30	Yes
577 NB	4:45 AM	9:35 AM	10-20	Yes
577 SB	5:30 AM 2:30 PM	8:15 AM 6:15 PM	10-30	Yes
578 NB	7:20 AM	10:25 PM	20-60	Yes
578 SB	7:45 AM	12:10 AM	60	Yes
592 NB	4:00 AM	9:30 AM	30	No
592 SB	2:10 PM	8:00 PM	30	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street before connecting to eastbound Madison Street at 9th Avenue[18]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Madison Street off-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[19].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[18] RapidRide G Line – Madison St - Transportation | seattle.gov

[19] Ballard Link Extension | Project map and summary | Sound Transit

2.4.4 Key Destinations

Several destinations are located near the Madison Street on-ramp (Figure 77). Civic locations include the Town Hall and Nakamura Federal Courthouse. Community organizations include the YWCA and the Women's University Club. There are two medical facilities along Marion Street, the Poly Clinic and Blue Pearl Pet Hospital. There are two public spaces, including Freeway Park and Naramore Fountain. People use the ramp to access medical facilities, South Lake Union, Duwamish, and Downtown Seattle.

Figure 77. Key Destinations Near Madison St. Off-Ramp

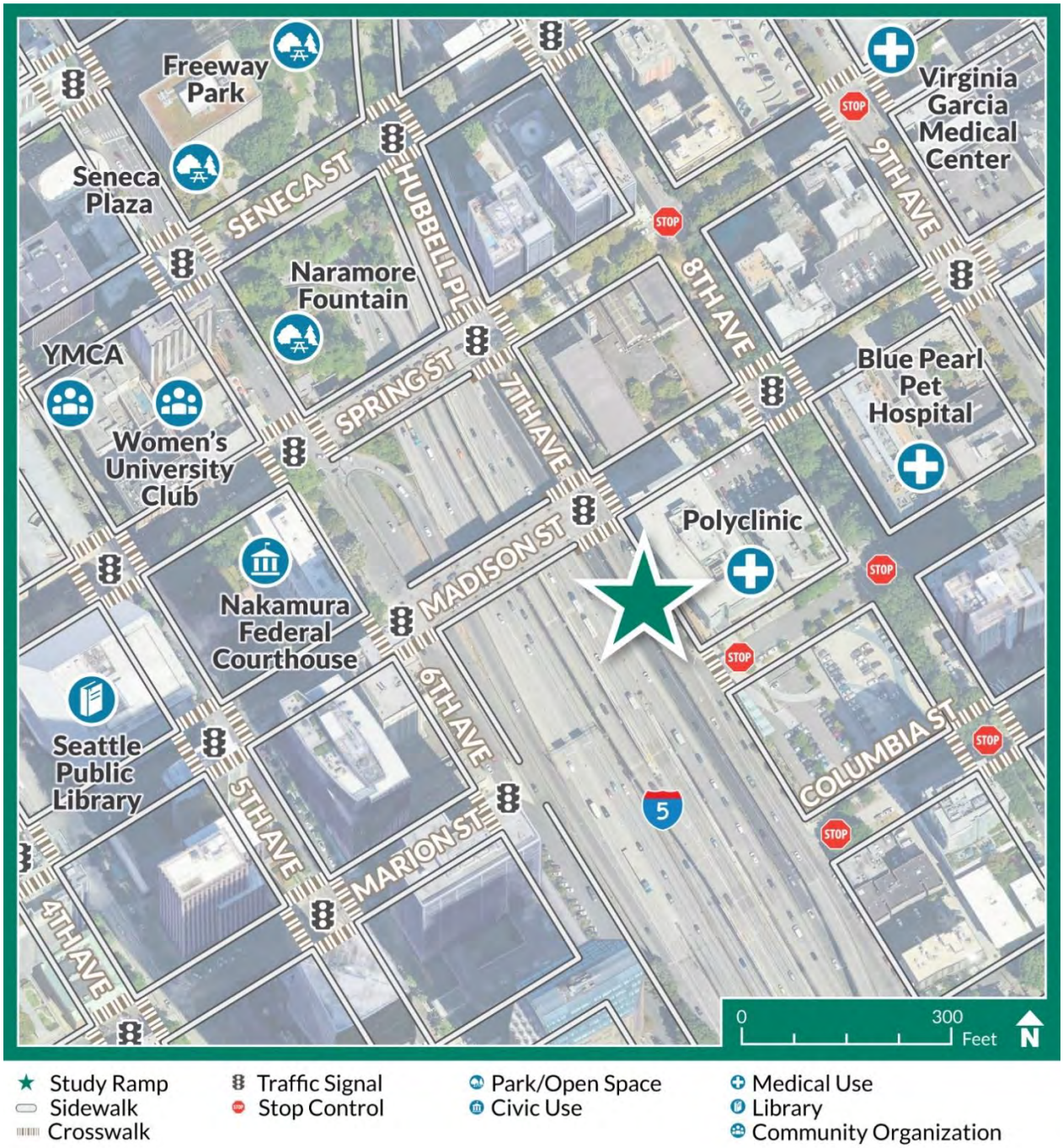


Image: Google Earth. Data: City of Seattle

2.4.5 Emergency Access

Virginia Mason Medical Center is located near the Madison Street off-ramp. Hospital traffic, including emergency vehicles, generally uses Seneca Street and Spring Street to travel to and from the hospital. Northbound traffic from I-5 may exit at Madison Street or Seneca Street. Southbound traffic may exit at Union Street. Northbound traffic entering I-5 may use University Street, and southbound traffic may use Spring Street.

Figure 78. Virginia Mason Medical Center I-5 Access Near Madison St. Off-Ramp

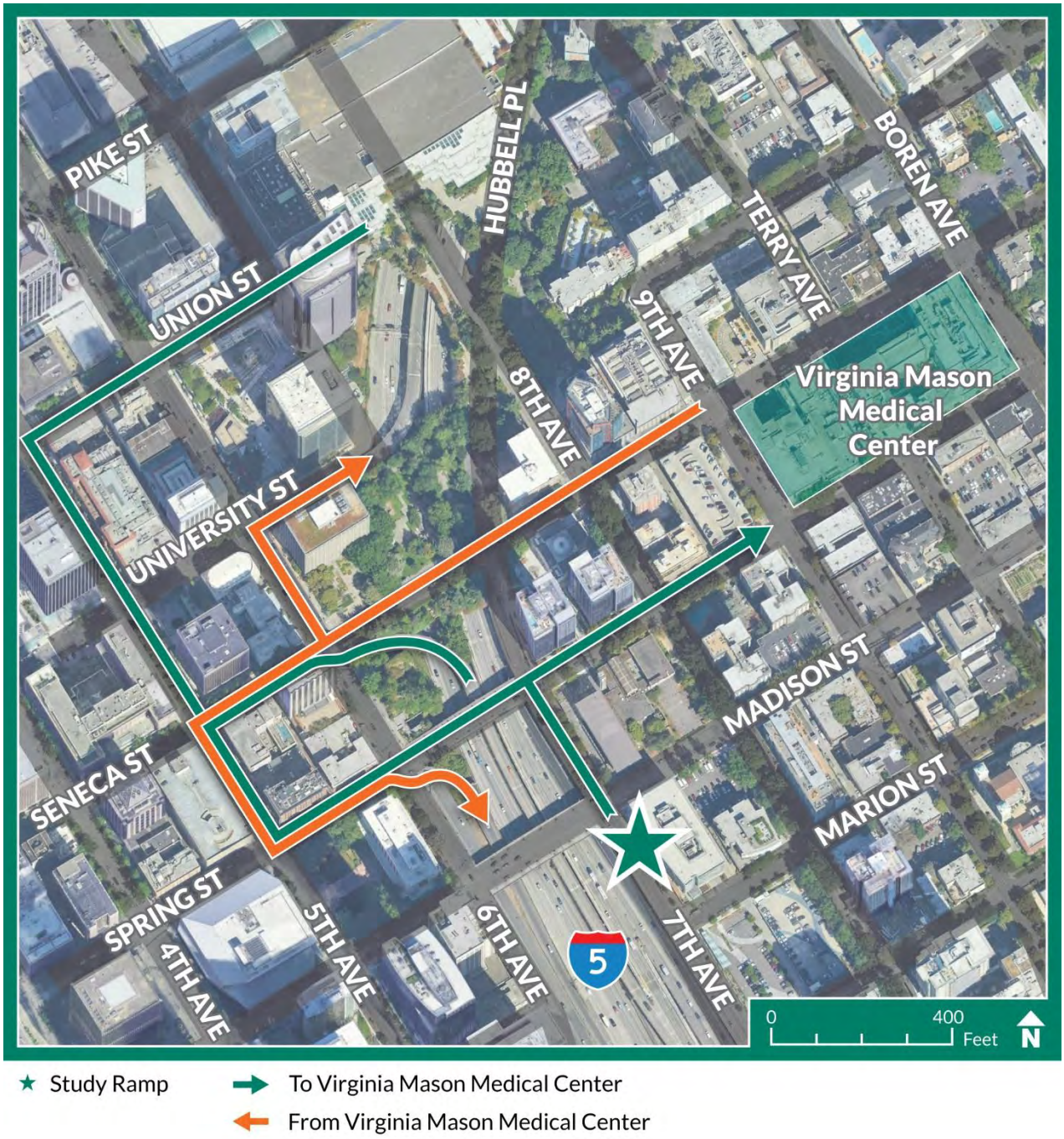


Image: Google Earth

2.4.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Madison Street off-ramp include 15,350 daily trips (Table 11), the fourth highest of Downtown segment ramps, and 72% the volume of the highest Downtown segment ramp. AM peak hour volume is 69% of the maximum theoretical capacity, and PM peak hour volume is 51% of the maximum theoretical capacity.

Table 11. Average Weekday Volumes for Madison St. Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	1,240	69%
Off-Ramp	PM	920	51%
Off-Ramp	AWD	15,350	

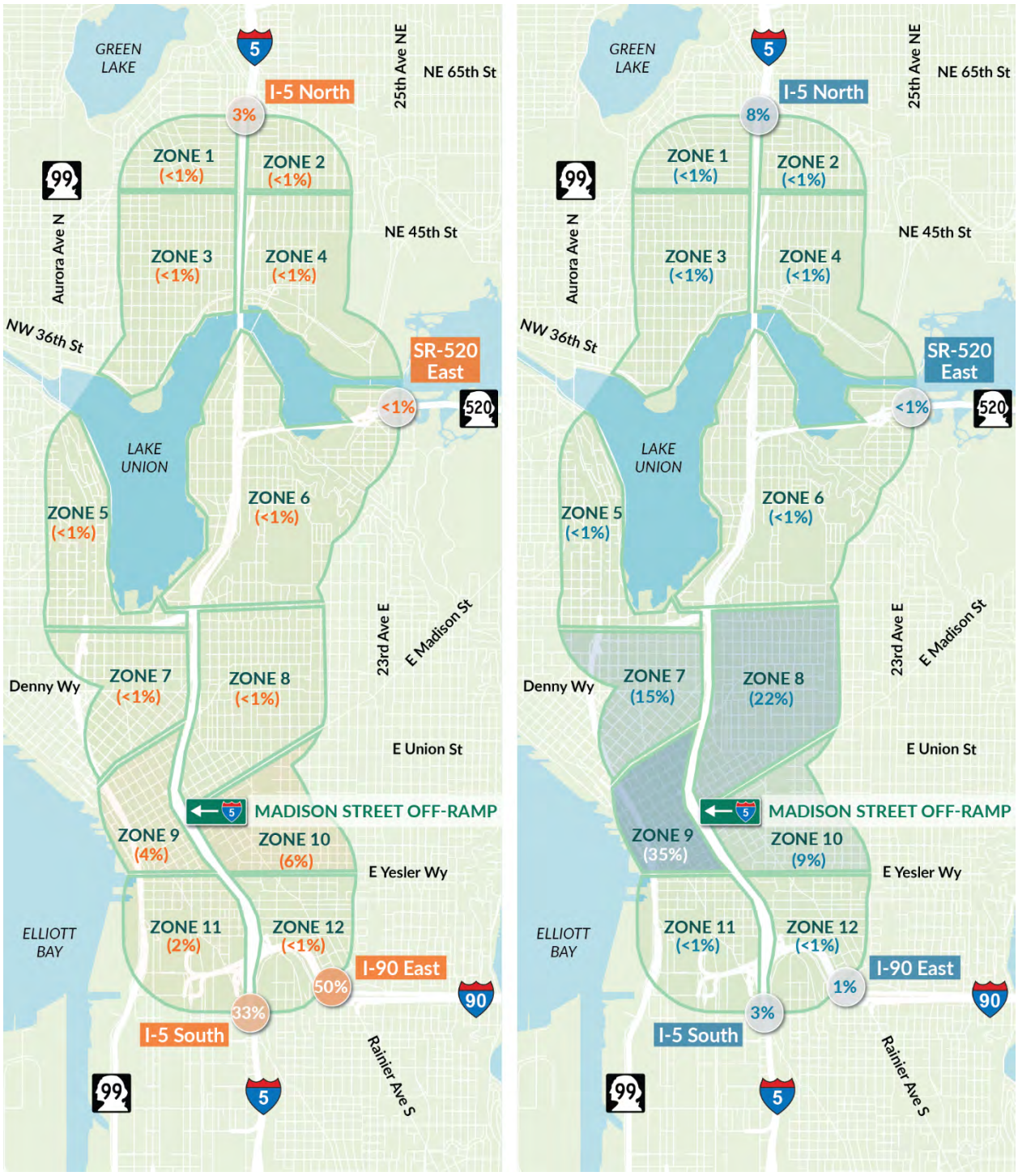
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Madison Street off-ramp is located within Zone 10. Figure 39 in Section 2.2.7 shows the traffic volumes traveling between Zone 10 and the other study area zones. The highest volumes traveling to and from Zone 10 are from Zone 8 and from beyond the study area to the south, north, and east via I-5 and I-90.

Figure 79 shows a subset of trips between Zone 10 and other study area zones that access the Madison Street off-ramp specifically. 50% of trips that access the Madison Street off-ramp have origins east of the study area, and 33% of trips have origins south of the study area. 35% of trips that access the Madison Street off-ramp travel to destinations within Zone 9, and 22% travel to destinations within Zone 8.

Figure 79. Origin and Destination Trips to and from Madison St. Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 80 shows the routes and relative volumes for traffic traveling to the Madison Street off-ramp. Most trips that access the ramp approach from east of the study area via I-90 or from south of the study area via I-5.

Figure 80. Trip Routes to Madison St. Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

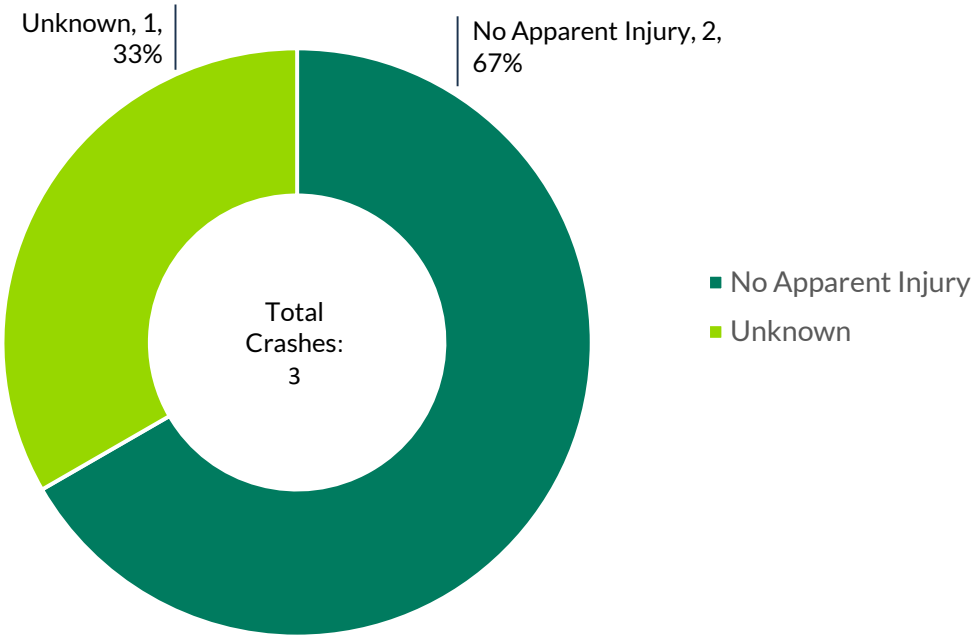
2.4.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were three reported crashes within 200 feet of the Madison Street off-ramp during the period.

Crash Severity

Figure 81 shows that most crashes near the Madison Street off-ramp during the study period reported no apparent injury (67%).

Figure 81. Crash Severity, Madison St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

Crash Type

All three crashes reported near the Madison Street off-ramp during the study period were sideswipe.

2.5 Spring Street On-Ramp

The entrance to the Spring Street on-ramp is located at the southeast corner of the intersection of Spring Street and 6th Avenue (Figure 82). The southbound on-ramp is accessed via the northbound, signal-controlled, right-turn lane from northbound 6th Avenue and eastbound from Spring Street (Figure 83). The ramp is one lane and not metered. Pedestrians are prohibited from the east side of 6th Avenue between Madison Street and Spring Street, leading to the ramp. The nearest southbound on-ramps are 6th Avenue near Yesler Way, approximately 0.5 miles to the south, and Yale Avenue, approximately 0.75 miles to the north.

Figure 82. Spring St. On-Ramp Study Area

Image: Google Earth

Figure 83. Spring St. On-Ramp Entrance, Looking South

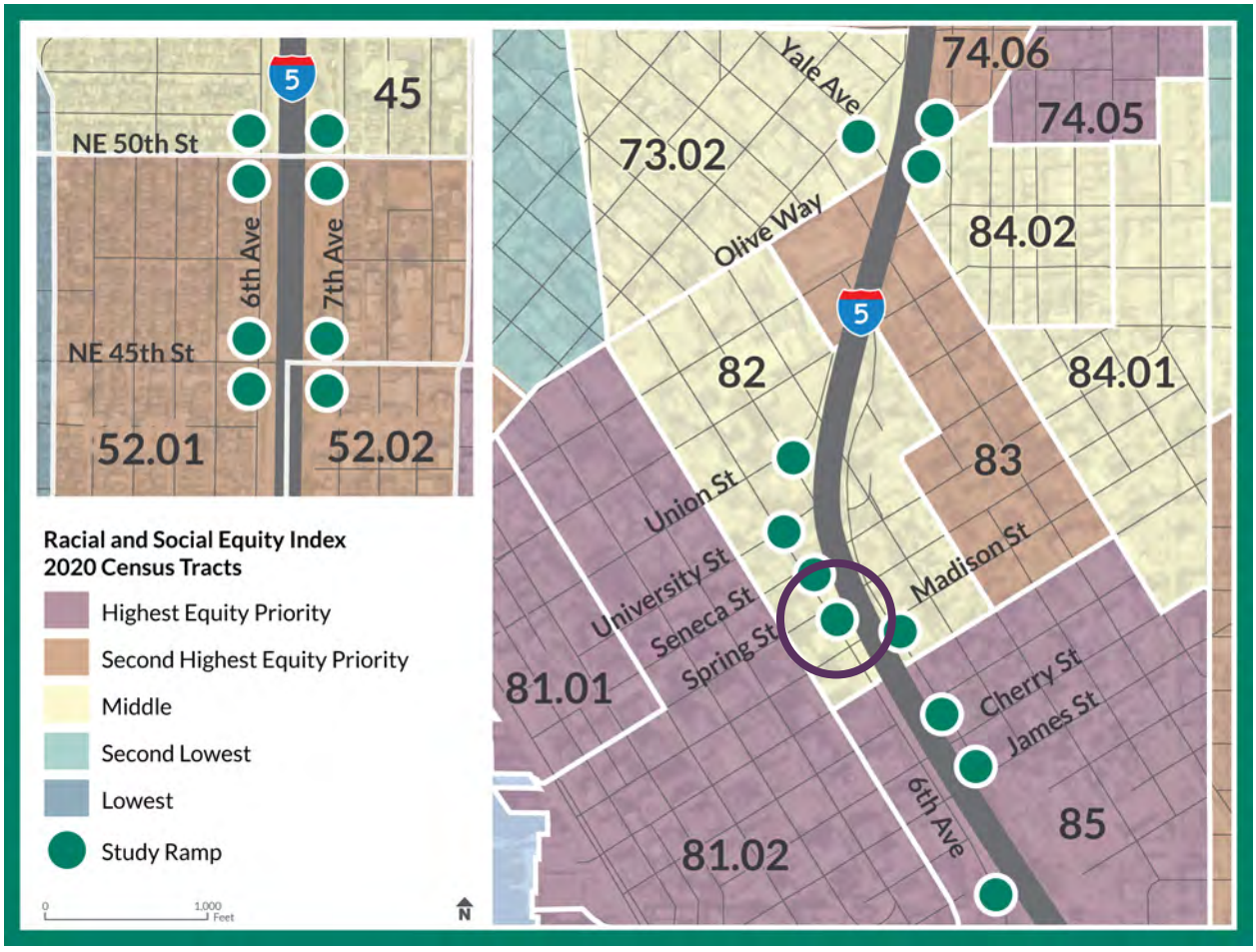
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near that Spring Street on-ramp, although there are significant sidewalk gaps on 7th Avenue and 6th Avenue. East-west bicycle facilities are present on Spring Street and Seneca Street, and frequent east-west and north-south transit services are present throughout the area. Specific features of the Spring Street on-ramp study area are discussed in the following sections.

2.5.1 Equity and Demographic Composition

The area around the Spring Street on-ramp is rated by the RSEI as Middle Equity Priority (Figure 84).

Figure 84. City of Seattle's Race and Social Equity Index Snapshot – Spring St. On-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Spring Street on-ramp is generally within Census Tract 82, which includes approximately 93 acres bordering 5th Avenue to the west, Marion Street to the south, 9th Avenue to the east, and Olive Way to the north. Demographic details about this Census Tract and its relationship to the City are provided in Table 9 in Section 2.4.1.

Census Tract 82 is over twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 82 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.5.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Spring Street on-ramp (Figure 85). Spring Street and Seneca Street are the primary east-west bicycle routes through this part of Downtown. Specific gaps and other aspects of these networks are listed later in this section.

Figure 85. Existing Bicycle and Pedestrian Facilities Near Spring St. On-Ramp

Image: Google Earth,
Data: City of Seattle

Sidewalks

The pedestrian network around the Spring Street on-ramp features sidewalks that are approximately 6 to 12 feet wide. Sidewalks are widest on 6th Avenue north of Spring Street and narrowest on Spring Street east of 6th Avenue. Sidewalks are present on all blocks except for the east side of 6th Avenue between Madison Street and Spring Street and the west side of 7th Avenue/Hubbell Place. These segments feature walls separating surface streets from the grade-separated highway ramps. The 6th Avenue segment leads to the Spring Street on-ramp and is closed to pedestrians, as is the west side of 7th Avenue/Hubbell Place.

Crosswalks

Most crossings feature signal-controlled, twin-stripe continental crosswalks (Figure 86). The exceptions are those crossings associated with sidewalk gaps and the Spring Street on-ramp (Figure 87). These include:

- 6th Avenue and Spring Street - south leg closed.
- 6th Avenue and Madison Street – east and north legs closed.
- 7th Avenue and Madison Street – west leg closed.
- 7th Avenue and Spring Street – west leg closed.
- Hubbell Place and Seneca Street – west leg closed (Figure 88).

Crossing distances range from 35 to 40 feet.

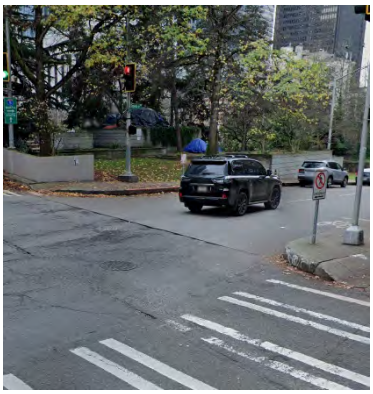
Figure 86. Marked Crosswalk, Spring St. and 5th Ave., Looking North

Source: 2024 Google

Figure 87. Closed Crossing, Spring St. and 6th Ave., Looking West

Source: 2024 Google

Figure 88. Closed Crossing, Hubbell Pl. and Seneca St, Looking South



Source: 2024 Google

Curb Ramps

Most crossings near the Spring Street on-ramp feature curb ramps, although the type and orientation vary. The orientation of some curb ramps is in line with the crosswalk, while others are angled toward the center of the intersection. Some ramps are ADA-compliant (Figure 89), while others are non-compliant (Figure 90). Some crossings include ADA-related features but are not fully compliant (Figure 91).

Figure 89. ADA-Compliant Curb Ramp, 7th Ave., and Spring St.

Source: 2024 Google

Figure 90. Non-Compliant Curb Ramp, 8th Ave., and Spring St.

Source: 2024 Google

Figure 91. Non-Compliant Curb Ramp, 6th Ave. and Seneca St.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Spring Street on-ramp features east-west bicycle facilities on Spring Street and Seneca Street. 4th Avenue nearby has a two-way protected bike lane. All street segments near the Spring Street ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High[20]. Specific bicycle facilities are listed below:

Conventional Bike Lanes

- Spring Street west of 6th Avenue and east of 7th Avenue (Figure 92).

Shared Lane Markings

- Seneca Street.
- Spring Street between 6th Avenue and 7th Avenue (Figure 93).

[20] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 92. Conventional Bike Lane, Spring St. at 5th Ave., Looking East

Source: 2024 Google

Figure 93. Shared Lane Markings, Spring St. at 7th Ave., Looking West

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes shared lane markings on Hubbell Place north of Spring Street[21]. 5th Avenue is planned to have a protected bike lane south of Spring Street and shared lane markings planned to the north of Spring Street. Protected bike lanes are planned for Spring Street and Seneca Street.

[21] Bicycle Master Plan - Transportation | seattle.gov

2.5.3 Transit Conditions

The area around the Spring Street on-ramp features a dense transit network with a range of route types and varying frequencies (Figure 94). Frequent east-west routes run along and parallel to Spring Street. 5th Avenue has several southbound frequent and daily routes. Several transit stops are present near the Spring Street ramp, including a stop on Spring Street elevated above the ramp. The sections below describe the existing transit network in greater detail.

Figure 94. Existing Transit Network Near Spring St. On-Ramp

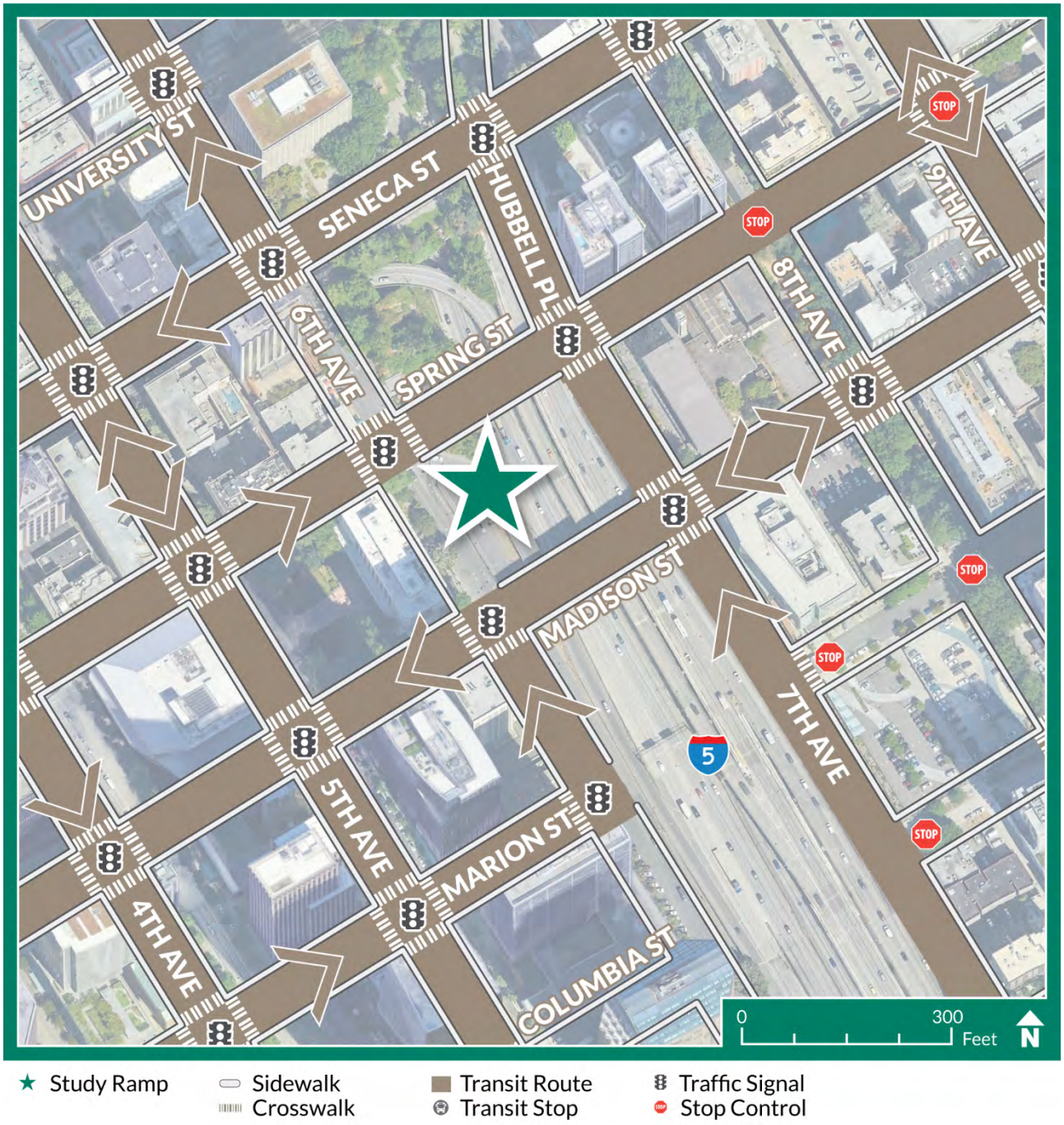


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Seven Metro Lines serve streets near the Spring Street off-ramp, including Seneca Street, Spring Street, Madison Street, 5th Avenue, and 6th Avenue. Many of these lines run throughout the day, seven days a week, while others run in the mornings and evenings and only on weekdays. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the Spring Street on-ramp include:

- Seneca Street at 6th Avenue serving Metro Lines 2, 13, and DART Route 630.
- Spring Street at 6th Avenue serving Metro Line 2.
- Madison Street at 5th Avenue serving Metro Line 12.
- 5th Avenue at Spring Street serving Metro Lines 302, 303, 322, and DART Route 630.

Existing Headways and Span-of-Service

Frequent transit service near the Spring Street on-ramp includes Metro Lines 2 and 13 that run east on Spring Street and west on Seneca Street from the early morning to late evening with headways of 10 minutes or less during peak hours. Sound Transit Line 510 travels south along 5th Avenue from early morning to mid-morning with headways of generally 15 to 30 minutes. Sound Transit Lines 577 exits I-5 at the Seneca Street off-ramp and travels north on 4th Avenue with trips from early morning to mid-morning and headways of 10-20 minutes.

Other transit service near the Spring Street on-ramp includes Metro DART Route 630, which runs west on Seneca Street and north-south on 5th Avenue twice in the morning and twice in the early evening with headways of over an hour. Metro Lines 162, 257, and 311 exit I-5 at the Seneca Street off-ramp and travel north on 6th Avenue with northbound trips from mid-afternoon to mid-evening and headways from 20 to 50 minutes. Sound Transit Lines 578 and 592 exit I-5 at the Seneca Street off-ramp and travel north on 4th Avenue. Line 578 has trips from mid-morning to late evening with headways of 20 to 30 minutes. Line 592 runs from early morning to mid-morning with headways of 30 minutes. Sound Transit Lines 510 and 545 run south on 5th Avenue from early morning to late morning with headways of 15-30 minutes.

Community Transit Lines generally run twice a day, southbound in the morning, with a return northbound trip in the afternoon or evening. Headways vary from 15 to 105 minutes, with 30 minutes between most arrivals.

There are transit reliability challenges for routes on Madison Street and Spring Street, where they cross I-5. Table 12 lists specific service spans and headways as of June 2024.

Table 12. Existing Transit Headways, Span-of-Service, and Days of Service Near Spring St. On-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
2 SB	5:00 AM	1:45 AM	10-30	Yes
2 NB	4:30 AM	1:15 AM	10-20	Yes
12 SB	6:00 AM	12:00 AM	10-30	Yes
12 NB	5:30 AM	12:15 AM	10-40	Yes
193 SB	3:10 PM	8:40 PM	10-90	No
193 NB	5:20 AM	9:00 AM	10-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
302 SB	5:30 AM	7:15 AM	30-45	No
302 NB	3:30 PM	5:45 PM	40	No
303 SB	5:30 AM	8:00 AM	30-60	No
303 NB	3:50 PM	7:50 PM	30-40	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
322 SB	5:45 AM	8:50 AM	30	No
322 NB	4:00 PM	7:40 PM	30-60	No
DART 630 WB	6:00 AM	8:45 AM	40	No
DART 630 EB	4:00 PM	6:30 PM	35	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	15-30	No
510 NB	2:30 PM	7:45 PM	15-30	No
545 EB	5:00 AM	12:30 AM	30	Yes
545 WB	4:30 AM	12:00 AM	30	Yes
577 NB	4:45 AM	9:35 AM	10-20	Yes
577 SB	5:30 AM 2:30 PM	8:15 AM 6:15 PM	10-30	Yes
578 NB	7:20 AM	10:25 PM	20-60	Yes
578 SB	7:45 AM	12:10 AM	60	Yes
592 NB	4:00 AM	9:30 AM	30	No
592 SB	2:10 PM	8:00 PM	30	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street before connecting to eastbound Madison Street at 9th Avenue[22]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Spring Street on-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[23].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[22] RapidRide G Line – Madison St - Transportation | seattle.gov

[23] Ballard Link Extension | Project map and summary | Sound Transit

2.5.4 Key Destinations

Several destinations are located near the Spring Street on-ramp (Figure 95). Civic locations include the Town Hall and Nakamura Federal Courthouse. Community organizations include the YWCA and the Women's University Club. There is one place of worship, the Plymouth United Church of Christ. There are three public spaces including Freeway Park, Seneca Plaza, and Naramore Fountain. People use the ramp to access medical facilities, Downtown Seattle, and Duwamish.

Figure 95. Key Destinations Near Spring St. On-Ramp

Image: Google Earth
Data: City of Seattle

2.5.5 Emergency Access

Virginia Mason Medical Center is located near the Spring Street on-ramp. Hospital traffic, including emergency vehicles, generally uses Seneca Street and Spring Street to travel to and from the hospital. Northbound traffic from I-5 may exit at Madison Street or Seneca Street. Southbound traffic may exit at Union Street. Northbound traffic entering I-5 may use University Street, and southbound traffic may use Spring Street.

Figure 96. Virginia Mason Medical Center I-5 Access Near Spring St. On-Ramp

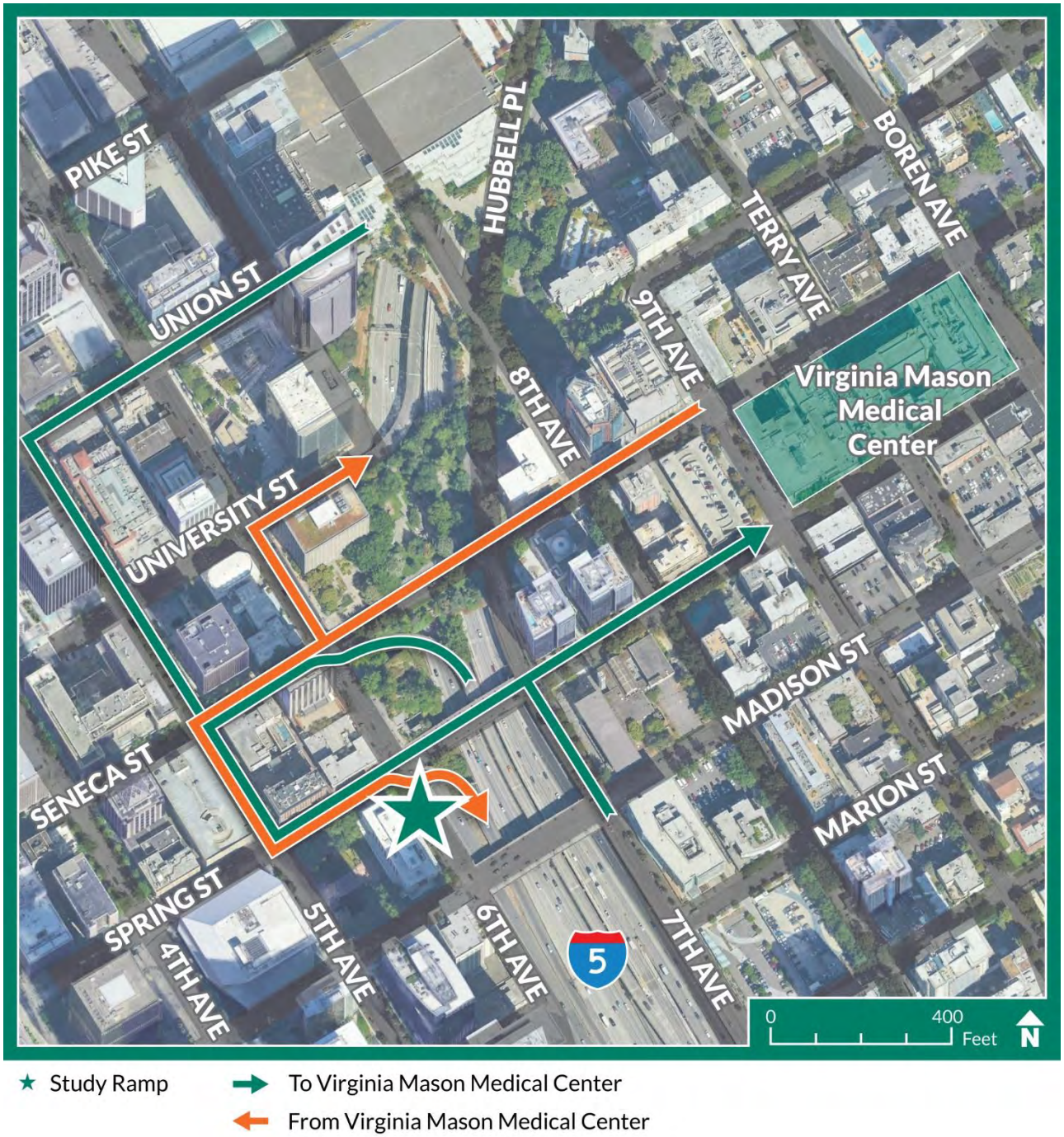


Image: Google Earth

2.5.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Spring Street on-ramp include 15,540 daily trips (Table 13), the third highest of Downtown segment ramps, and 72% of the volume of the highest Downtown segment ramp. AM peak hour volume is 46% of the maximum theoretical capacity, and PM peak hour volume is 61% of the maximum theoretical capacity.

Table 13. Average Weekday Volumes for Spring St. On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	820	46%
On-Ramp	PM	1,090	61%
On-Ramp	AWD	15,540	

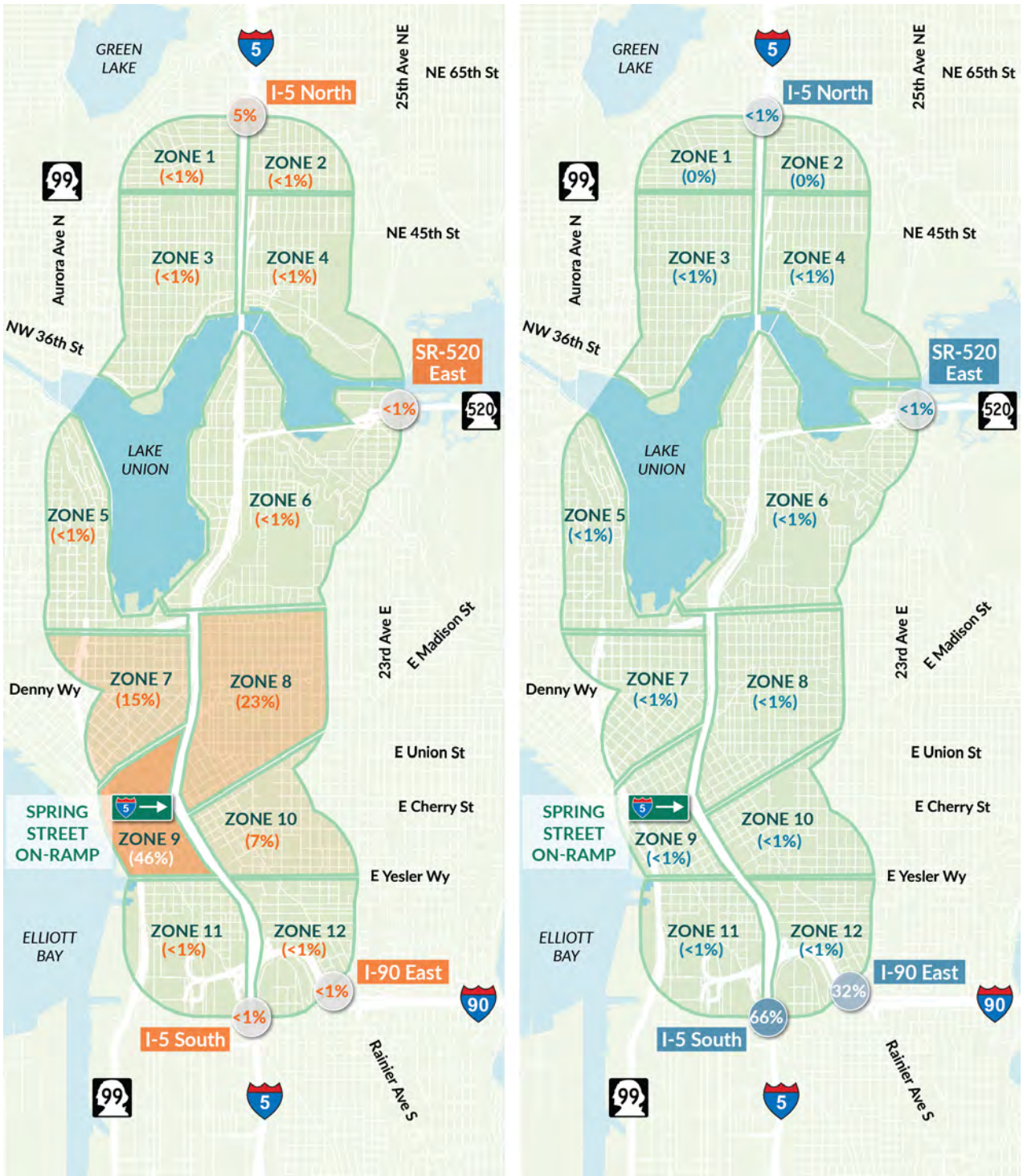
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Spring Street on-ramp is located within Zone 9. Figure 19 in Section 2.1.6 shows the traffic volumes traveling between Zone 9 and the other study area zones. The highest volumes traveling to and from Zone 9 are from Zones 7, 8, and 11 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 97 shows a subset of trips between Zone 9 and other study area zones that access the Spring Street on-ramp specifically. 46% of trips that access the Spring Street on-ramp have origins within Zone 9, and 23% have origins within Zone 8. 66% of trips that access the Spring Street on-ramp have destinations south of the study area, and 32% have destinations east of the study area.

Figure 97. Origin and Destination Trips to and from Spring St. On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 98 shows the routes and relative volumes for traffic traveling from the Spring Street on-ramp. Most trips that access the ramp travel south beyond the study area via I-5 or east beyond the study area via I-90.

Figure 98. Trip Routes from Spring St. On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

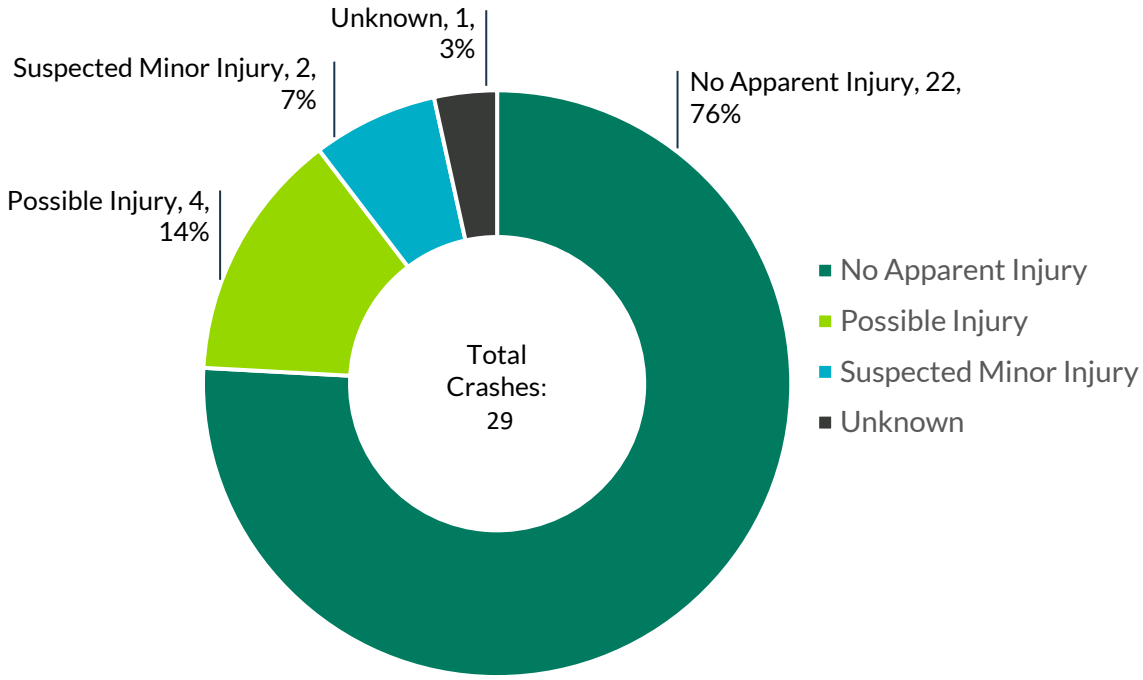
2.5.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 29 reported crashes within 200 feet of the Spring Street on-ramp during the period.

Crash Severity

Figure 99 shows that most crashes near the Spring Street on-ramp during the study period reported no apparent injury (76%).

Figure 99. Crash Severity, Spring St. On-Ramp Study Area, Jan. 2019 through Dec. 2023

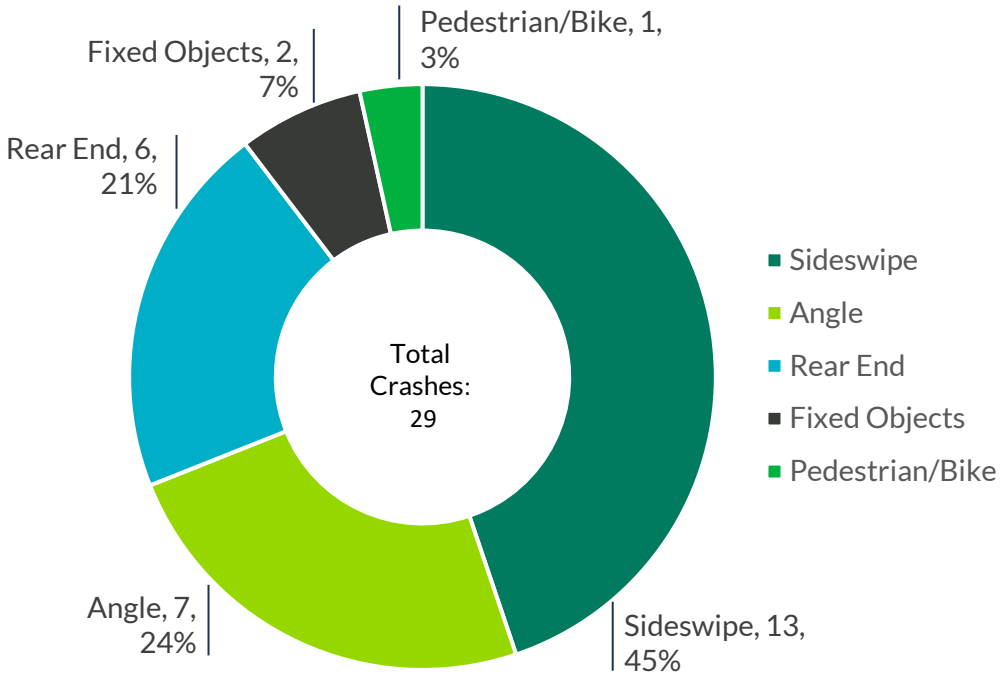


Data: WSDOT

Crash Type

Figure 100 shows that the most common crash type reported near the Spring Street on-ramp was sideswipe (45%), followed by angle (24%). There was one reported pedestrian/bike collision during the period.

Figure 100. Crash Type, Spring St. On-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.6 Seneca Street Off-Ramp

The Seneca Street off-ramp connects northbound highway traffic to the local street network west of I-5 at the southeast corner of the intersection of Seneca Street and 6th Avenue near Seneca Plaza and Freeway Park (Figure 101). Traffic exiting the highway may travel west on Seneca Street or turn right onto northbound 6th Avenue (Figure 102). The nearest northbound off-ramps are Madison Street, approximately 0.25 miles to the south, and Olive Way, approximately 0.5 miles to the north.

Figure 101. Seneca St. Off-Ramp Study Area

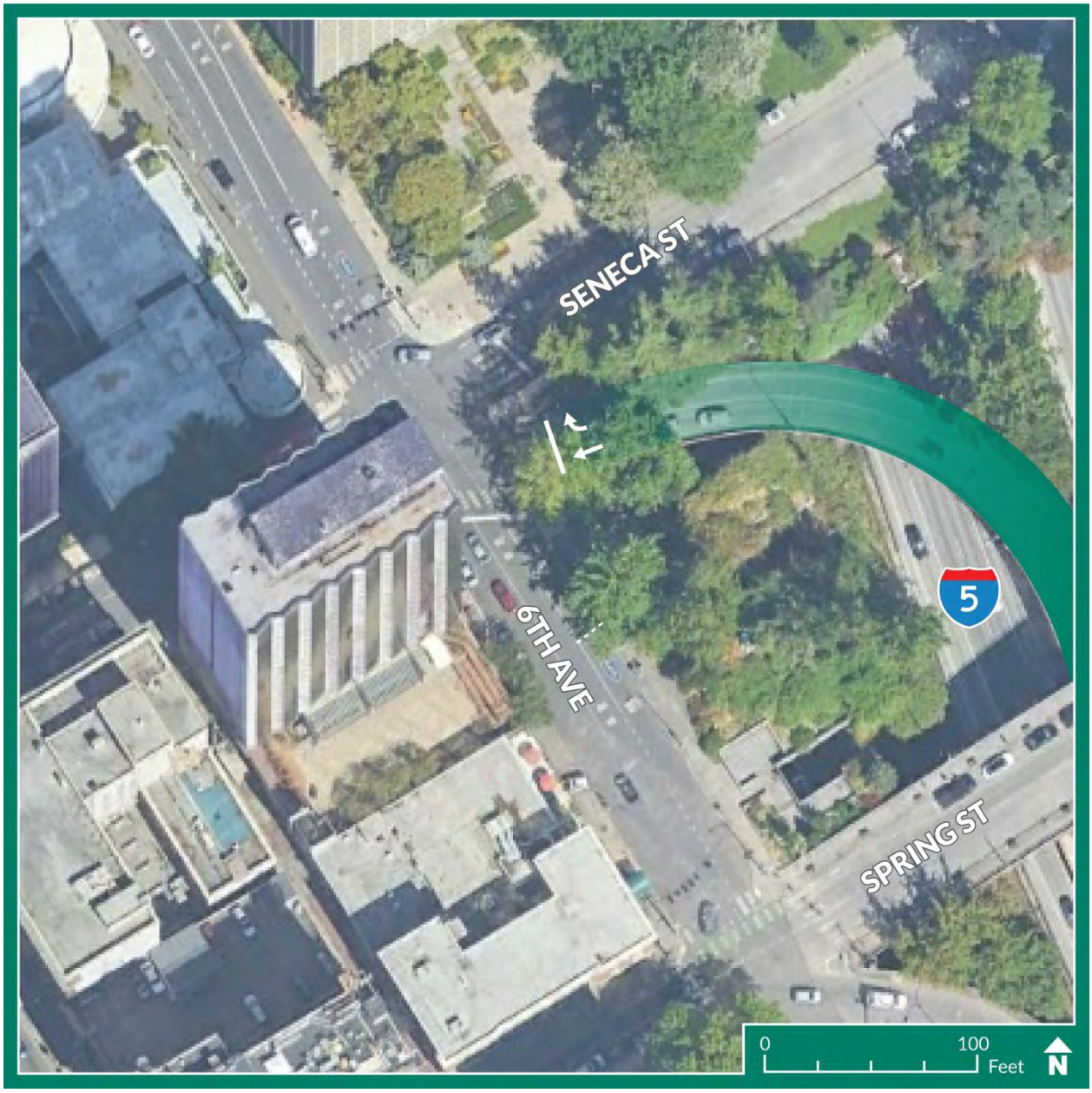


Image: Google Earth

Figure 102. Seneca St. Off-Ramp Terminal, Looking East

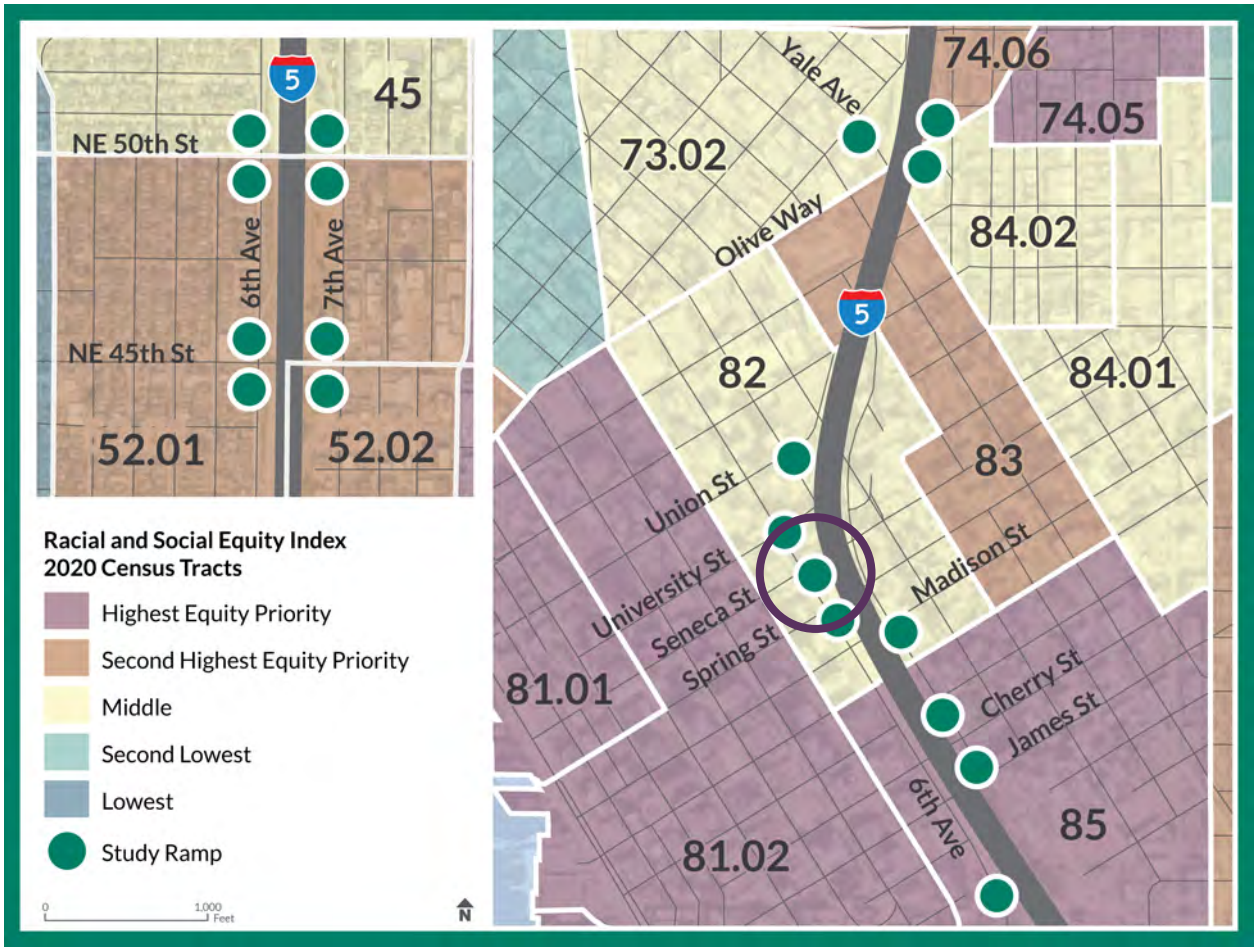
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Seneca Street off-ramp, although there are significant sidewalk gaps nearby on 6th Avenue, 7th Avenue, and Hubbell Place. East-west bicycle facilities are present on Spring Street and Seneca Street, and frequent east-west and north-south transit services are present throughout the area. Specific features of the Seneca Street off-ramp study area are discussed in the following sections.

2.6.1 Equity and Demographic Composition

The area around the Seneca Street off-ramp is rated by the RSEI as Middle Equity Priority (Figure 103).

Figure 103. City of Seattle's Race and Social Equity Index Snapshot – Seneca St. Off-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Seneca Street on-ramp is generally within Census Tract 82, which includes approximately 93 acres bordering 5th Avenue to the west, Marion Street to the south, and 9th Avenue to the east. Details about this Census Tract and its relationship to the City are provided in Table 9 in Section 2.4.1.

Census Tract 82 is over twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 82 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.6.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Seneca Street off-ramp (Figure 104). The bicycle network in this area features east-west routes along Spring Street and Seneca Street. Specific gaps and other aspects of these networks are listed later in this section.

Figure 104. Existing Bicycle and Pedestrian Facilities Near Seneca St. Off-Ramp

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Seneca Street off-ramp features sidewalks that are approximately 7 to 10 feet wide. Sidewalks are widest on 6th Avenue north and south of Seneca Street and narrowest on the Seneca Street bridge between 6th Avenue and Hubbell Place. Sidewalks are present on all blocks except for the east side of 6th Avenue between Madison Street and Spring Street and the west side of 7th Avenue/Hubbell Place. These segments feature walls separating surface streets from grade-separated highway ramps. Pedestrians are prohibited from the east side of 6th Avenue that leads to the Spring Street on-ramp and the west side of 7th Avenue between Spring Street and Madison Street.

Crosswalks

Most crossings feature signal-controlled, twin-stripe continental crosswalks (Figure 105). The exceptions are the south leg of Spring Street crossing 6th Avenue, which is associated with a missing sidewalk and the Spring Street on-ramp (Figure 106), and the western leg of the intersection of Spring Street and 7th Avenue. Crossing distances range from 25 to 54 feet.

Figure 105. Seneca St. Crossing 6th Ave., Looking South

Source: 2024 Google

Figure 106. Closed Crosswalk, Spring St. and 6th Ave., Looking East

Source: 2024 Google

Curb Ramps

Most crossings near the Seneca Street off-ramp feature curb ramps, although the type and orientation vary. Most curb ramps are oriented in line with the crosswalk, but some are angled toward the center of the intersection. Most curb ramps are ADA-compliant (Figure 107), while others are non-compliant (Figure 108).

Figure 107. ADA-Compliant Curb Ramp, Seneca St., and 6th Ave.

Source: 2024 Google

Figure 108. Non-ADA-Compliant Curb Ramp, Seneca St., and Hubbell Pl.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Seneca Street off-ramp features east-west bicycle facilities on Seneca Street and Spring Street. All street segments near the Seneca Street ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High[24]. Specific bicycle facilities are listed below:

Conventional Bike Lanes

- Spring Street, west of 6th Avenue
- Spring Street east of 7th Avenue (Figure 109)

Shared Lane Markings

- Seneca Street (Figure 110)
- Spring Street between 6th Avenue and 7th Avenue (Figure 111)

[24] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 109. Conventional Bike Lane, Spring St. at 5th Ave., Looking East

Source: 2024 Google

Figure 110. Shared Lane Markings, Seneca St. at 6th Ave., Looking East

Source: 2024 Google

Figure 111. Shared Lane Markings, Spring St. at 7th Ave., Looking West

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes a protected bike lane on Hubbell Place north of Spring Street[25]. 5th Avenue is planned to have a conventional bike lane north of Spring Street and a protected bike lane south of Spring Street. Protected bike lanes are planned for Spring Street and Seneca Street.

[25] Bicycle Master Plan - Transportation | seattle.gov

2.6.3 Transit Conditions

The area around the Seneca Street off-ramp features a dense transit network with a range of route types and varying frequencies (Figure 112). Frequent east-west routes run along and parallel to Seneca Street. 5th Avenue has several southbound frequent and daily routes. Several transit stops are present near the Seneca Street ramp, including a stop on Seneca Street elevated above the ramp. The sections below describe the existing transit network in greater detail.

Figure 112. Existing Transit Network Near Seneca St. Off-Ramp

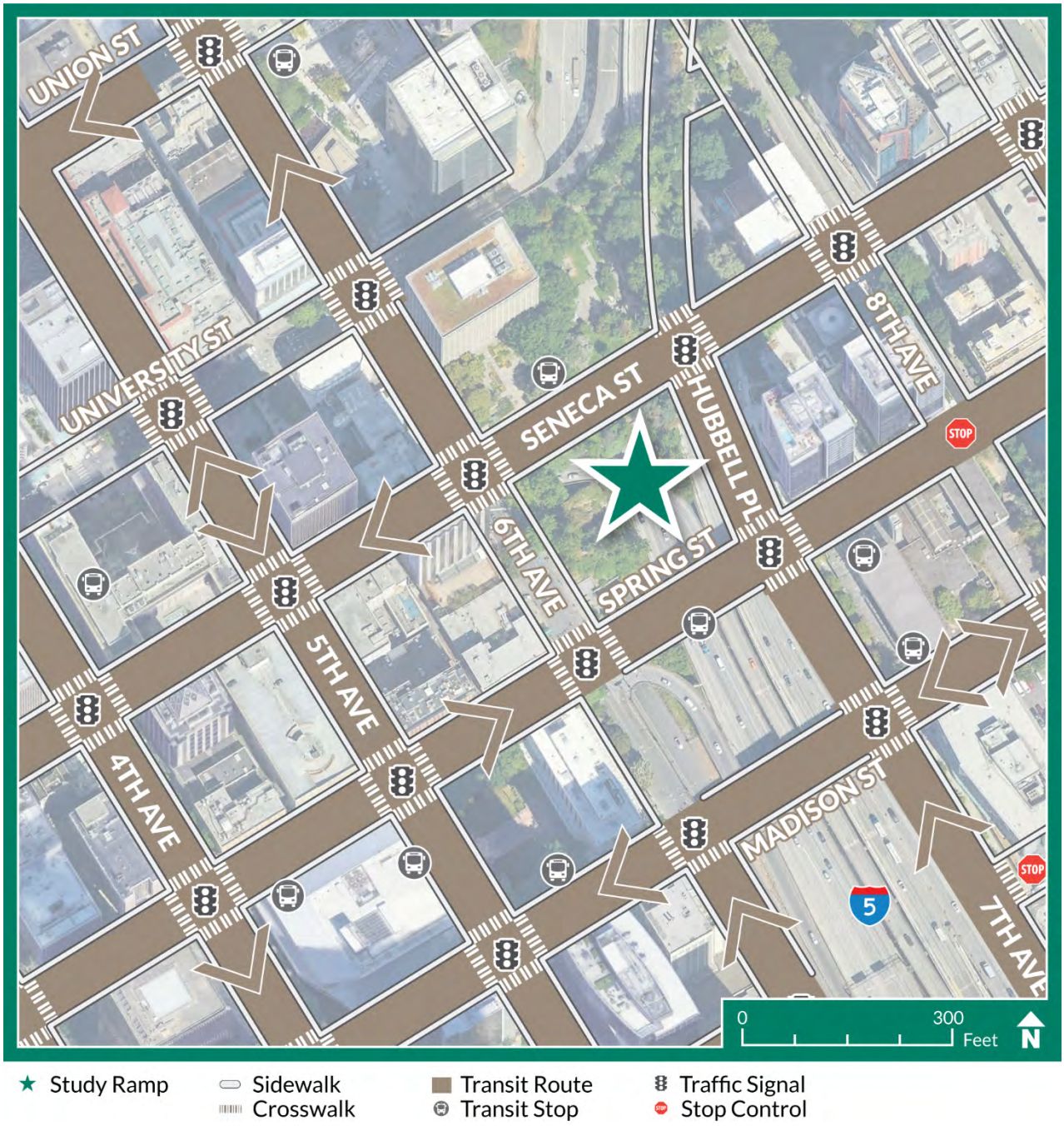


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Two east-west Metro Lines utilize streets near the Seneca Street off-ramp. Metro Line 2 runs west on Seneca Street, east on Spring Street, and north on Hubbell Place. Metro DART Route 630 runs west on Seneca Street and south on 5th Avenue. 4th Avenue and 5th Avenue serve Community Transit Lines 402, 405, 410, 415, 417, 422, and 424, as well as Sound Transit Lines 510, 511, 512, 513, and 545. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the Seneca Street off-ramp include:

- Seneca Street at 6th Avenue serving Metro Lines 2 and 13 and DART Route 630.
- Spring Street at 6th Avenue serving Metro Line 12.
- Seneca Street westbound at Hubbell Place serving Metro Lines 2 and 13 and DART Route 630.
- Seneca Street eastbound at Hubbell Place serving Metro Lines 2 and 193.

Existing Headways and Span-of-Service

Frequent transit service near the Seneca Street off-ramp includes Metro Lines 2 and 13 that run east on Spring Street and west on Seneca Street from the early morning to late evening with headways of 10 minutes or less during peak hours. Sound Transit Line 510 travels south along 5th Avenue from early morning to mid-morning with headways of generally 15 to 30 minutes. Sound Transit Lines 577 exits I-5 at the Seneca Street off-ramp and travels north on 4th Avenue with trips from early morning to mid-morning and headways of 10-20 minutes.

Other transit service near the Seneca Street off-ramp includes Metro DART Route 630, which runs west on Seneca Street and north-south on 5th Avenue twice in the morning and twice in the early evening with headways of over an hour. Metro Lines 162, 257, and 311 exit I-5 at the Seneca Street off-ramp and travel north on 6th Avenue with northbound trips from mid-afternoon to mid-evening and headways from 20 to 50 minutes. Sound Transit Lines 578 and 592 exit I-5 at the Seneca Street off-ramp and travel north on 4th Avenue. Line 578 has trips from mid-morning to late evening with headways of 20 to 30 minutes. Line 592 runs from early morning to mid-morning with headways of 30 minutes. Sound Transit Lines 510 and 545 run south on 5th Avenue from early morning to late morning with headways of 15-30 minutes.

Community Transit Lines generally run twice a day, southbound in the morning, with a return northbound trip in the afternoon or evening. Headways vary from 15 to 105 minutes, with 30 minutes between most arrivals.

Table 14 lists specific service spans and headways as of June 2024.

Table 14. Existing Transit Headways, Span-of Service, and Days of Service Near Seneca St. Off-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
2 SB	5:00 AM	1:45 AM	10-30	Yes
2 NB	4:30 AM	1:15 AM	10-20	Yes
13 SB	5:56 AM	1:16 AM	7-44	Yes
13 NB	5:14 AM	12:43 AM	7-44	Yes
162 SB	5:00 AM	9:00 AM	20-30	No
162 NB	3:30 PM	7:00 PM	20-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
302 SB	5:33 AM	7:16 AM	30-45	No
302 NB	3:30 PM	5:45 PM	40	No
303 SB	5:30 AM	8:00 AM	30-60	No
303 NB	3:50 PM	7:50 PM	30-40	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
322 SB	5:46 AM	8:50 AM	30	No
322 NB	4:00 PM	7:40 PM	30-60	No
DART 630 NB	6:45 PM	8:45 PM	75	No
DART 630 SB	4:00 PM	6:30 PM	105	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	15-30	No
510 NB	2:30 PM	7:45 PM	15-30	No
545 EB	5:00 AM	12:30 AM	30	Yes
545 WB	4:30 AM	12:00 AM	30	Yes
577 NB	5:00 AM	9:00 AM	10-20	Yes
578 NB	8:30 AM	12:15 AM	20-30	Yes
592 NB	4:00 AM	9:30 AM	30	No
Community Transit				
402 NB	2:30 PM	7:00 PM	20-30	No
402 SB	5:15 AM	9:15 AM	15-30	No
405 NB	3:15 PM	6:45 PM	40	No

Line	Begin	End	Headway (Minutes)	Weekend Service
405 SB	5:45 AM	8:45 AM	30-50	No
410 NB	3:00 PM	6:30 PM	30	No
410 SB	5:15 AM	9:10 AM	50-80	No
415 NB	2:30 PM	6:30 PM	15-30	No
415 SB	5:15 AM	9:45 AM	30	No
417 NB	3:15 PM	7:00 PM	30-60	No
417 SB	5:45 AM	9:15 AM	30-60	No
422 NB	4:00 PM	7:00 PM	60	No
422 SB	5:15 AM	8:00 AM	50	No
424 NB	3:30 PM	7:00 PM	90	No
424 SB	5:15 AM	8:15 AM	105	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street before connecting to eastbound Madison Street at 9th Avenue[26]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Seneca Street off-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[27].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[26] RapidRide G Line – Madison St - Transportation | seattle.gov

[27] Ballard Link Extension | Project map and summary | Sound Transit

2.6.4 Key Destinations

Several destinations are located near the Seneca Street off-ramp (Figure 113). Civic locations include the Town Hall and Nakamura Federal Courthouse. Community organizations include the YWCA and the Women's University Club. There is one faith-based organization, the Plymouth United Church of Christ. There are three public spaces including Freeway Park, Seneca Plaza, and Naramore Fountain. People use the ramp to access medical facilities, South Lake Union, Interbay, southern port facilities, and Downtown Seattle.

Figure 113. Key Destinations Near Seneca St. Off-Ramp

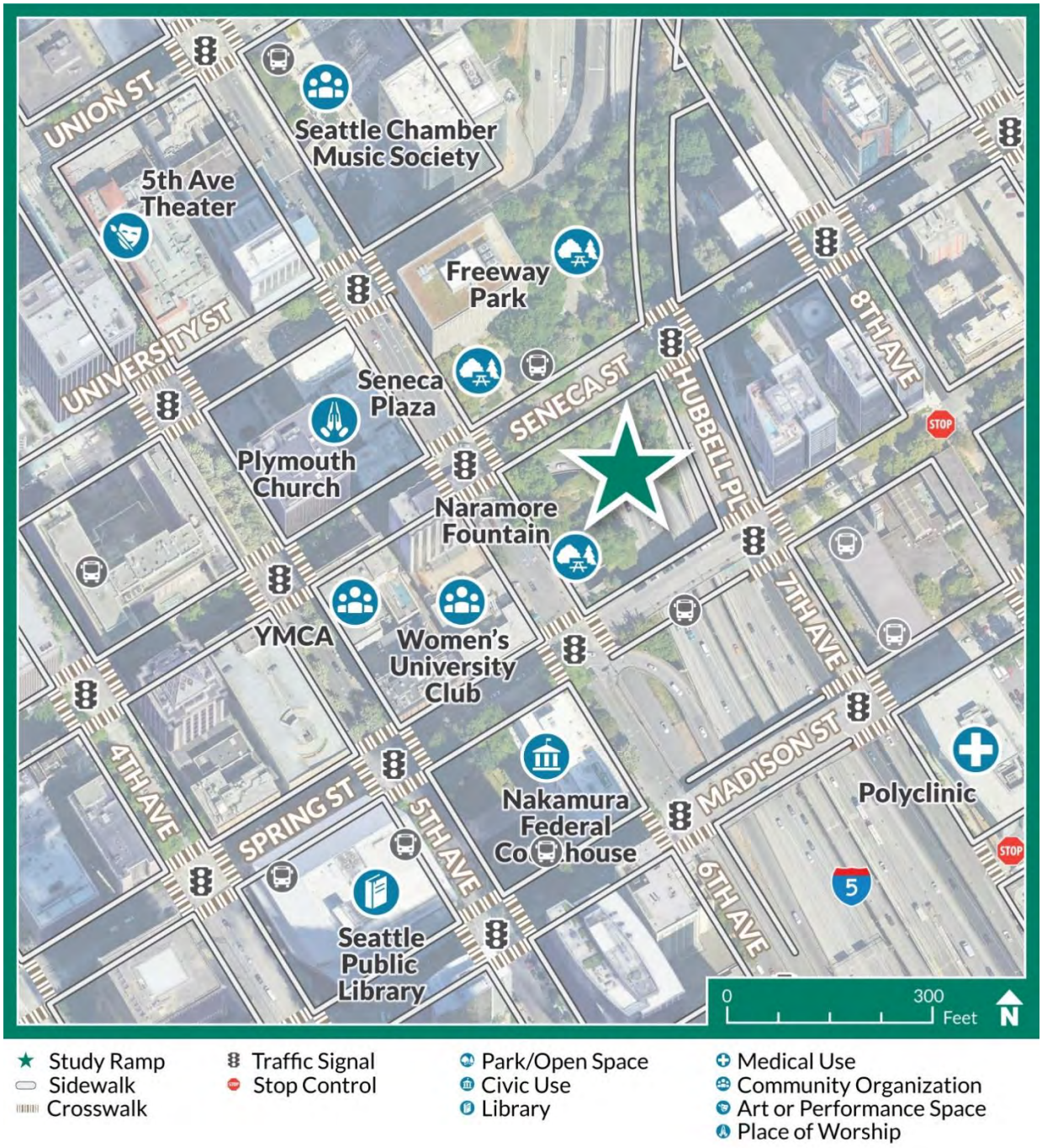


Image: Google Earth. Data: City of Seattle

2.6.5 Emergency Access

Virginia Mason Medical Center is located near the Seneca Street off-ramp. Hospital traffic, including emergency vehicles, generally uses Seneca Street and Spring Street to travel to and from the hospital. Northbound traffic from I-5 may exit at Madison Street or Seneca Street. Southbound traffic may exit at Union Street. Northbound traffic entering I-5 may use University Street, and southbound traffic may use Spring Street.

Figure 114. Virginia Mason Medical Center I-5 Access Near Seneca St. Off-Ramp

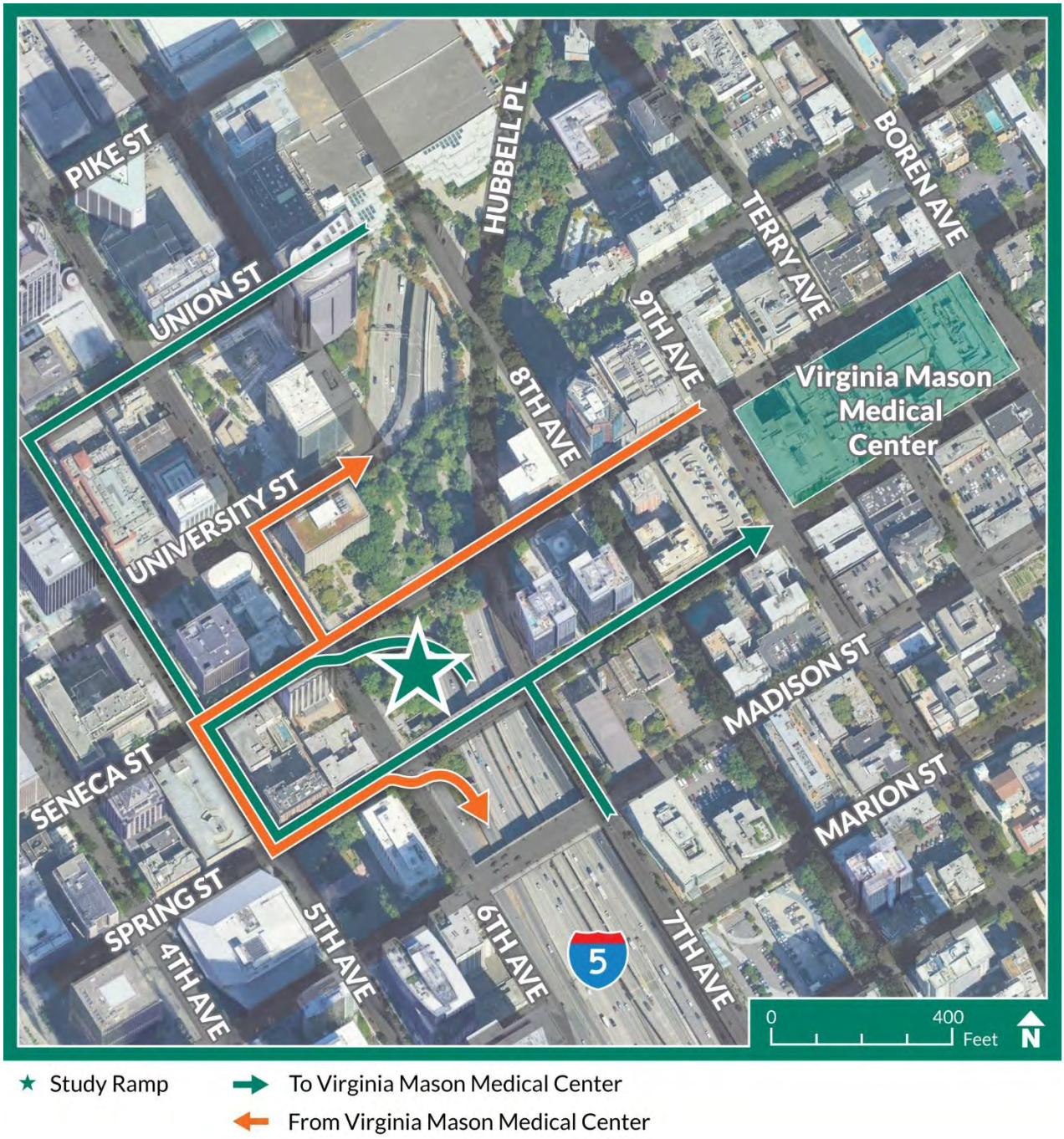


Image: Google Earth

2.6.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Seneca Street off-ramp include 10,010 daily trips (Table 15), the fifth lowest of Downtown segment ramps, and 47% of the volume of the highest Downtown segment study ramp. AM peak hour volume is 41% of the maximum theoretical capacity, and PM peak hour volume is 34% of the maximum theoretical capacity.

Table 15. Average Weekday Volumes for Seneca St. Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	730	41%
Off-Ramp	PM	620	34%
Off-Ramp	AWD	10,010	

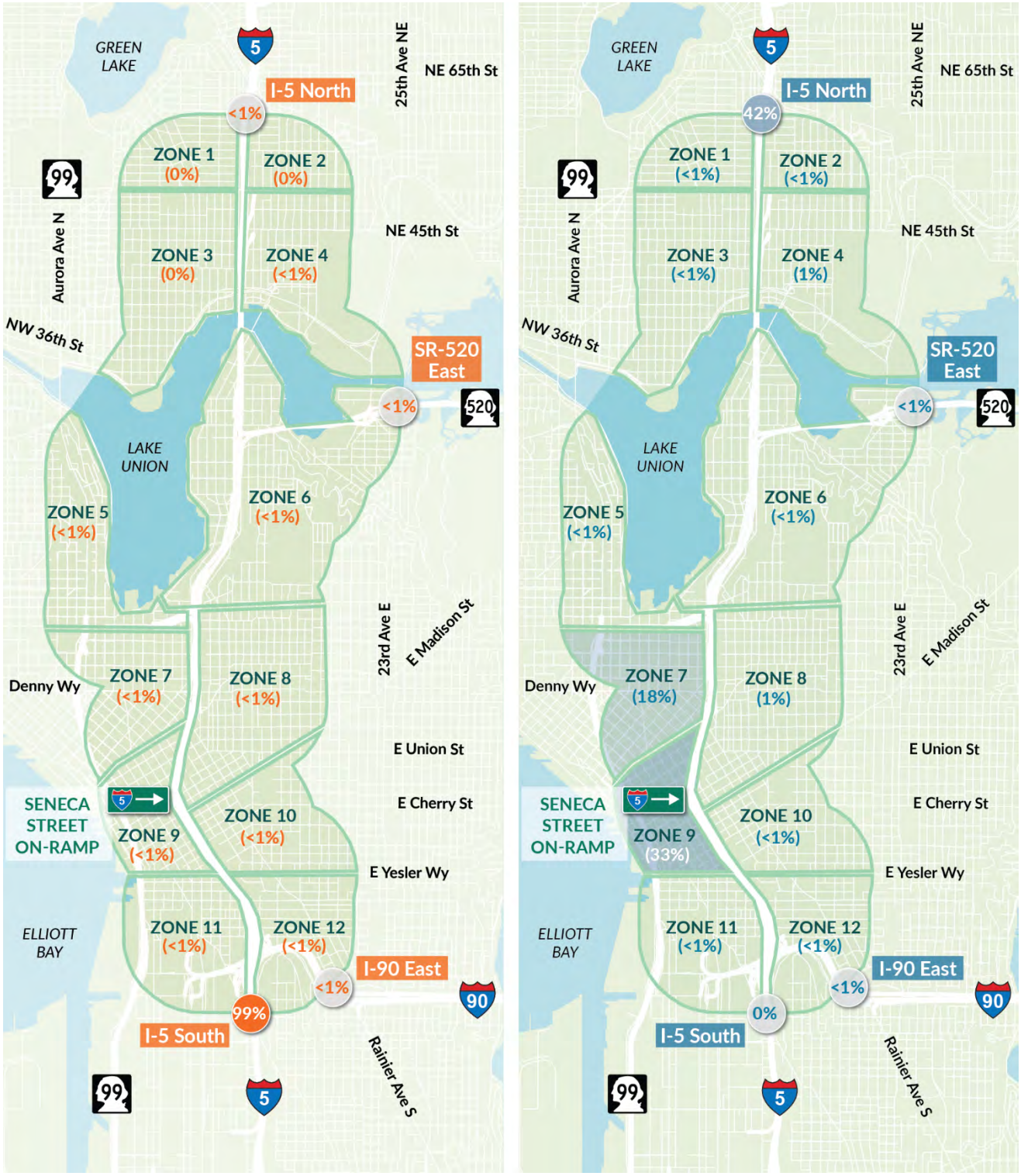
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Seneca Street off-ramp is located within Zone 9. Figure 19 in Section 2.1.6 shows the volumes traveling between Zone 9 and the other study area zones. The highest volumes traveling to and from Zone 9 are from Zones 7, 8, and 11 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 115 shows a subset of trips between Zone 9 and other study area zones that access the Seneca Street off-ramp specifically. Nearly all trips that access the Seneca Street off-ramp have origins south of the study. 42% of trips that access the Seneca Street off-ramp have destinations north of the study area, and 33% have destinations within Zone 9.

Figure 115. Origin and Destination Trips to and from Seneca St. Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 116 shows the routes and relative volumes for traffic traveling to the Seneca Street off-ramp. Most trips that access the ramp travel northbound on I-5 from south of the study area.

Figure 116. Trip Routes from Seneca St. Off-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

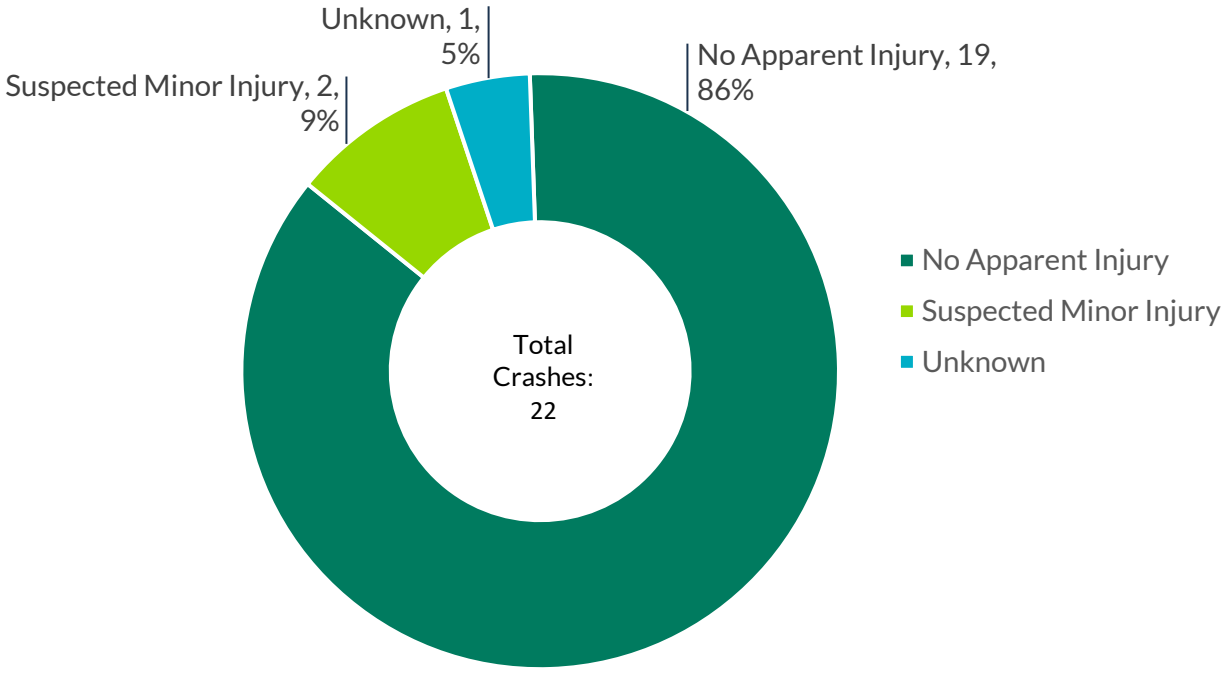
2.6.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 22 reported crashes within 200 feet of the Seneca Street off-ramp during the period.

Crash Severity

Figure 117 shows that most crashes near the Seneca Street off-ramp during the study period reported no apparent injury (86%).

Figure 117. Crash Severity, Seneca St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023

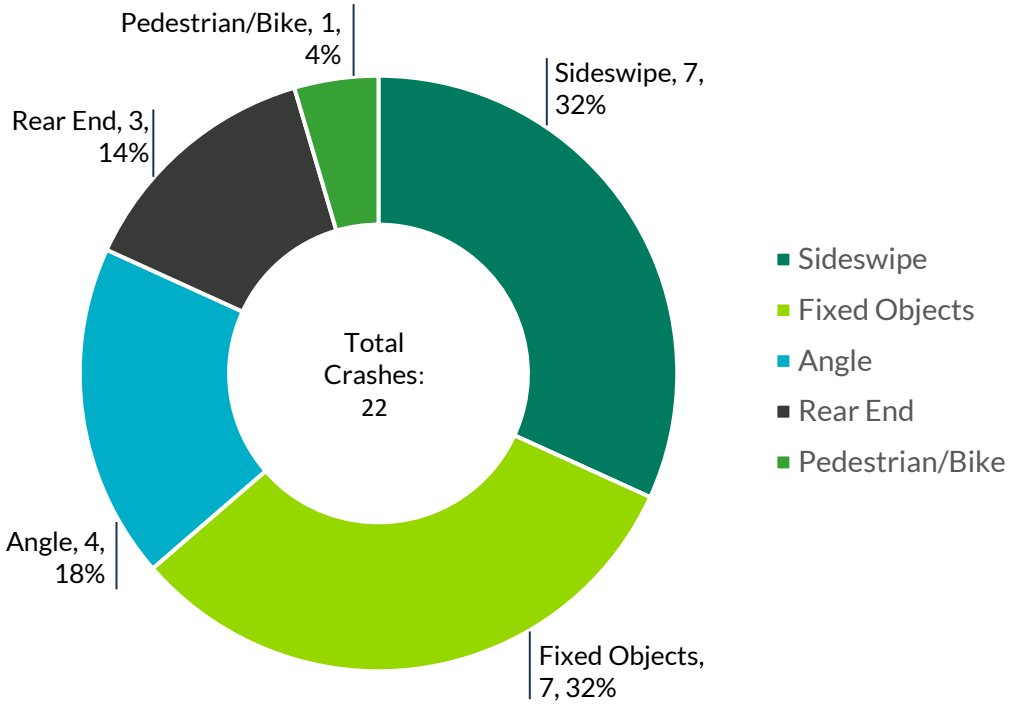


Data: WSDOT

Crash Type

Figure 118 shows that the most common crash type reported near the Seneca Street off-ramp during the study period was sideswipe (32%), followed by fixed objects (32%). There was one reported pedestrian/bike crash during the study period.

Figure 118. Crash Type, Seneca St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

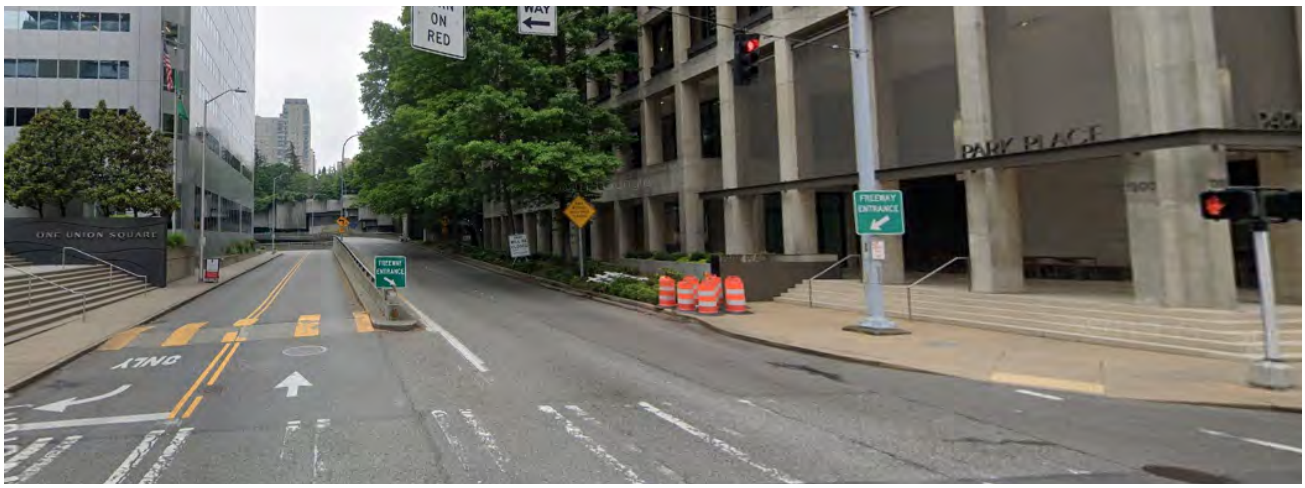
2.7 University Street On-Ramp

The University Street on-ramp is located at the intersection of University Street and 6th Avenue, to the west of I-5 near Union Square (Figure 119). The northbound on-ramp is accessed from eastbound University Street and northbound 6th Avenue (Figure 119). Two Seneca Street travel lanes continue east through the intersection onto the ramp, and one 6th Avenue travel lane is right-turn-only onto the ramp. The ramp is two lanes and is metered. The nearest northbound on-ramps are Cherry Street, approximately 0.5 miles to the south, and Olive Way, approximately 0.75 miles to the north.

Figure 119. University St. On-Ramp Study Area

Image: Google Earth

Figure 120. University St. On-Ramp Entrance, Looking East



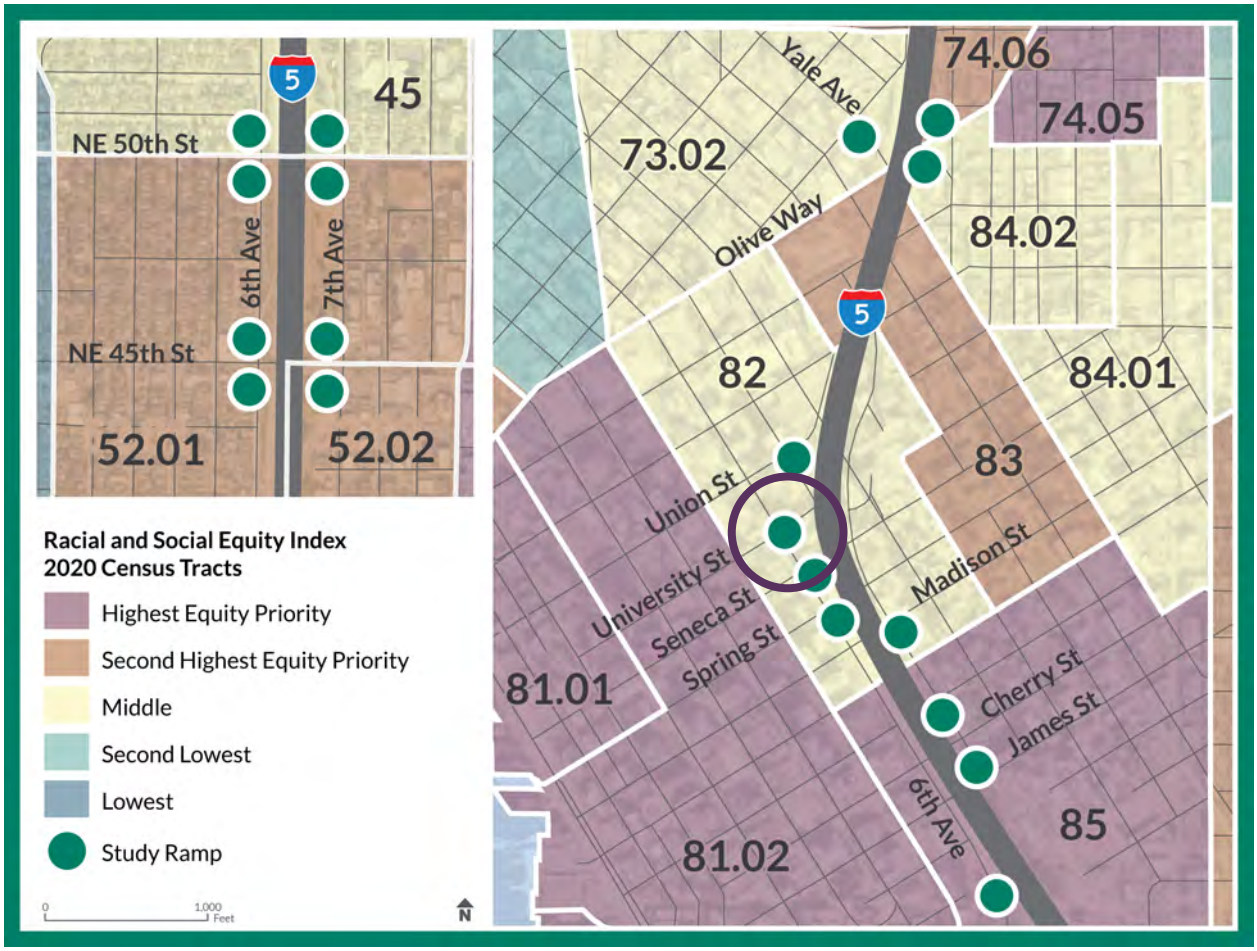
Source 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the University Street on-ramp, although there are significant sidewalk gaps on Hubbell Place. East-west bicycle facilities are present on Spring Street and Seneca Street, and frequent east-west and north-south transit services are present throughout the area. Specific features of the University Street on-ramp study area are discussed in the following sections.

2.7.1 Equity and Demographic Composition

The area around the University Street on-ramp is rated by the RSEI as Middle Equity Priority (Figure 121).

Figure 121. City of Seattle's Race and Social Equity Index Snapshot – University St. On-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the University Street on-ramp is generally within Census Tract 82, which includes approximately 93 acres bordering 5th Avenue to the west, Marion Street to the south, and 9th Avenue to the east. Details about this Census Tract and its relationship to the City are provided in Table 9 in Section 2.4.1.

Census Tract 82 is over twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 82 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.7.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the University Street on-ramp (Figure 122). Spring Street and Seneca Street are the primary east-west bicycle routes through this part of Downtown. Specific gaps and other aspects of these networks are listed later in this section.

Figure 122. Existing Bicycle and Pedestrian Facilities Near University St. On-Ramp

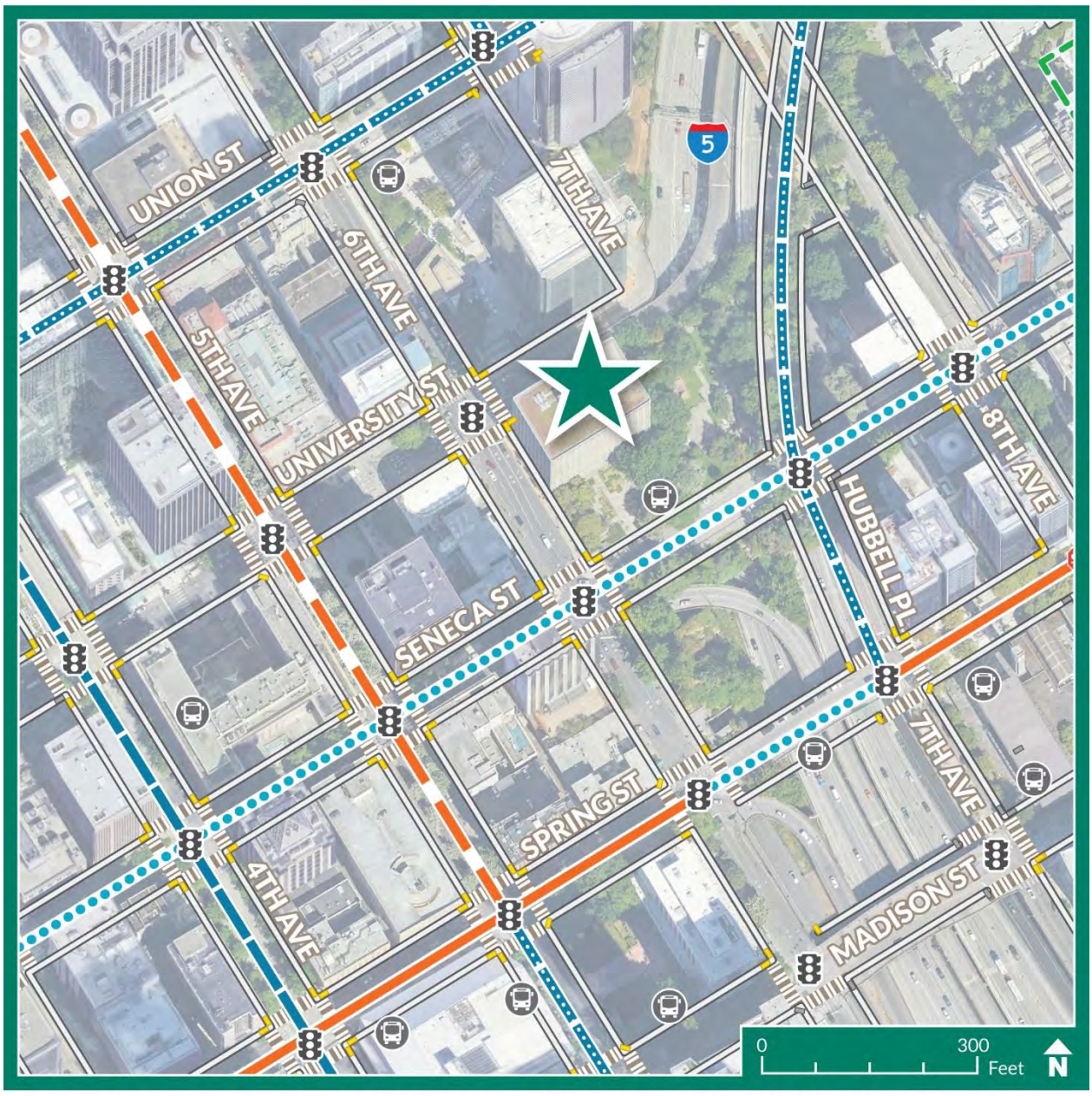


Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the University Street on-ramp features sidewalks that are approximately 6 to 11 feet wide. Sidewalks are widest on University Street west of 6th Avenue (11 ft) and narrowest on 6th Avenue north of University Street (6 ft). Sidewalks are present on all blocks except for the west side of Hubbell Place.

Crosswalks

Most crossings near the University Street on-ramp feature signal-controlled, twin-stripe continental crosswalks (Figure 123). The exceptions are the east side of Hubbell Place crossing University Street, which is not marked (Figure 124), and the west side of Hubbell Place crossing Seneca Street, which is closed (Figure 125). Crossing distances range from 35 to 55 feet.

Figure 123. 6th Ave. Crossing University St., Looking East

Source: 2024 Google

Figure 124. Unmarked Crosswalk, Hubbell Pl. Crossing University St., Looking East

Source: 2024 Google

Figure 125. Closed Crossing, Hubbell Pl. and Seneca St., Looking West

Source: 2024 Google

Curb Ramps

All crossings near the University Street on-ramp feature curb ramps, although the type and orientation vary. The orientation of some curb ramps is in line with the crosswalk, while others are angled toward the center of the intersection. Some ramps are ADA-compliant (Figure 126), while others are non-compliant (Figure 127).

Figure 126. ADA-Compliant Curb Ramp, 5th Ave. and University St.

Source: 2024 Google

Figure 127. Non-ADA-Compliant Curb Ramp, Hubbell Pl. and Seneca St.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the University Street on-ramp features east-west bicycle facilities on Seneca Street and Spring Street (Figure 122). 4th Avenue nearby has a two-way protected bike lane. All street segments near the University Street ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High[28]. Specific bicycle facilities are listed below:

Conventional Bike Lanes

- Spring Street west of 6th Avenue and east of 7th Avenue (Figure 128)

Shared Lane Markings

- Seneca Street (Figure 129)
- Spring Street between 6th Avenue and 7th Avenue (Figure 130)

[28] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 128. Conventional Bike Lane, Spring St. at 5th Ave., Looking East

Source: 2024 Google

Figure 129. Shared Lane Markings, Seneca St. at 6th Ave., Looking East

Source: 2024 Google

Figure 130. Shared Lane Markings, Spring St. at 7th Ave., Looking West

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on Union Street and Hubbell Place north of Spring Street[29]. 5th Avenue is planned to have a conventional bike lane north of Spring Street. Protected bike lanes are planned for Union Street, Spring Street, and Seneca Street.

[29] Bicycle Master Plan - Transportation | seattle.gov

2.7.3 Transit Conditions

The area around the University Street on-ramp features a dense transit network with a range of route types and varying frequencies (Figure 131). Frequent east-west routes run along Seneca Street and Spring Street. 5th Avenue has several southbound frequent and daily routes, a few of which travel north on 6th Avenue. Several transit stops are present near the University Street ramp. The sections below describe the existing transit network in greater detail.

Figure 131. Existing Transit Network Near University St. On-Ramp

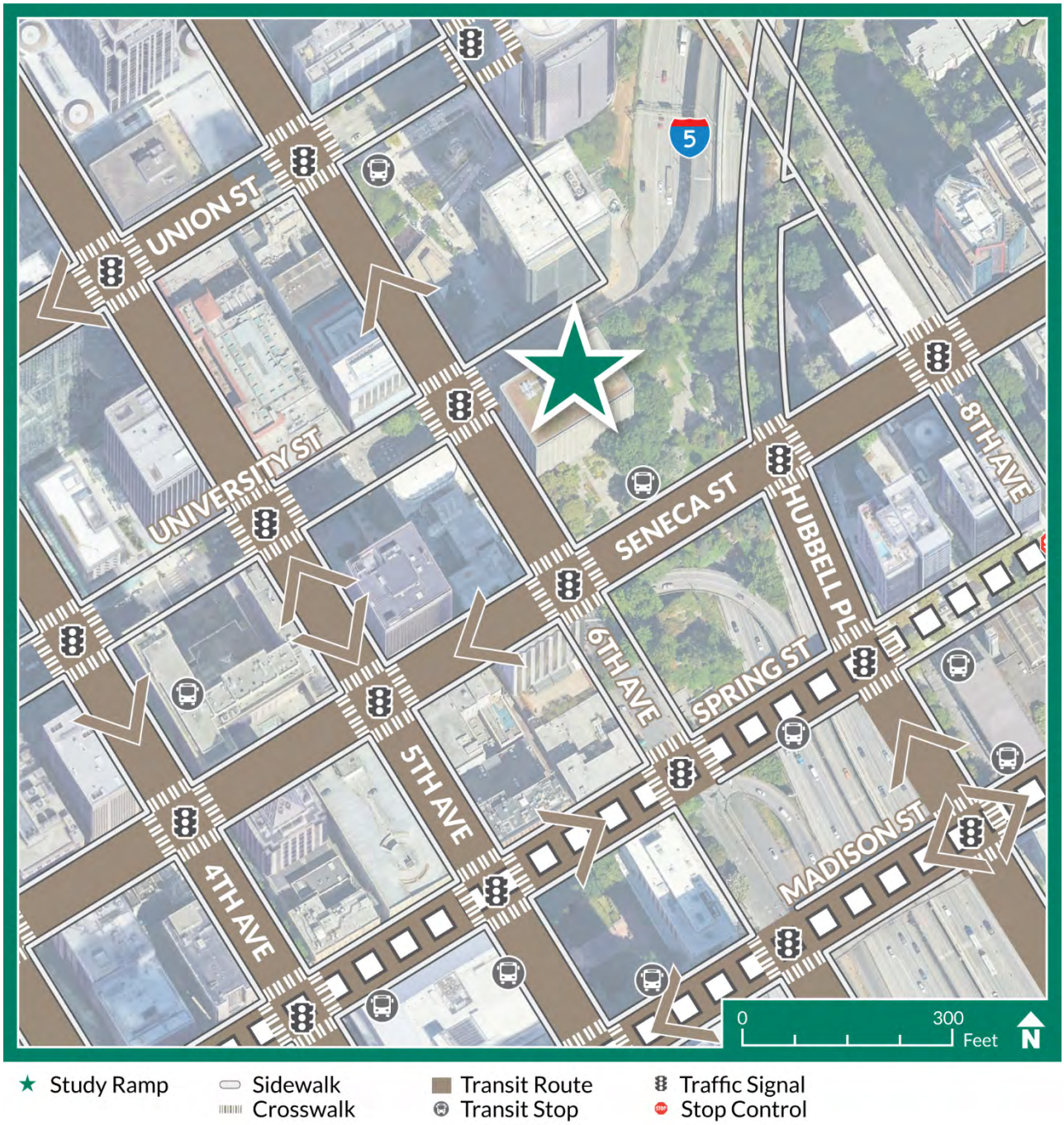


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Two east-west Metro Lines utilize streets near the University Street on-ramp. Metro Lines 2 and 13 run west on Seneca Street, east on Spring Street, and north on Hubbell Place. Metro DART Route 630 runs west on Seneca Street and south on 5th Avenue. 6th Avenue serves Metro Lines 162, 257, and 311. 4th Avenue and 5th Avenue serve Community Transit Lines 402, 405, 410, 415, 417, 422, and 424, as well as Sound Transit Lines 510, 511, 512, 513, and 545. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the University Street on-ramp include:

- Seneca Street at 6th Avenue serving Metro Lines 2 and 13 and DART Route 630.
- Seneca Street westbound at Hubbell Place serving Metro Lines 2 and 13, and DART Route 630.
- 6th Avenue at Union Street serving Metro Lines 162, 257, and 311.
- Spring Street at 6th Avenue serving Metro Line 12.
- 5th Avenue between University Street and Seneca Street serving several lines.

Existing Headways and Span-of-Service

Frequent transit service near the University Street on-ramp includes Metro Lines 2 and 13 that run east on Spring Street and west on Seneca Street from the early morning to late evening with headways of 10 minutes or less during peak hours. Sound Transit Line 510 travels south along 5th Avenue from early morning to mid-morning with headways of generally 15 to 30 minutes. Sound Transit Lines 577 exits I-5 at the Seneca Street off-ramp and travels north on 4th Avenue with trips from early morning to mid-morning and headways of 10-20 minutes.

Other transit service near the University Street on-ramp includes Metro DART Route 630, which runs west on Seneca Street and north-south on 5th Avenue twice in the morning and twice in the early evening with headways of over an hour. Metro Lines 162, 257, and 311 exit I-5 at the Seneca Street off-ramp and travel north on 6th Avenue with northbound trips from mid-afternoon to mid-evening and headways from 20 to 50 minutes. Sound Transit Lines 578 and 592 exit I-5 at the Seneca Street off-ramp and travel north on 4th Avenue. Line 578 has trips from mid-morning to late evening with headways of 20 to 30 minutes. Line 592 runs from early morning to mid-morning with headways of 30 minutes. Sound Transit Lines 510 and 545 run south on 5th Avenue from early morning to late morning with headways of 15-30 minutes.

Community Transit Lines generally run twice a day, southbound in the morning, with a return northbound trip in the afternoon or evening. Headways vary from 15 to 105 minutes, with 30 minutes between most arrivals.

Table 16 lists specific service spans and headways as of June 2024.

Table 16. Existing Transit Headways, Span-of-Service, and Days of Service Near University St. On-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
2 SB	5:00 AM	1:45 AM	10-30	Yes
2 NB	4:30 AM	1:15 AM	10-20	Yes
13 SB	5:56 AM	1:16 AM	7-44	Yes
13 NB	5:14 AM	12:43 AM	7-44	Yes
162 SB	5:00 AM	9:00 AM	20-30	No
162 NB	3:30 PM	7:00 PM	20-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
302 SB	5:33 AM	7:16 AM	30-45	No
302 NB	3:30 PM	5:45 PM	40	No
303 SB	5:30 AM	8:00 AM	30-60	No
303 NB	3:50 PM	7:50 PM	30-40	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
322 SB	5:46 AM	8:50 AM	30	No
322 NB	4:00 PM	7:40 PM	30-60	No
DART 630 NB	6:45 PM	8:45 PM	75	No
DART 630 SB	4:00 PM	6:30 PM	105	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	15-30	No
510 NB	2:30 PM	7:45 PM	15-30	No
545 EB	5:00 AM	12:30 AM	30	Yes
545 WB	4:30 AM	12:00 AM	30	Yes
577 NB	5:00 AM	9:00 AM	10-20	Yes
578 NB	8:30 AM	12:15 AM	20-30	Yes
592 NB	4:00 AM	9:30 AM	30	No
Community Transit				
402 NB	2:30 PM	7:00 PM	20-30	No
402 SB	5:15 AM	9:15 AM	15-30	No
405 NB	3:15 PM	6:45 PM	40	No

Line	Begin	End	Headway (Minutes)	Weekend Service
405 SB	5:45 AM	8:45 AM	30-50	No
410 NB	3:00 PM	6:30 PM	30	No
410 SB	5:15 AM	9:10 AM	50-80	No
415 NB	2:30 PM	6:30 PM	15-30	No
415 SB	5:15 AM	9:45 AM	30	No
417 NB	3:15 PM	7:00 PM	30-60	No
417 SB	5:45 AM	9:15 AM	30-60	No
422 NB	4:00 PM	7:00 PM	60	No
422 SB	5:15 AM	8:00 AM	50	No
424 NB	3:30 PM	7:00 PM	90	No
424 SB	5:15 AM	8:15 AM	105	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street before connecting to eastbound Madison Street at 9th Avenue[30]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Spring Street on-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[31].

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[30] RapidRide G Line – Madison St - Transportation | seattle.gov

[31] Ballard Link Extension | Project map and summary | Sound Transit

2.7.4 Key Destinations

Several destinations are located near the University Street on-ramp (Figure 132). Civic locations include the Town Hall. Community organizations include the YWCA, Women's University Club, and the Seattle Chamber Music Society. There is one faith-based organization, the Plymouth United Church of Christ. There are three public spaces including Freeway Park, Seneca Plaza, and Naramore Fountain. People use the ramp to access medical facilities, South Lake Union, Queen Anne, and Downtown Seattle.

Figure 132. Key Destinations Near University St. On-Ramp

Image: Google Earth. Data: City of Seattle

2.7.5 Emergency Access

Virginia Mason Medical Center is located near the University Street on-ramp. Hospital traffic, including emergency vehicles, generally uses Seneca Street and Spring Street to travel to and from the hospital. Northbound traffic from I-5 may exit at Madison Street or Seneca Street. Southbound traffic may exit at Union Street. Northbound traffic entering I-5 may use University Street, and southbound traffic may use Spring Street.

Figure 133. Virginia Mason Medical Center I-5 Access Near University St. On-Ramp

Image: Google Earth

2.7.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the University Street on-ramp include 9,960 trips (Table 17), the fourth lowest of Downtown segment study ramp volumes. AM peak hour volume is 21% of the maximum theoretical capacity, and PM peak hour volume is 55% of the maximum theoretical capacity.

Table 17. Average Weekday Volumes for University St. On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	380	21%
On-Ramp	PM	990	55%
On-Ramp	AWD	9,960	

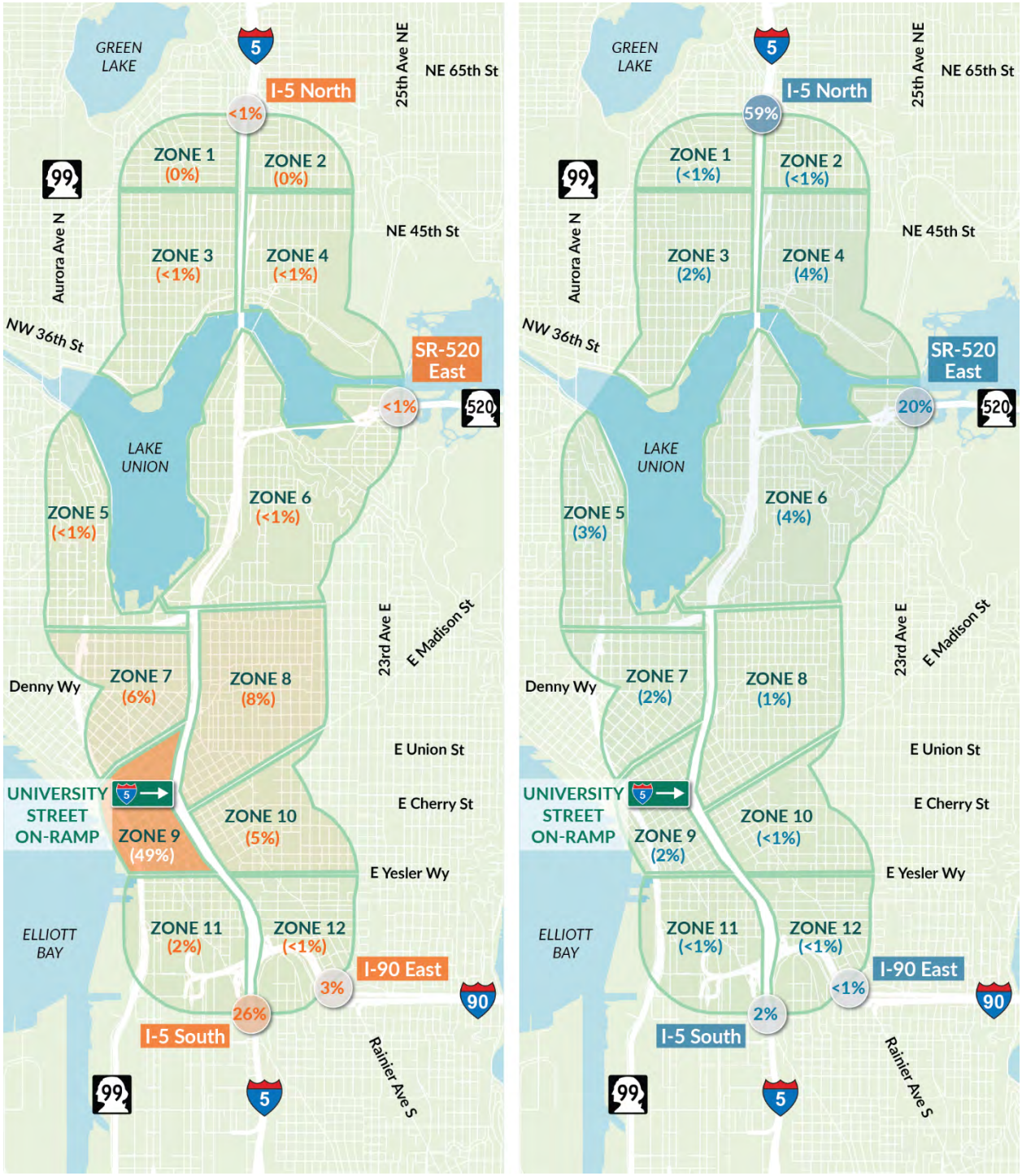
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The University Street on-ramp is located within Zone 9. Figure 19 in Section 2.1.6 shows the traffic volumes traveling between Zone 9 and the other study area zones. The highest volumes traveling to and from Zone 9 are from Zones 7, 8, and 11 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 134 shows a subset of trips between Zone 9 and other study area zones that access the University Street on-ramp specifically. 49% of trips that access the University Street on-ramp have origins within Zone 9 near the ramp, and 26% have origins south of the study area. 59% of trips that access the University Street on-ramp have destinations north of the study area, and 20% have destinations east of the study area.

Figure 134. Origin and Destination Trips to and from University St. On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 135 shows the routes and relative volumes for traffic traveling from the University Street on-ramp. Most trips that access the ramp travel north beyond the study area via I-5.

Figure 135. Trip Routes from University St. On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

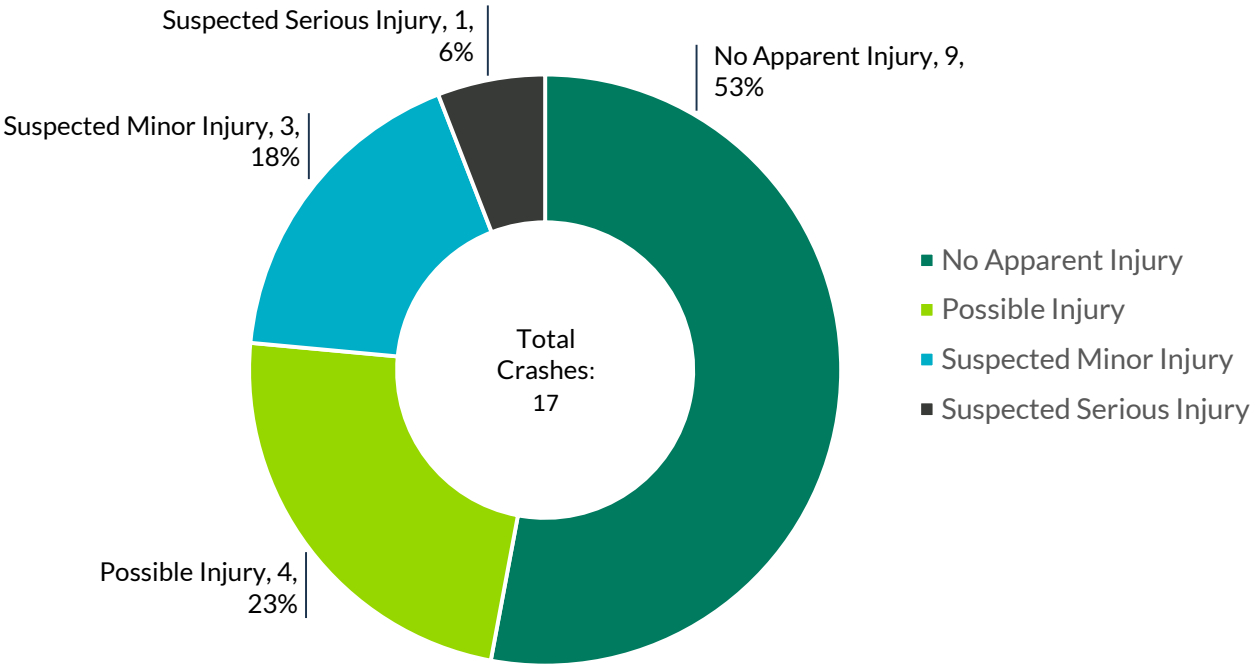
2.7.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 17 reported crashes within 200 feet of the University Street on-ramp during the period.

Crash Severity

Figure 136 shows that most crashes near the University Street on-ramp during the study period reported no apparent injury (53%).

Figure 136. Crash Severity, University St. On-Ramp Study Area, Jan. 2019 through Dec. 2023

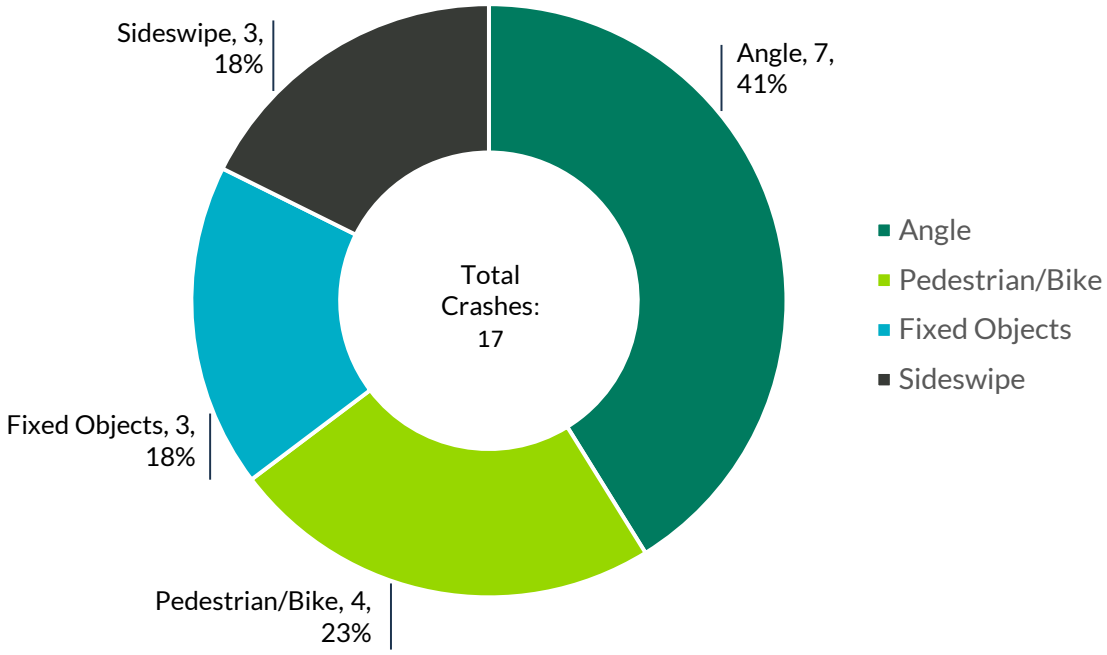


Data: WSDOT

Crash Type

Figure 137 shows that the most common crash type reported near the University Street on-ramp during the study period was angle (41%), followed by ped/bike (23%). There were four reported pedestrian/bike crashes during the study period.

Figure 137. Crash Type, University St. On-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.8 Union Street Off-Ramp

The Union Street off-ramp is located at the intersection of Union Street and 7th Avenue near the Seattle Convention Center (Figure 138). Traffic exiting the highway may travel east on Union Street or turn right onto 7th Avenue northbound (Figure 139). The nearest southbound off-ramps are S Dearborn Street, approximately 1.25 miles to the south, and Stewart Street, approximately 0.75 miles to the north.

Figure 138. Union St. Off-Ramp Study Area

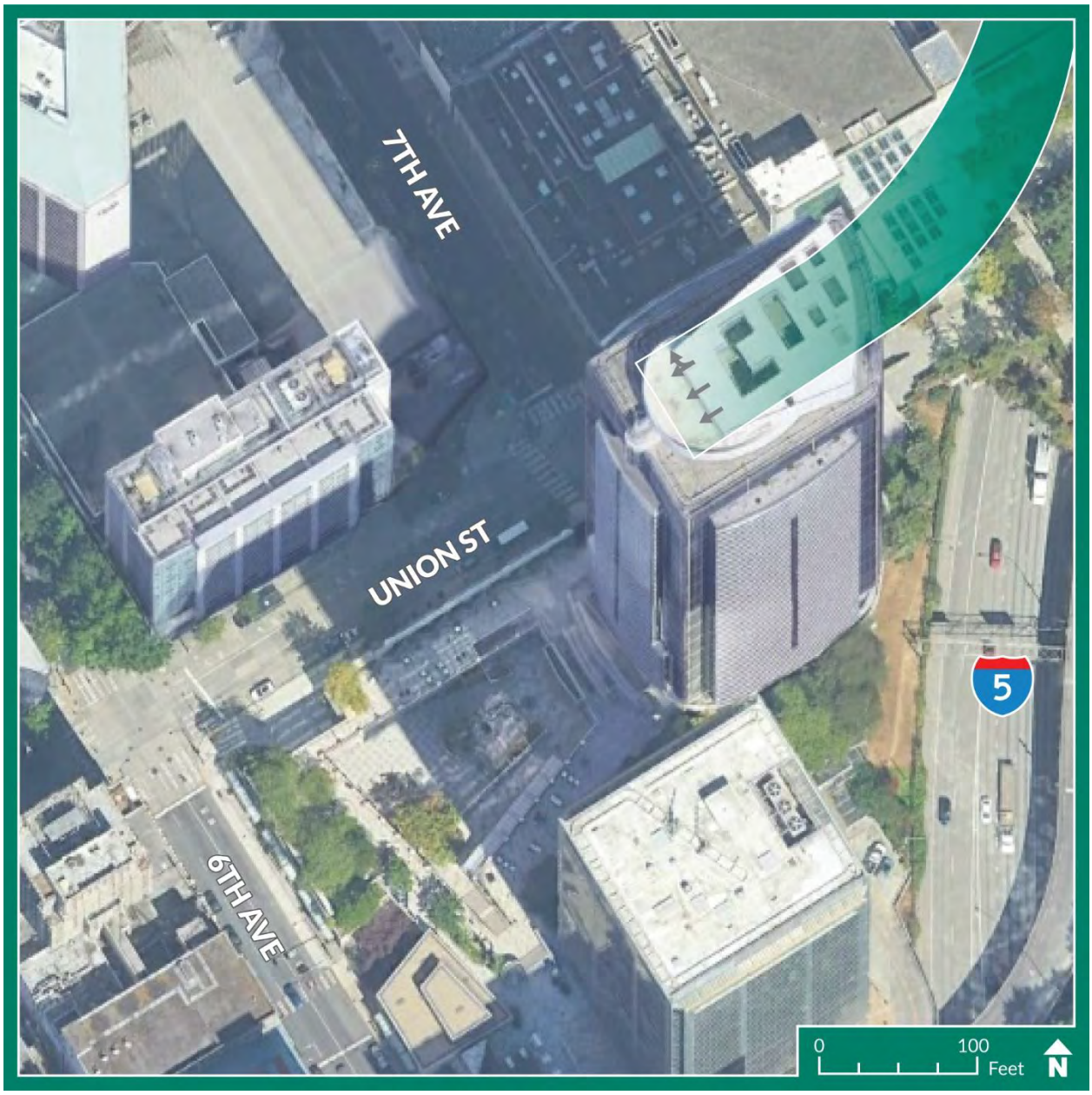


Image: Google Earth

Figure 139. Union St. Off-Ramp Terminal, Looking East

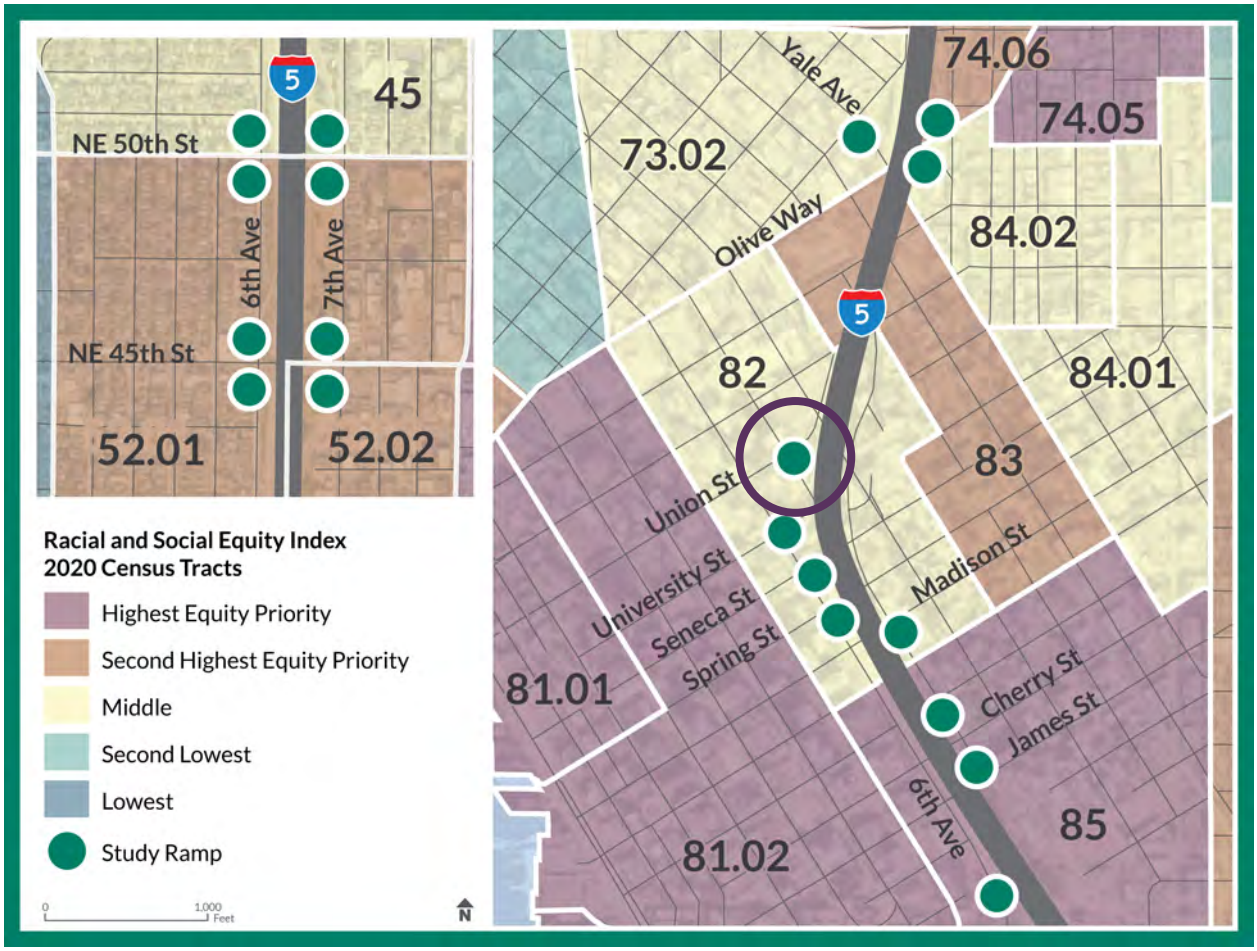
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Union Street off-ramp. East-west bicycle facilities are present on Pike Street, and north-south facilities are present on 7th Avenue north of Pike Street. Frequent east-west transit service is present on Pike Street and Union Street, and frequent north-south transit service is present on 6th Avenue and 5th Avenue. Specific features of the Union Street on-ramp study area are discussed in the following sections.

2.8.1 Equity and Demographic Composition

The area around the Union Street off-ramp is rated by the RSEI as Middle Equity Priority (Figure 140).

Figure 140. City of Seattle's Race and Social Equity Index Snapshot – Union St. Off-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Union Street on-ramp is generally within Census Tract 82, which includes approximately 93 acres bordering 5th Avenue to the west, Marion Street to the south, and 9th Avenue to the east. Details about this Census Tract and its relationship to the City are provided in Table 9 in Section 2.4.1.

Census Tract 82 is over twice as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 82 also has a larger proportion of households without a vehicle and a higher percentage of people with a disability.

2.8.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Union Street off-ramp (Figure 141). Pike Street is the primary east-west bicycle route through this part of Downtown, with new routes planned for Union Street, 5th Avenue, and 7th Avenue. Specific gaps and other aspects of these networks are listed later in this section.

Figure 141. Existing Bicycle and Pedestrian Facilities Near Union St. Off-Ramp

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Union Street off-ramp features sidewalks that are approximately 6 to 14 feet wide. Sidewalks are widest on 7th Avenue north of Union Street and narrowest on 6th Avenue south of Union Street. Sidewalks are present on all blocks.

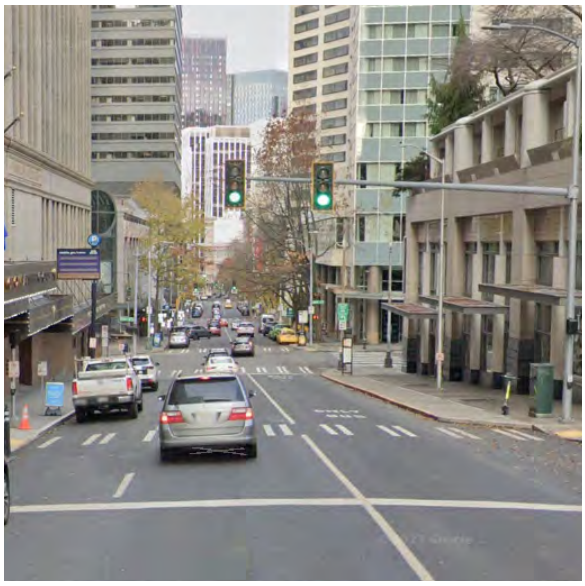
Crosswalks

All crossings in the area near the Union Street off-ramp feature signal-controlled, twin-stripe continental crosswalks (Figure 142). There is an additional mid-block crosswalk on 6th Avenue between Union Street and University Street (Figure 143). Crossings range from 35 to 55 feet.

Figure 142. 6th Ave. Crossing Union St., Looking North

Source: 2024 Google

Figure 143. 6th Ave. Mid-Block Crossing Between University St. and Union St., Looking North

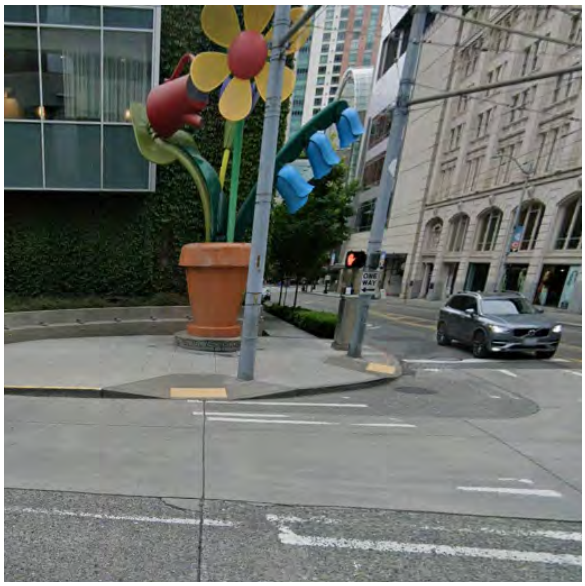


Source: 2024 Google

Curb Ramps

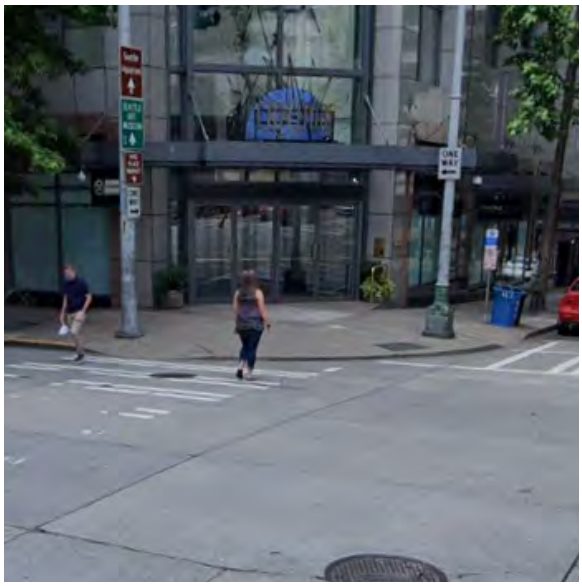
All crossings near the Union Street off-ramp feature curb ramps, although the type and orientation vary. Most curb ramps are in line with the crosswalk. The one exception is the southwest corner of the intersection of Union Street and 6th Avenue, which is oriented towards the center of the intersection. Most curb ramps are ADA-compliant (Figure 144), while others are non-compliant (Figure 145).

Figure 144. ADA-Compliant Curb Ramps, Union St. and 7th Ave.



Source: 2024 Google

Figure 145. Non-ADA-Compliant Curb Ramps, Union St. and 6th Ave.



Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Union Street off-ramp features east-west facilities on Pike Street and north-south facilities on 7th Avenue north of Pike Street (Figure 141). All street segments near the Union Street ramp have Bicycle Level of Traffic Stress ratings of either Medium-High or High, except for University Street between 6th Avenue and 7th Avenue, which has a rating of Medium-Low[32]. Specific bicycle facilities are listed below:

Protected Bike Lanes

- Pike Street (Figure 146)
- 7th Avenue north of Pike Street (Figure 147)

[32] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 146. Protected Bike Lane, Pike St. at 4th Ave., Looking East

Source: 2024 Google

Figure 147. Protected Bike Lane, 7th Ave. at Pine St., Looking North

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on Pike Street east of 7th Avenue, on 7th Avenue between Pike Street and Union Street, and on Union Street east of 7th Avenue[33] (Figure 141). A conventional bike lane is planned for 5th Avenue.

[33] Bicycle Master Plan - Transportation | seattle.gov

2.8.3 Transit Conditions

The area around the Union Street off-ramp features several transit routes with a range of route types and varying frequencies (Figure 148). Frequent routes run eastbound along Pike Street and northbound along 6th Avenue. 5th Avenue has several southbound frequent and daily routes. Several routes begin westbound on Union Street between 5th Avenue and 6th Avenue. Several transit stops are present near the Union Street ramp. The sections below describe the existing transit network in greater detail.

Figure 148. Existing Transit Network Near Union St. Off-Ramp

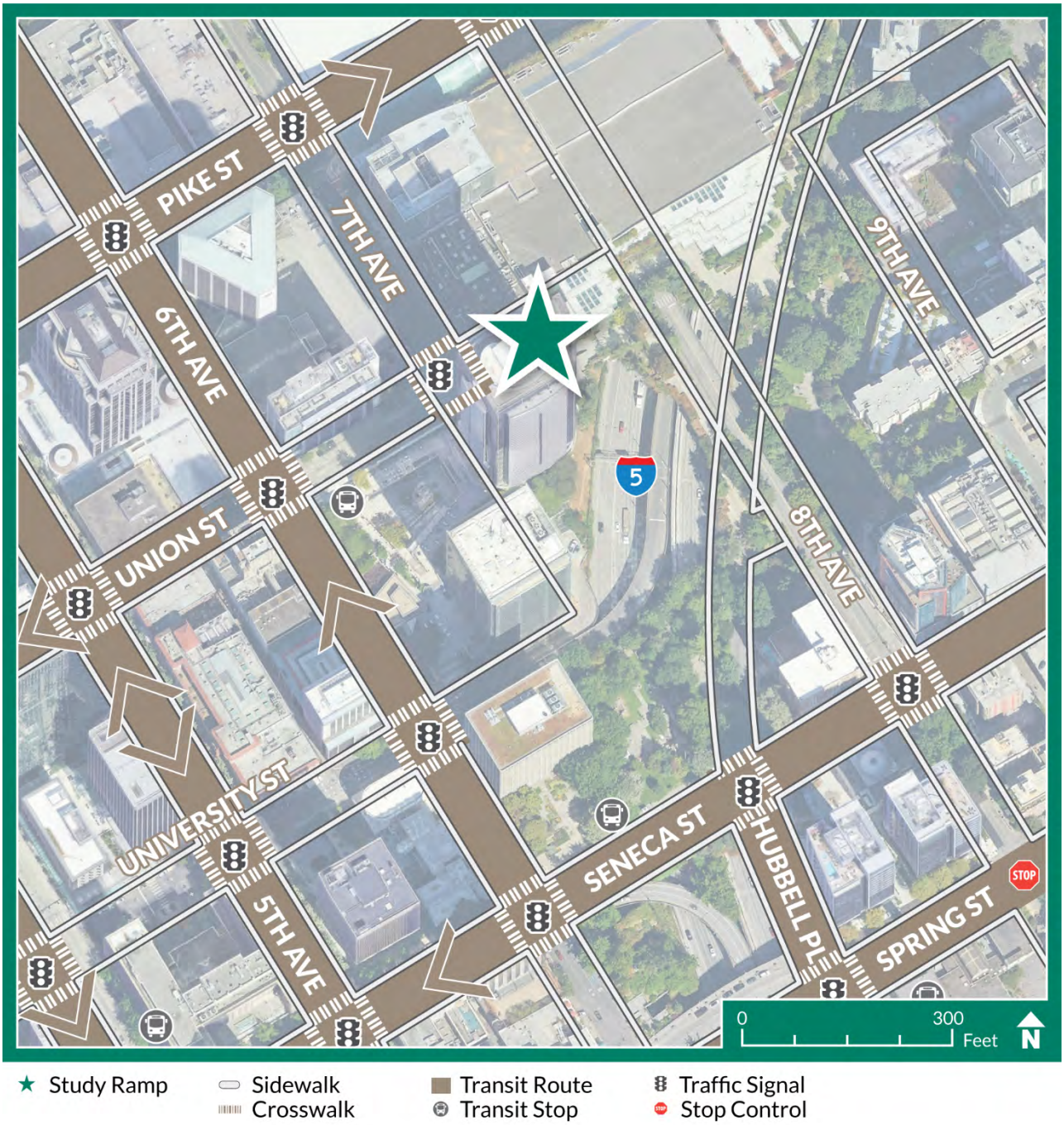


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Metro Lines 162, 257, and 311 run northbound along 6th Avenue near the Union Street off-ramp. Metro Lines 10, 11, 43, 49, 101, 102, 150, and Sound Transit Line 550 run eastbound along Pike Street. Metro Lines 101, 102, 150, and Sound Transit Line 550 begin their westbound/southbound routes on Union Street between 5th Avenue and 6th Avenue and end their northbound/eastbound routes on Pike Street near 8th Avenue. 4th Avenue and 5th Avenue serve Community Transit Lines 402, 405, 410, 415, 417, 422, and 424, as well as Sound Transit Lines 510, 511, 512, 513, and 545. Adjacent to the study area, 3rd Avenue serves as the primary north-south transit corridor through Downtown and is used by many Metro and Sound Transit lines.

Existing Stops

The bus stops nearest the Union Street off-ramp include:

- Pike Street at 9th Avenue serving Metro Lines 101, 102, 150, and Sound Transit Line 550.
- Pike Street at 6th Avenue serving Metro Lines 10, 11, 43, 49, 101, 102, 150, and Sound Transit Line 550.
- Union Street at 5th Avenue serving Metro Lines 101, 102, 150, and Sound Transit Line 550.
- 6th Avenue at Union Street serving Metro Lines 162, 257, and 311.

Existing Headways and Span-of-Service

Frequent transit service near the Union Street off-ramp includes Metro Lines 101, 102, 150, and Sound Transit Line 550, which begins southbound service on Union Street at 5th Avenue and ends service on Pike Street at 8th Avenue. Other frequent service on Pike Street includes Metro Lines 10, 11, and 43. These lines generally run from early morning to late evening with headways of 15 minutes or less. Sound Transit Line 510 travels south on 5th Avenue in the morning and north on 4th Avenue in the evening with headways of 10 to 20 minutes. Sound Transit Line 545 serves the same route from the early morning to late evening with headways of 10-30 minutes. Community Transit Line 510 runs south on 5th Avenue in the morning with headways of 15 to 20 minutes.

Other transit service near the Union Street off-ramp includes Metro Lines 162, 257, and 311, generally with morning southbound trips on 5th Avenue and afternoon northbound trips on 6th Avenue with headways of 20 to 50 minutes.

Table 18 lists specific service spans and headways as of June 2024.

Table 18. Existing Transit Headways, Span-of-Service, and Days of Service Near Union St. Off-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
10 SB	5:00 AM	1:15 AM	15-30	Yes
10 NB	5:30 AM	1:30 AM	15-30	Yes
11 NB	4:45 AM	1:00 AM	15-30	Yes
43 NB	4:15 AM / 2:15 PM	9:30 AM / 8:15 PM	10	Yes
49 NB	4:30 AM	4:15 AM	10-30	Yes
101 SB	5:00 AM	12:00 AM	15-30	Yes
101 NB	5:30 AM	1:30 AM	10-30	Yes
102 SB	5:00 AM	12:00 AM	15-30	Yes
102 NB	5:30 AM	1:30 AM	10-30	Yes
150 SB	5:15 AM	3:00 AM	15	Yes
150 NB	4:45 AM	1:00 AM	15	Yes
162 SB	5:00 AM	9:00 AM	20-30	No
162 NB	3:30 PM	7:00 PM	20-30	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	20	No
510 NB	2:30 PM	7:45 PM	10-20	No
545 EB	5:00 AM	12:30 AM	10-30	Yes
545 WB	4:30 AM	12:00 AM	10-20	Yes
550 EB	5:00 AM	1:00 AM	10-30	Yes
550 WB	5:00 AM	1:00 AM	10-30	Yes
Community Transit				
510 SB	4:00 AM	9:30 AM	15-20	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street

before connecting to eastbound Madison Street at 9th Avenue[34]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

The Sound Transit Ballard Link Extension is under development; however, the project holds the potential to impact the Union Street on-ramp as some of the alternatives presented in the project's Environmental Impact Study would utilize either 6th Avenue or 5th Avenue[35]. Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[34] RapidRide G Line – Madison St - Transportation | seattle.gov

[35] Ballard Link Extension | Project map and summary | Sound Transit

2.8.4 Key Destinations

Several destinations are located near the Union Street off-ramp (Figure 149). There is one civic location, the Seattle Convention Center. There is one community organization, the Seattle Chamber Music Society. There are two art and performance locations, the ACT Theater and the 5th Avenue Theater. There is one public space nearby, Freeway Park. People use the ramp to access South Lake Union, Belltown, and Downtown Seattle.

Figure 149. Key Destinations Near Union St. Off-Ramp

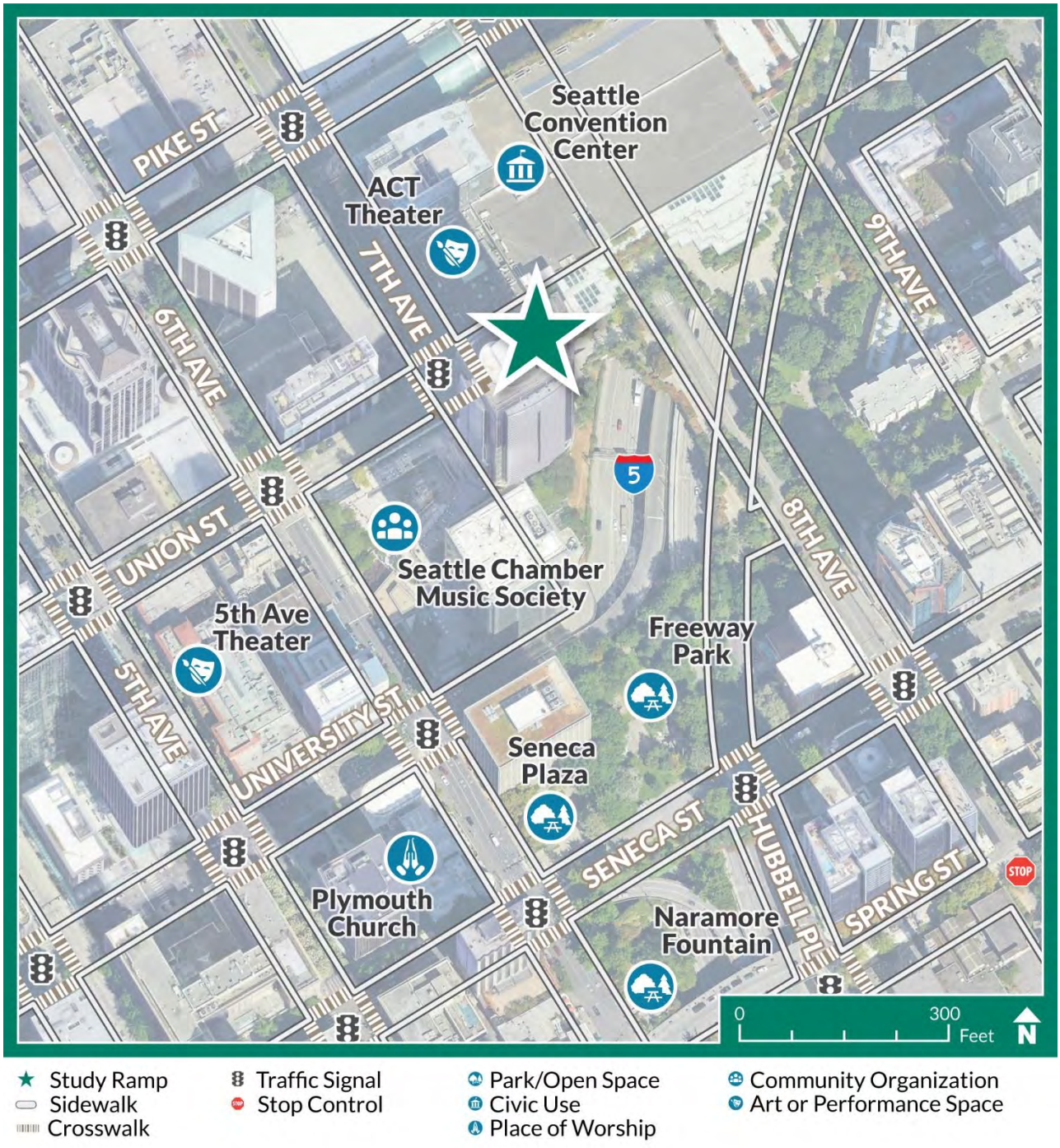


Image: Google Earth. Data: City of Seattle

2.8.5 Emergency Access

Virginia Mason Medical Center is located near the Union Street off-ramp. Hospital traffic, including emergency vehicles, generally uses Seneca Street and Spring Street to travel to and from the hospital. Northbound traffic from I-5 may exit at Madison Street or Seneca Street. Southbound traffic may exit at Union Street. Northbound traffic entering I-5 may use University Street, and southbound traffic may use Spring Street.

Figure 150. Virginia Mason Medical Center I-5 Access Near Union St. Off-Ramp

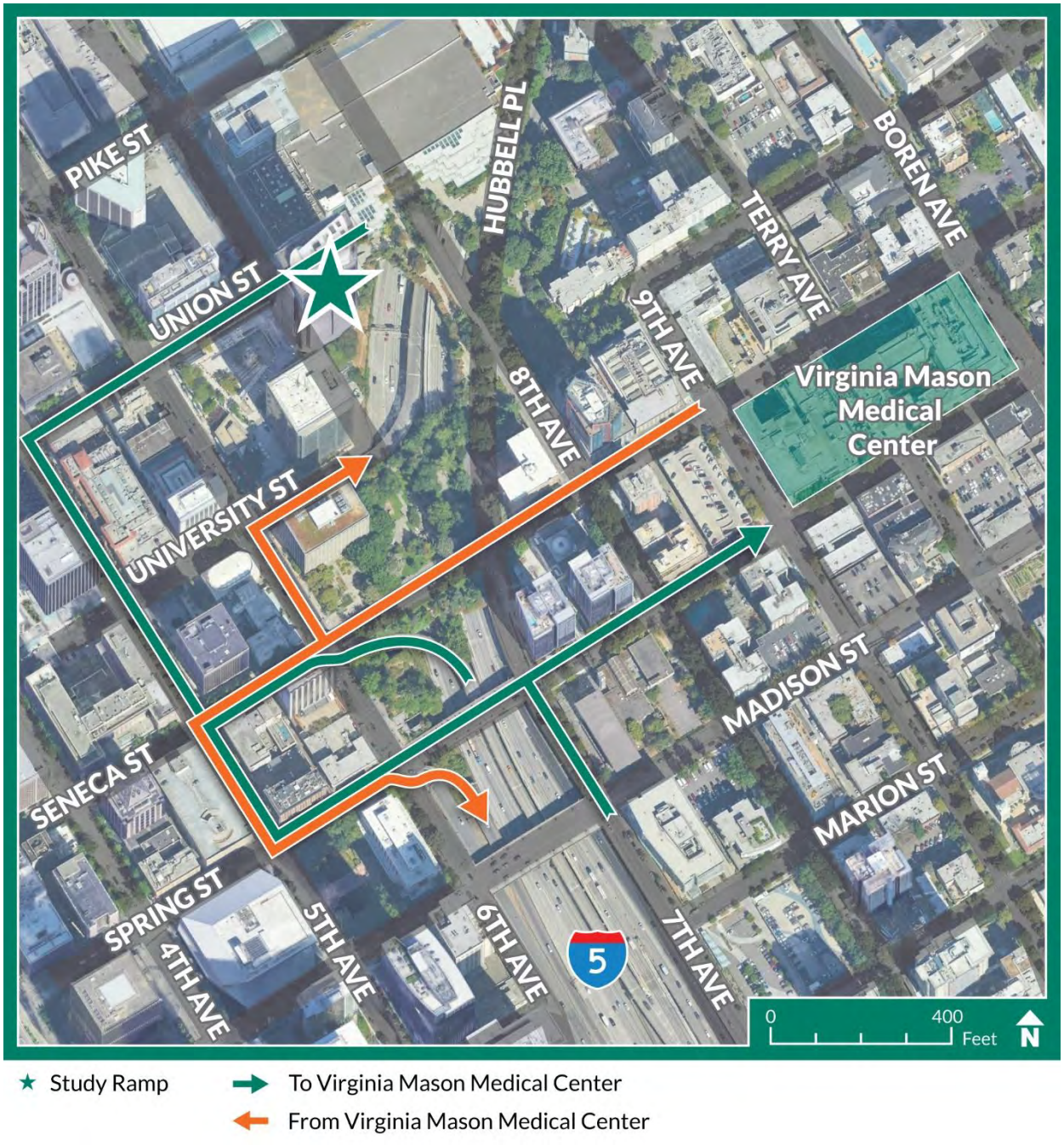


Image: Google Earth

2.8.6 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Union Street off-ramp include 9,070 daily trips (Table 19), the lowest of all Downtown segment study ramps. AM peak hour volume is 59% of the maximum theoretical capacity, and PM peak hour volume is 29% of the maximum theoretical capacity.

Table 19. Average Weekday Volumes for Union St. Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	1,060	59%
Off-Ramp	PM	530	29%
Off-Ramp	AWD	9,070	

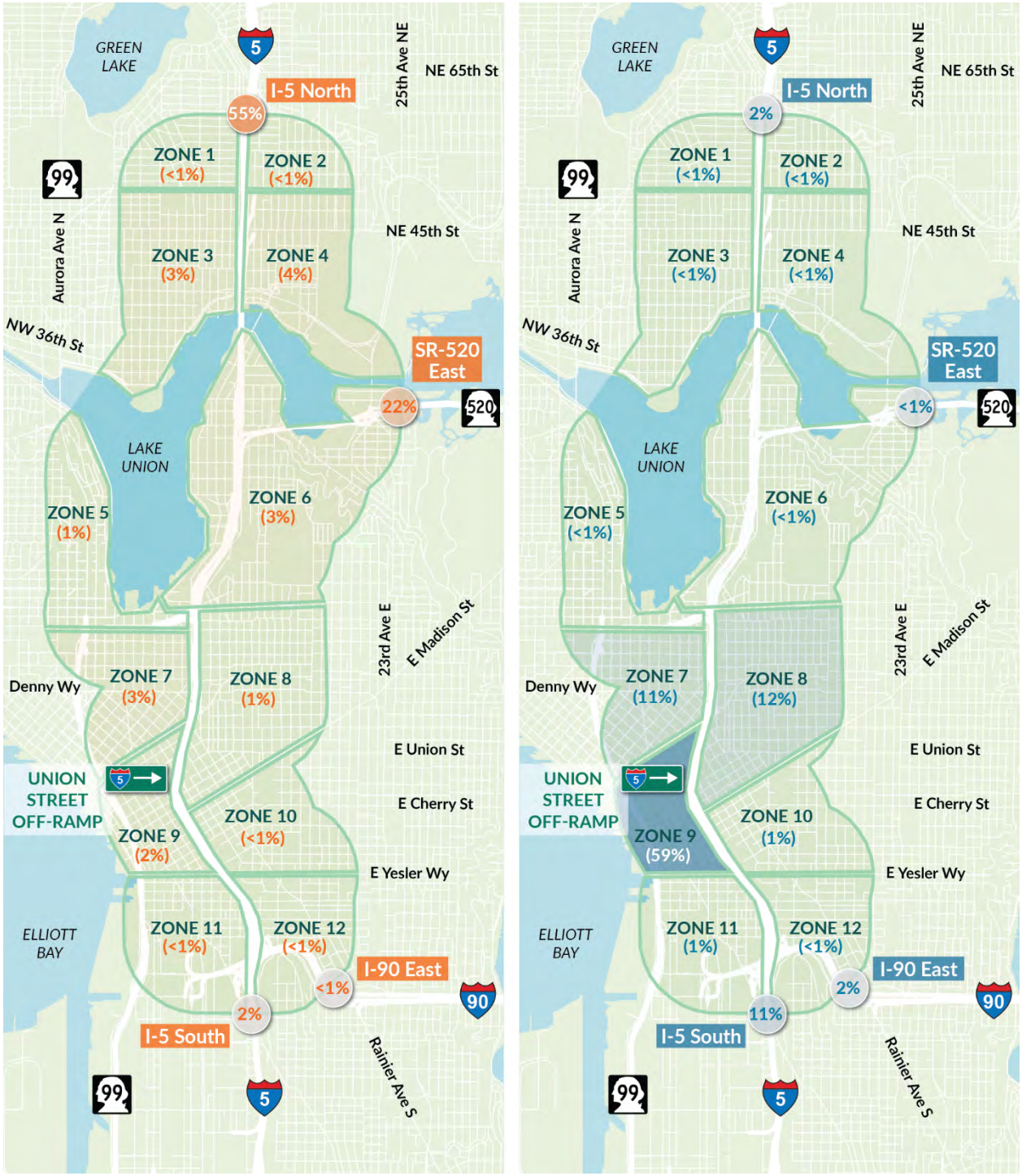
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Union Street off-ramp is located within Zone 9. Figure 19 in Section 2.1.6 shows the traffic volumes traveling between Zone 9 and the other study area zones. The highest volumes traveling to and from Zone 9 are from Zones 7, 8, and 11 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 151 shows a subset of trips between Zone 9 and other study area zones that access the Union Street off-ramp specifically. 55% of trips that access the Union Street off-ramp have origins north of the study area, and 22% have origins east of the study area. 59% of trips that access the Union Street off-ramp have destinations within Zone 9, and 12% have destinations in Zone 8. Zone 7 and the area south of the study area hold 11% of trip destinations each.

Figure 151. Origin and Destination Trips to and from Union St. Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 152 shows the routes and relative volumes for traffic traveling to the Union Street off-ramp. Most trips that access the Union Street off-ramp are traveling on southbound I-5 from north of the study area.

Figure 152. Trip Routes to Union St. Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

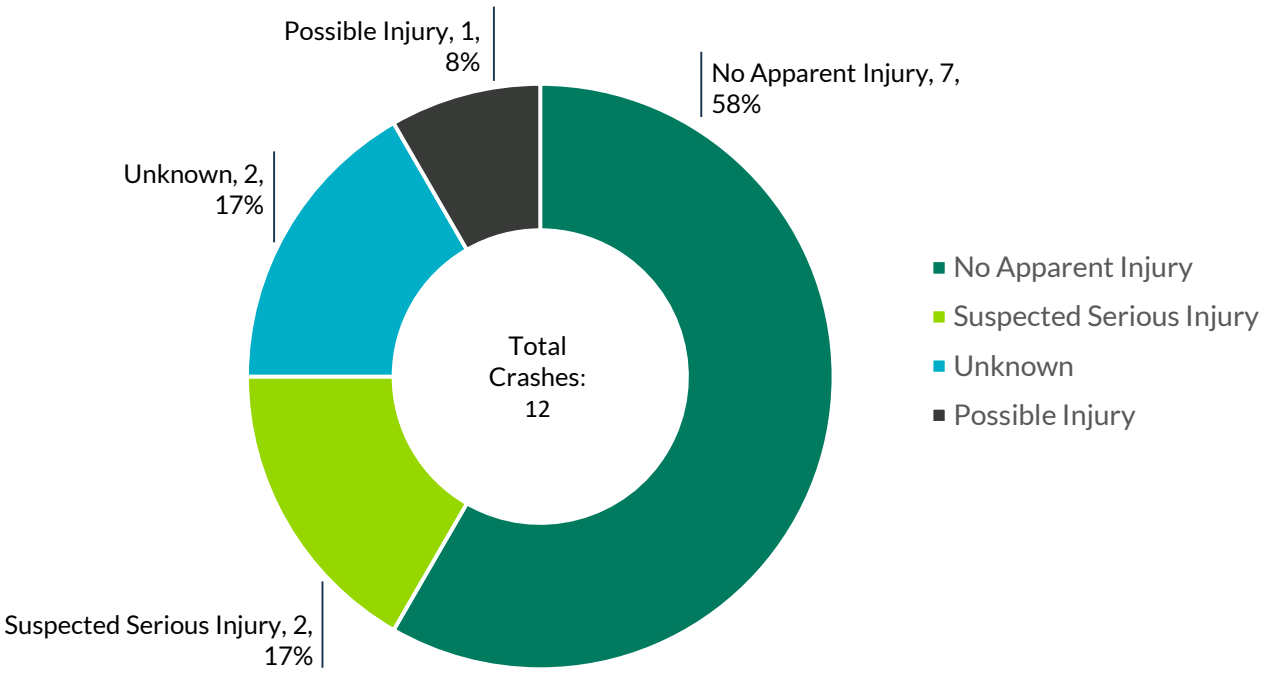
2.8.7 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 12 reported crashes within 200 feet of the Union Street off-ramp during the period.

Crash Severity

Figure 153 shows that most crashes near the Union Street off-ramp during the study period reported no apparent injury (58%).

Figure 153. Crash Severity, Union St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023

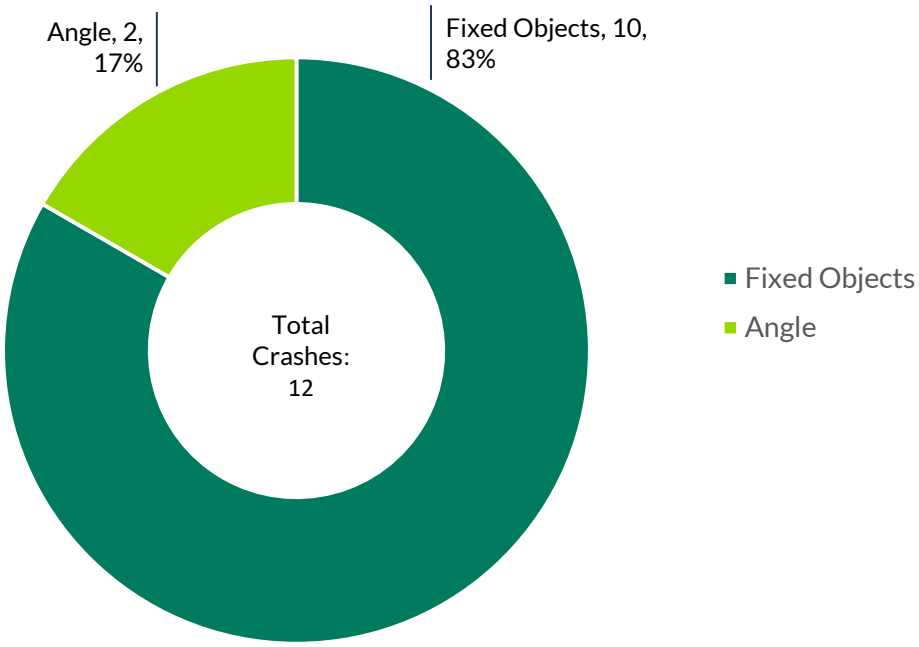


Data: WSDOT

Crash Type

Figure 154 shows that the most common crash type reported near the Union Street off-ramp during the study period was fixed objects (83%).

Figure 154. Crash Type, Union St. Off-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.9 Olive Way On-Ramp and Off-Ramp

The Olive Way on-ramp and off-ramp are located near the intersection of Olive Way and Melrose Avenue (Figure 155). The Olive Way on-ramp (Figure 156) can be accessed by eastbound and westbound traffic on Olive Way and northbound traffic on Melrose Avenue. The Olive Way off-ramp (Figure 157) merges with the rightmost eastbound lane of Olive Way as it approaches the Melrose Avenue intersection. The nearest northbound off-ramps are Seneca Street, approximately 0.75 miles to the south, and Lakeview Boulevard E, approximately 1.25 miles to the north. The nearest northbound on-ramps are Harvard Avenue E, approximately 2.25 miles to the north, and University Street, approximately 0.75 miles to the south.

Figure 155. Olive Way On-Ramp and Off-Ramp

Image: Google Earth

Figure 156. Olive Way On-Ramp Entrance, Looking Northeast

Source: 2024 Google

Figure 157. Olive Way Off-Ramp Terminal, Looking South

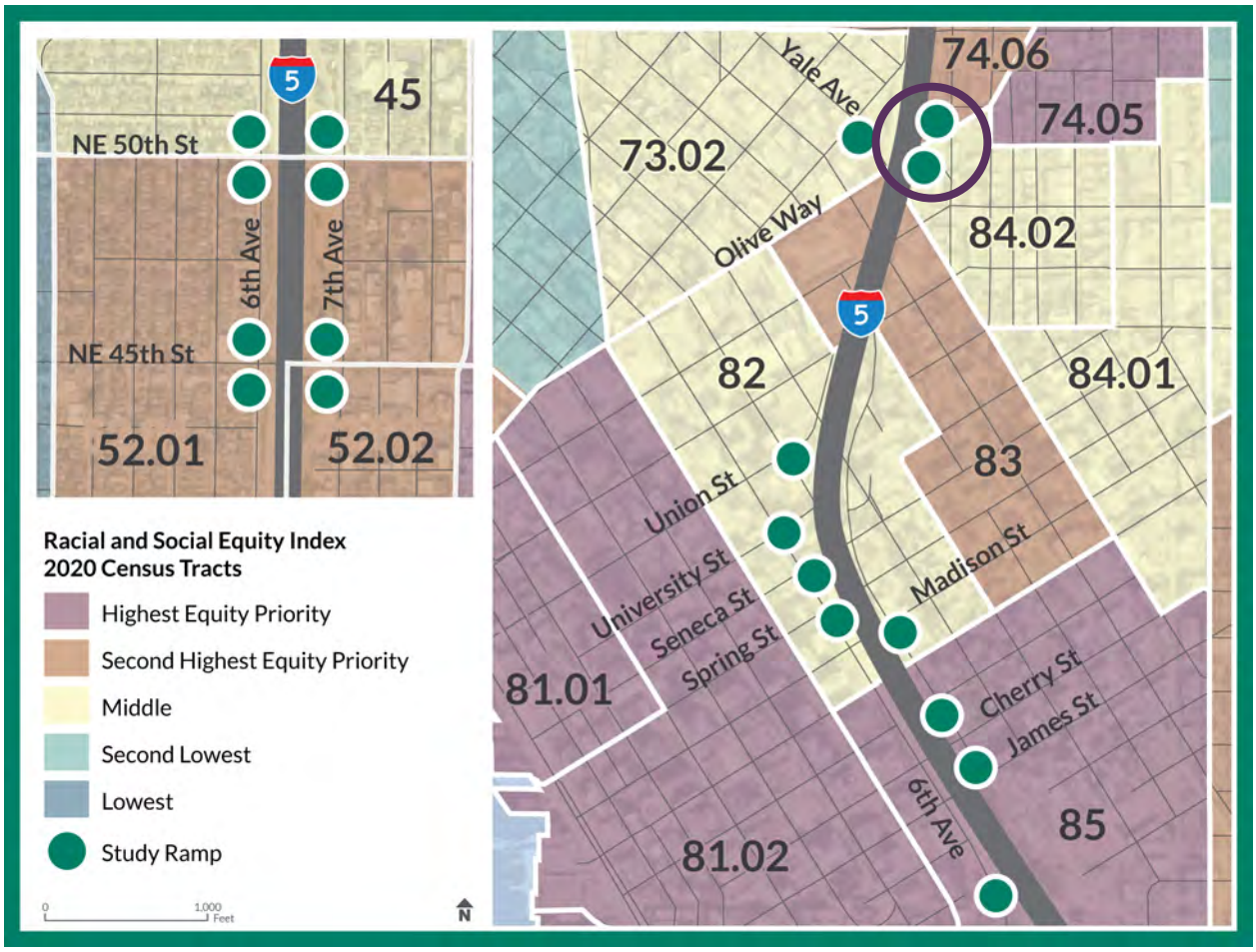
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Olive Way ramps. East-west bicycle facilities are present on E Pine Street and Howell Streets, and north-south facilities are present on Melrose Avenue. Frequent east-west transit service is present on E Pine Street Olive Way, and frequent north-south transit service is present on Bellevue Avenue. Specific features of the Olive Way ramp study area are discussed in the following sections.

2.9.1 Equity and Demographic Composition

The Olive Way ramps are located near the intersection of Census Tracts 84.02 and 74.06 (Figure 158). These Census Tracts are rated by the RSEI as Middle and Second Highest Equity Priority, respectively, with the highest priority area immediately to the east.

Figure 158. City of Seattle's Race and Social Equity Index Snapshot – Olive Way On- and Off-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Olive Way on-ramp and off-ramp is generally within Census Tracts 74.06 and 84.02, which includes approximately 73 acres in total. Census Tract 74.06 is bordered by E Thomas Street to the north, Broadway E to the east, E Olive Way to the south, and I-5 to the west. Census Tract 84.02 is bordered by Olive Way and E Olive Street to the north, Boylston Avenue to the east, E Union Street to the south, and Minor Avenue to the west. Details about these Census Tracts and their relationship to the City are provided in Table 20 below.

Census Tracts 74.06 and 84.02 are both around four times as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and less affluent than the City as a whole. Rents are lower than the City average, and the proportion of both renters and burdened renters is higher. These areas also have larger proportions of households without a vehicle, and Census Tract 74.06 has a higher percentage of people with a disability.

Table 20. Demographic Comparison: Census Tracts 74.06 and 84.02

Demographic	Census Tract 74.06	Census Tract 84.02	Seattle
Population	4,567	2,753	734,471
Occupied Housing Units	2,490	2,352	345,184
Average Household Size	1.26	1.17	2.13
Density (People/Acre)	66.8	76.6	13.7
Density (Housing/Acre)	56.1	68.9	6.9
Female	44%	38%	49%
Male	56%	62%	51%
People of Color	54%	40%	39%
Hispanic or Latino	11%	10.6%	7.5%
Median Age	30.3	33.0	36.5
Under 18	<1%	<1%	14%
65 and Over	5%	3%	13%
Median Household Income	$61,008	$78,494	$120,338
Per Capita Income	$82,077	$94,645	$77,630
Unemployed	4.7%	3.2%	4.2%
% Below 200% Poverty	24%	20%	18%
Renter Households	86%	95%	56%
Median Gross Rent	$1,737	$1,896	$1,968
Burdened Renters	53%	53%	44%
Speak a Language Other than English	23%	27%	23%
Bachelor's Degree or Higher	72%	70%	67%
Population with a Disability	15%	9%	10%
Households Without a Vehicle	54%	54%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.9.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Olive Way ramps (Figure 159). The bicycle network in this area features a north-south route along Melrose Avenue and an east-west route on E Pine Street. Specific gaps and other aspects of these networks are listed later in this section.

Figure 159. Existing Bicycle and Pedestrian Facilities Near Olive Way Ramps

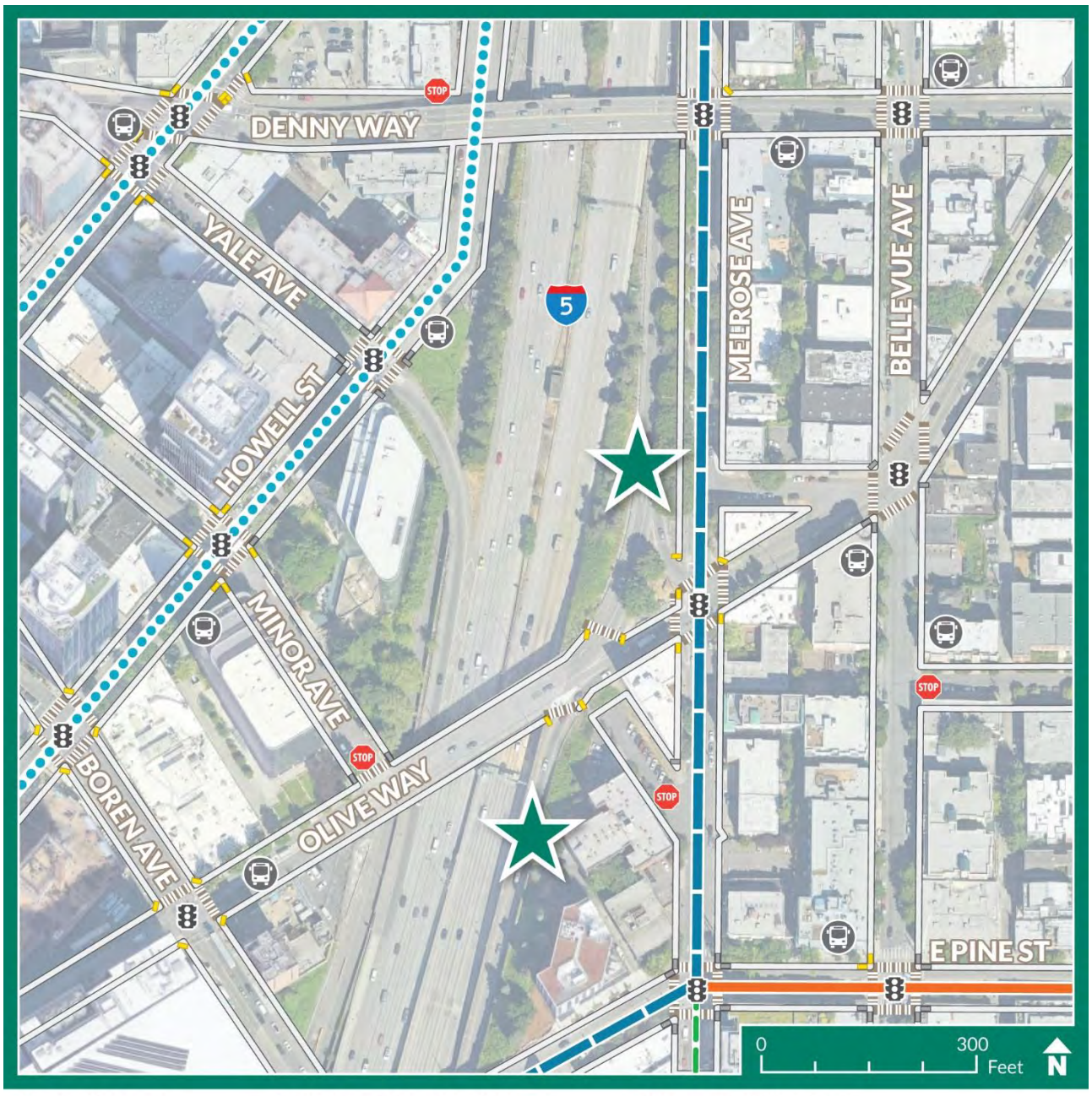


Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Olive Way ramps features sidewalks that are approximately 9 to 15 feet wide. Sidewalks are widest on the north side of Pine Street, west of Melrose Avenue, and narrowest on the east side of Melrose Avenue, north of Olive Way. Sidewalks are present on all blocks.

Crosswalks

Most crossings in the area near the Olive Way ramps feature signal-controlled, twin-stripe continental crosswalks (Figure 160). Minor Avenue at Olive Way has a marked crosswalk but is stop-controlled. Several other intersections are stop-controlled with unmarked crosswalks. (Figure 161). These include:

- Olive Way and Minor Avenue
- E Olive Street and Bellevue Avenue
- E Olive Place and Melrose Avenue
- Yale Avenue and Melrose Avenue

Crossing distances range from 16 to 65 feet,

Figure 160. Olive Way Crossing Melrose Ave., Looking North

Source: 2024 Google

Figure 161. Stop-Controlled Crossing, Minor Ave. and Olive Way, Looking South

Source: 2024 Google

Figure 162. Stop-Controlled Unmarked Crossing, E Olive St. and Bellevue Ave., Looking West

Source: 2024 Google

Curb Ramps

Most crossings near the Olive Way ramps feature curb ramps, although the type and orientation vary. The primary exception is E Olive Street, where it meets Bellevue Avenue (Figure 163). Most curb ramps are in line with the crosswalk, while some are oriented towards the center of the intersection. Most curb ramps are ADA-compliant (Figure 164), while others are non-compliant (Figure 165).

Figure 163. Missing Curb Ramp, E Olive St. and Bellevue Ave.

Source: 2024 Google

Figure 164. ADA-Compliant Curb Ramp, Olive Way, and Melrose Ave.

Source: 2024 Google

Figure 165. Non-ADA-Compliant Curb Ramp, Olive Way, and Bellevue Ave.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Olive Way ramps features east-west facilities on Pine Street (Figure 166) and north-south facilities on Melrose Avenue (Figure 167). All street segments near the Olive Way ramps have Bicycle Level of Traffic Stress ratings of either Medium-High or High, except for Melrose Avenue between Olive Way and Denny Way, which has a rating of Medium-Low[36]. Specific bicycle facilities are listed below:

Protected Bike Lanes

- Melrose Avenue

Conventional Bike Lanes

- Pine Street

Shared Lane Markings

- Howell Street

[36] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 166. Conventional Bike Lane, Pine St. at Melrose Ave., Looking East

Source: 2024 Google

Figure 167. Location of Protected Bike Lanes, Melrose Ave. at Olive Way, Looking North

Source: 2024 Google
Note: Imagery available may not reflect current conditions. Conditions information reflects data provided by the City of Seattle.

Figure 168. Shared Lane Markings, Howell St. at Minor Ave., Looking East

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on Pike Street and E Pike Street within the study area.[37]

[37] Bicycle Master Plan - Transportation | seattle.gov

2.9.3 Transit Conditions

The area around the Olive Way on-ramp and off-ramp features several transit routes with a range of route types and varying frequencies (Figure 169). Frequent routes run eastbound along E Pine Street, westbound along E Pike Street, and northbound along 6th. Howell Street has several lines that run early in the morning or late in the evening. The sections below describe the existing transit network in greater detail.

Figure 169. Existing Transit Network Near Olive Way Ramps

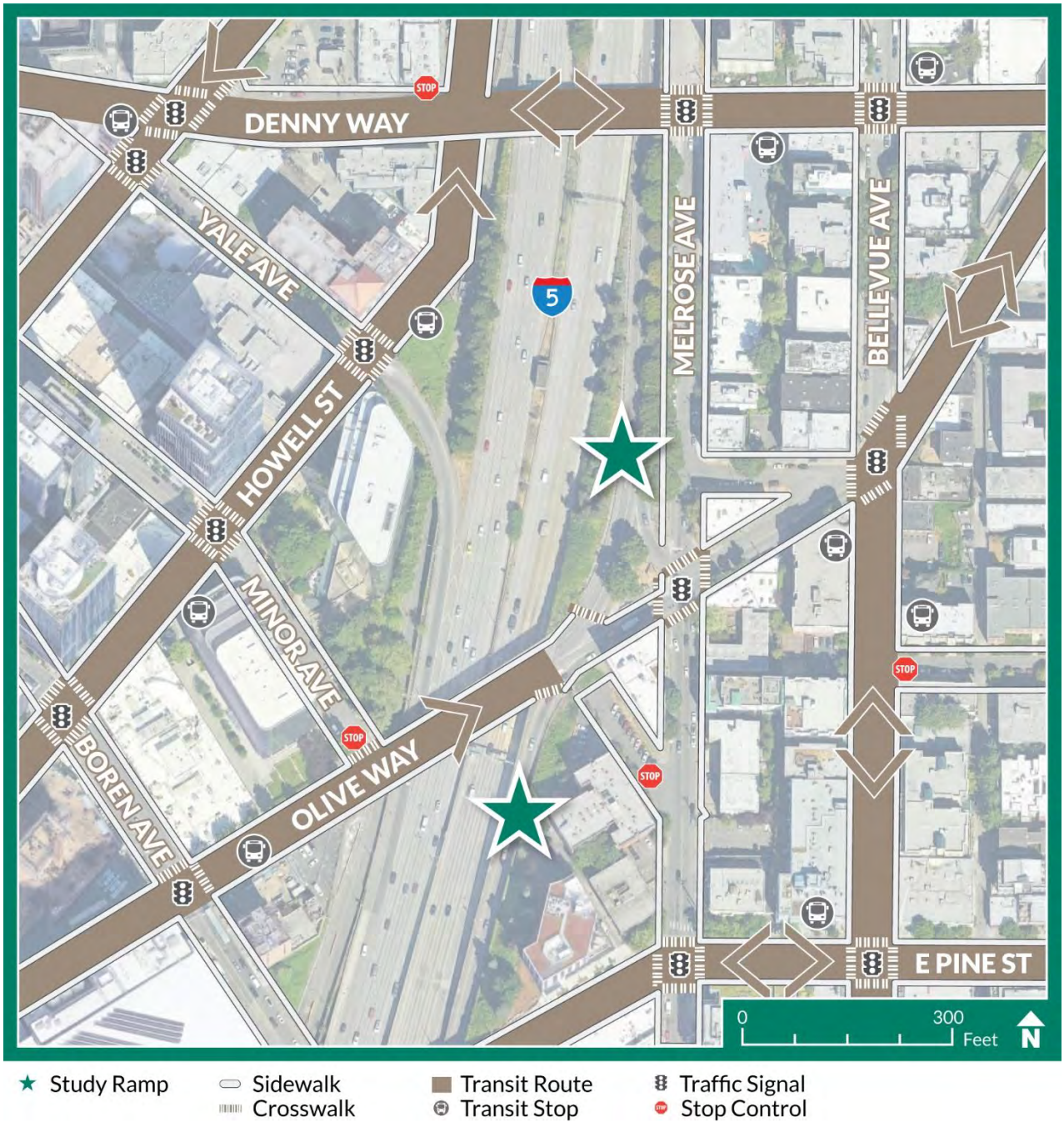


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Metro Lines 10, 11, 43, and 49 run east and west along E Pine Street and north and south along Bellevue Avenue. Line 43 primarily runs north and south along Broadway, with morning and afternoon service to Downtown. Sound Transit Line 545 runs east along Olive Way and stops near Minor Avenue before traveling north on I-5. Sound Transit Lines 510, 577, 578, 590, 592, 594, 595, and Community Transit Lines 402, 405, 410, 415, 417, and 422 run northbound along Howell Street.

Existing Stops

The bus stops nearest the Olive Way ramps include:

- Olive Way at Boren Avenue serving Sound Transit Line 545.
- E Pine Street at Bellevue Avenue serving Metro Lines 10, 11, 43, and 49.
- Bellevue Avenue at E Olive Street serving Metro Lines 10 and 43.
- Bellevue Avenue at Olive Way serving Metro Lines 10 and 43.
- Howell Street at Yale Avenue serving Community Transit Lines 402, 405, 410, 415, 417, 422, and Sound Transit Lines 510, 577, 578, 590, 592, 594, and 595.

Existing Headways and Span-of-Service

Frequent transit service near the Olive Way ramps includes Metro Lines 10, 11, and 49 that run along Bellevue Avenue and E Pine Street with headways of 10-20 minutes. Frequent Sound Transit Lines 545, 578, 594, and 595 serve Olive Way and Howell Street with headways of 10-60 minutes.

Other transit service includes Metro Line 43, Sound Transit Lines 510, 577, 590, and 592, and Community Transit Lines 402, 405, 410, 415, 417, and 422, which operate on weekdays in the early morning and in the evening with 30-minute headways.

Table 21 lists specific service spans and headways as of June 2024.

Table 21. Existing Transit Headways, Span-of-Service, and Days of Service Near Olive Way Ramps

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
10 SB	5:00 AM	1:15 AM	15-30	Yes
10 NB	5:30 AM	1:30 AM	15-30	Yes
11 SB	4:45 AM	1:20 AM	5-30	Yes
11 NB	4:45 AM	1:00 AM	15-30	Yes
43 SB	8:38 AM	9:10 AM	30	No
43 NB	2:19 PM	2:54 PM	20-40	No
49 SB	5:00 AM	4:58 AM	15-60	Yes
49 NB	4:30 AM	4:15 AM	10-30	Yes
Sound Transit				
510 SB	4:00 AM	9:30 AM	20	No
510 NB	2:30 PM	7:45 PM	10-20	No
545 EB	5:00 AM	12:30 AM	10-30	Yes
545 WB	4:30 AM	12:00 AM	10-20	Yes
577 SB	5:30 AM 2:40 PM	8:15 AM 6:15 PM	15-30	No
577 NB	4:45 AM	9:30 AM	8-25	No
578 SB	4:55 AM	12:15 AM	30-60	Yes
578 NB	7:20 AM	10:25 PM	20-60	Yes
590 SB	2:40 PM	7:30 PM	10-20	No
590 NB	3:45 AM	9:50 AM	10-50	No
592 SB	2:10 PM	7:55 PM	30-40	No
592 NB	4:05 AM	9:25 AM	20-35	No
594 SB	5:30 AM 6:40 PM	4:15 PM 1:10 AM	20-60	Yes
594 NB	5:00 AM	11:25 PM	30-60	Yes
595 SB	5:32 AM 6:40 PM	4:11 PM 1:10 AM	20-60	Yes
595 NB	8:30 AM	11:30 PM	30-60	Yes
Community Transit				
402 NB	2:30 PM	7:00 PM	20-30	No
402 SB	5:15 AM	9:15 AM	15-30	No

Line	Begin	End	Headway (Minutes)	Weekend Service
405 NB	3:15 PM	6:45 PM	40	No
405 SB	5:45 AM	8:45 AM	30-50	No
410 NB	3:00 PM	6:30 PM	30	No
410 SB	5:15 AM	9:10 AM	50-80	No
415 NB	2:30 PM	6:30 PM	15-30	No
415 SB	5:15 AM	9:45 AM	30	No
417 NB	3:15 PM	7:00 PM	30-60	No
417 SB	5:45 AM	9:15 AM	30-60	No
422 NB	4:00 PM	7:00 PM	60	No
422 SB	5:15 AM	8:00 AM	50	No

NB = Northbound, SB = Southbound

Recent and Planned Transit Improvements

Metro recently began a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide G Line, to run westbound on Madison Street from Martin L. King Jr. Way to 1st Avenue and eastbound on Spring Street before connecting to eastbound Madison Street at 9th Avenue[38]. Service features headways of six minutes for most service hours. The new route features bus-only lanes and RapidRide stations with center lane boarding. Metro Line 2 will remain unchanged; however, the Metro Line 12 route was modified to use Pike Street and Pine Street. A new sidewalk station was located on Spring Street between 7th Avenue and 8th Avenue, and a new center platform was located on Madison Street between 7th Avenue and 8th Avenue.

Transit routes using study area ramps or 5th and 6th Avenues may be reduced or removed as part of near-term transit system restructuring by Sound Transit.

[38] RapidRide G Line – Madison St - Transportation | seattle.gov

2.9.4 Key Destinations

One civic destination is located near the Olive Way on-ramp and off-ramp: Seattle's LGBTQ+ Center on Bellevue Avenue (Figure 170). People use the ramps to access Belltown, First Hill, Capitol Hill, Duwamish, and Interbay.

Figure 170. Key Destinations Near Olive Way Ramps

Image: Google Earth
Data: City of Seattle

2.9.5 Traffic Volumes and Patterns (Off-Ramp)

Average Daily Volume

Traffic volumes for the Olive Way off-ramp include 9,130 daily trips (Table 22), the second lowest for Downtown segment study ramps. AM peak hour volume is 28% of maximum theoretical capacity, and PM peak hour volume is 36% of maximum theoretical.

Table 22. Average Weekday Volumes for Olive Way Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	500	28%
Off-Ramp	PM	640	36%
Off-Ramp	AWD	9,130	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

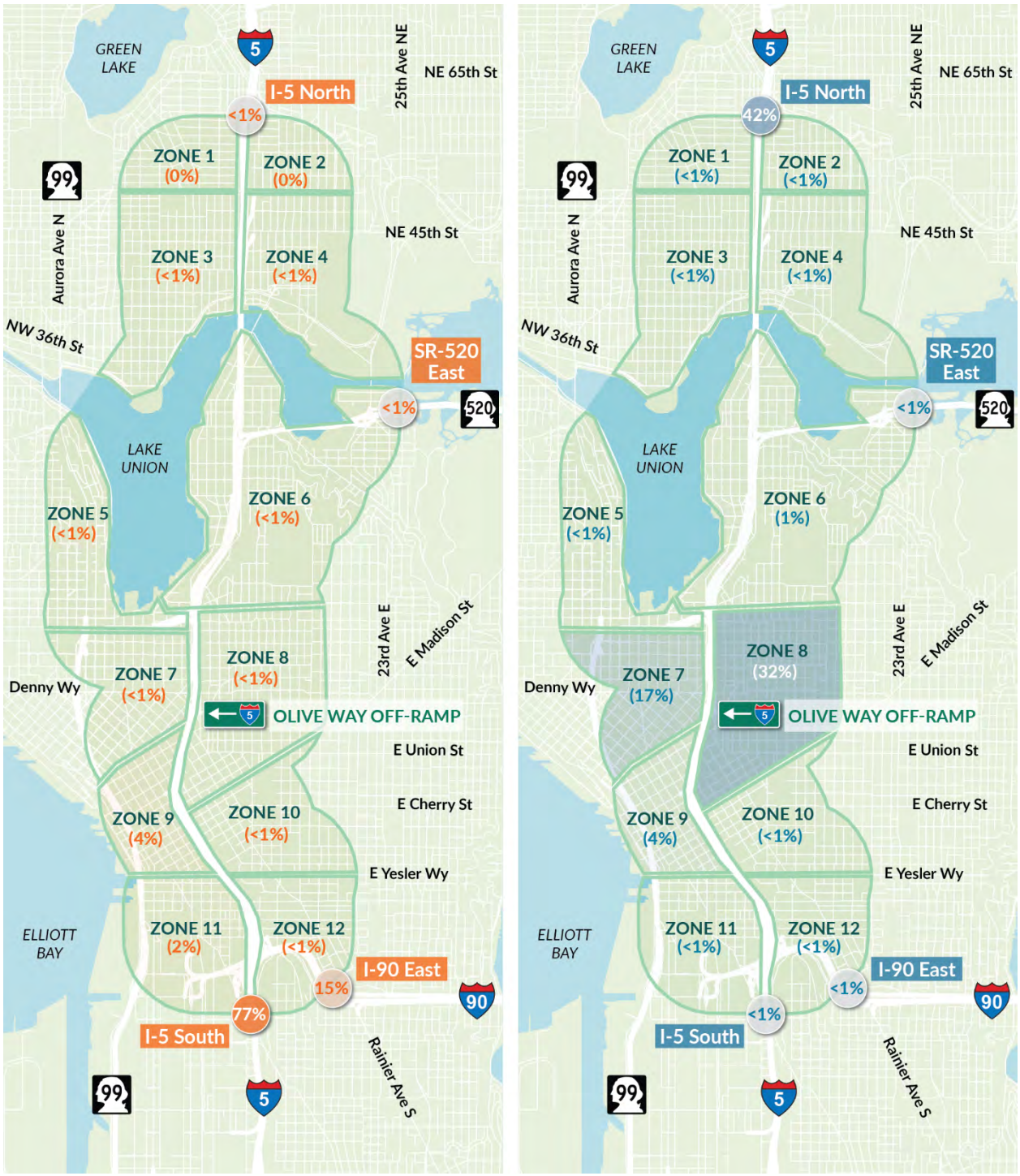
The Olive Way off-ramp is located within Zone 8. Figure 171 shows the traffic volumes traveling between Zone 8 and the other study area zones. The highest volumes traveling to and from Zone 8 are from Zones 6, 7, 9, and 10 and from beyond the study area to the south, north, and east via I-5 and I-90.

Figure 171. Origin and Destination Trips to and from Zone 8, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 172 shows a subset of trips between Zone 8 and other study area zones that access the Olive Way off-ramp specifically. 77% of origin trips that access the Olive Way off-ramp have origins south of the study area, and 15% have origins east of the study area. 42% of trips that access the Olive Way off-ramp have destinations north of the study area, and 32% have destinations within Zone 8.

Figure 172. Origin and Destination Trips to and from Olive Way Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 173 shows the routes and relative volumes for traffic traveling to the Olive Way off-ramp. Most trips that access the ramp are traveling south of the study area via I-5.

Figure 173. Trip Routes to Olive Way Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

2.9.6 Traffic Volumes and Patterns (On-Ramp)

Average Daily Volume

Traffic volumes for the Olive Way on-ramp include 9,860 daily trips (Table 23), the third lowest for Downtown segment ramps, and 46% of the highest Downtown segment study ramp. AM peak hour volume is 27% of the maximum theoretical capacity, and PM peak hour volume is 39% of the maximum theoretical capacity.

Table 23. Average Weekday Volumes for Olive Way On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	490	27%
On-Ramp	PM	700	39%
On-Ramp	AWD	9,860	

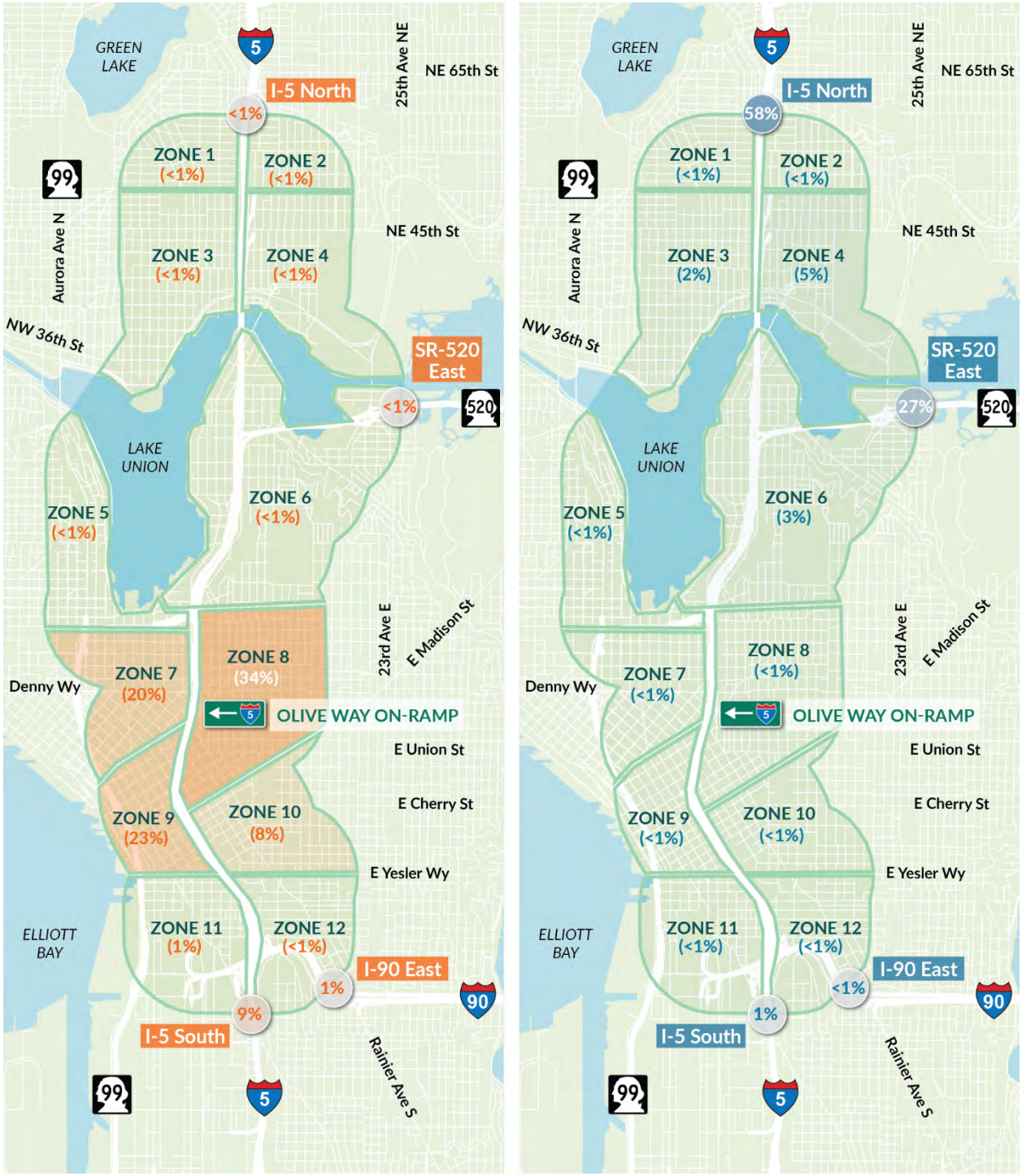
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The Olive Way on-ramp is located within Zone 8. Figure 171 shows the traffic volumes traveling between Zone 8 and the other study area zones. The highest volumes traveling to and from Zone 8 are from Zones 6, 7, 9, and 10 and from beyond the study area to the south, north, and east via I-5 and I-90.

Figure 174 shows a subset of trips between Zone 8 and other study area zones that access the Olive Way on-ramp specifically. 34% of trips that access the Olive Way on-ramp have origins within Zone 8, and 23% have origins within Zone 9. 58% of trips that access the Olive Way on-ramp have destinations north of the study area, and 27% have destinations east of the study area.

Figure 174. Origin and Destination Trips to and from Olive Way On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 175 shows the routes and relative volumes for traffic traveling to the Olive Way on-ramp. Most trips that access the ramp travel north beyond the study area via I-5.

Figure 175. Trip Routes from Olive Way On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

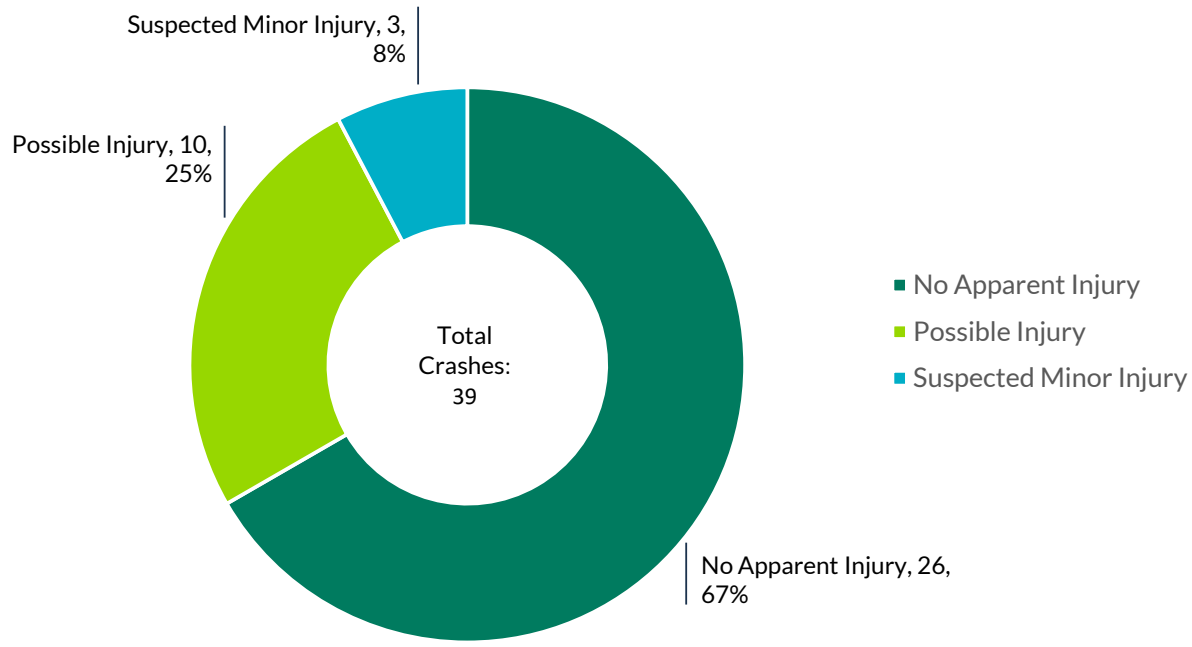
2.9.7 Safety (Off- and On-Ramp Combined)

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks and considers the Olive Way off- and on-ramps as one location due to their proximity. There were 39 reported crashes within 200 feet of the Olive Way ramps during the period.

Crash Severity

Figure 176 shows that most crashes near the Olive Way off- and on-ramps during the study period reported no apparent injury (67%).

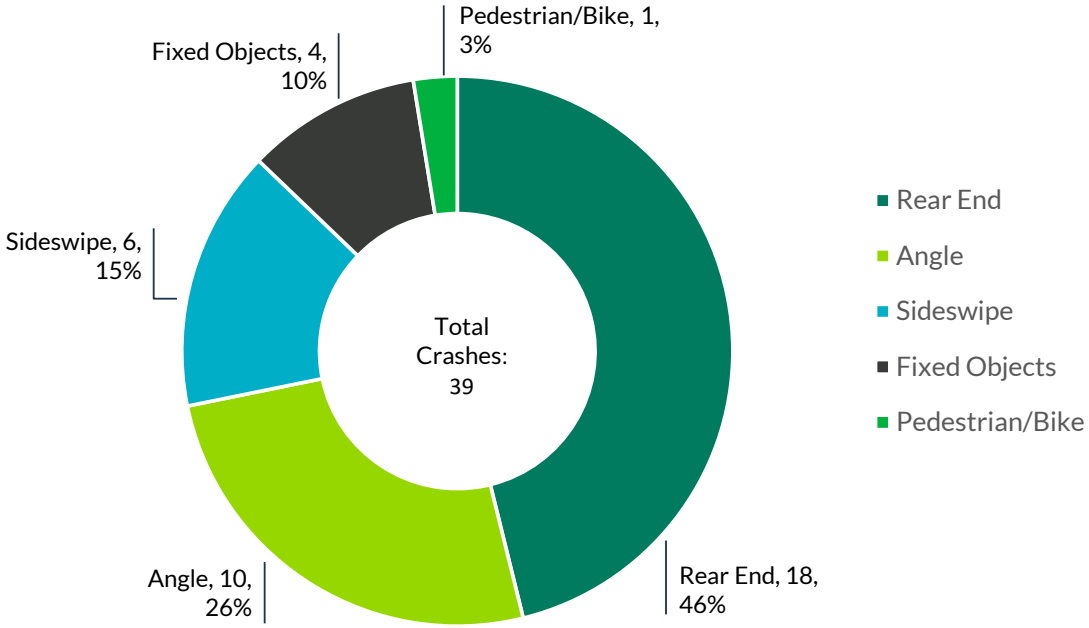
Figure 176. Crash Severity, Olive Way Ramps Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

Figure 177 shows that the most common crash type reported near the Olive Way off- and on-ramps during the study period was rear end (46%), followed by angle (26%). There was one reported pedestrian/bike crash during the study period.

Figure 177. Crash Type, Olive Way Ramps Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.10 Yale Avenue On-Ramp

The Yale Avenue southbound on-ramp is located at the intersection of Yale Avenue and Howell Street near Denny Way (Figure 178). The ramp is accessed from either the through-traffic-only right lane on eastbound Yale Avenue or the right-turn-only lane on northbound Howell Street (Figure 179). The ramp is one lane and not metered. The nearest southbound on-ramps are Boylston Avenue E, approximately 1.5 miles to the north, and Spring Street, approximately 0.75 miles to the south.

Figure 178. Yale Ave. On-Ramp Study Area

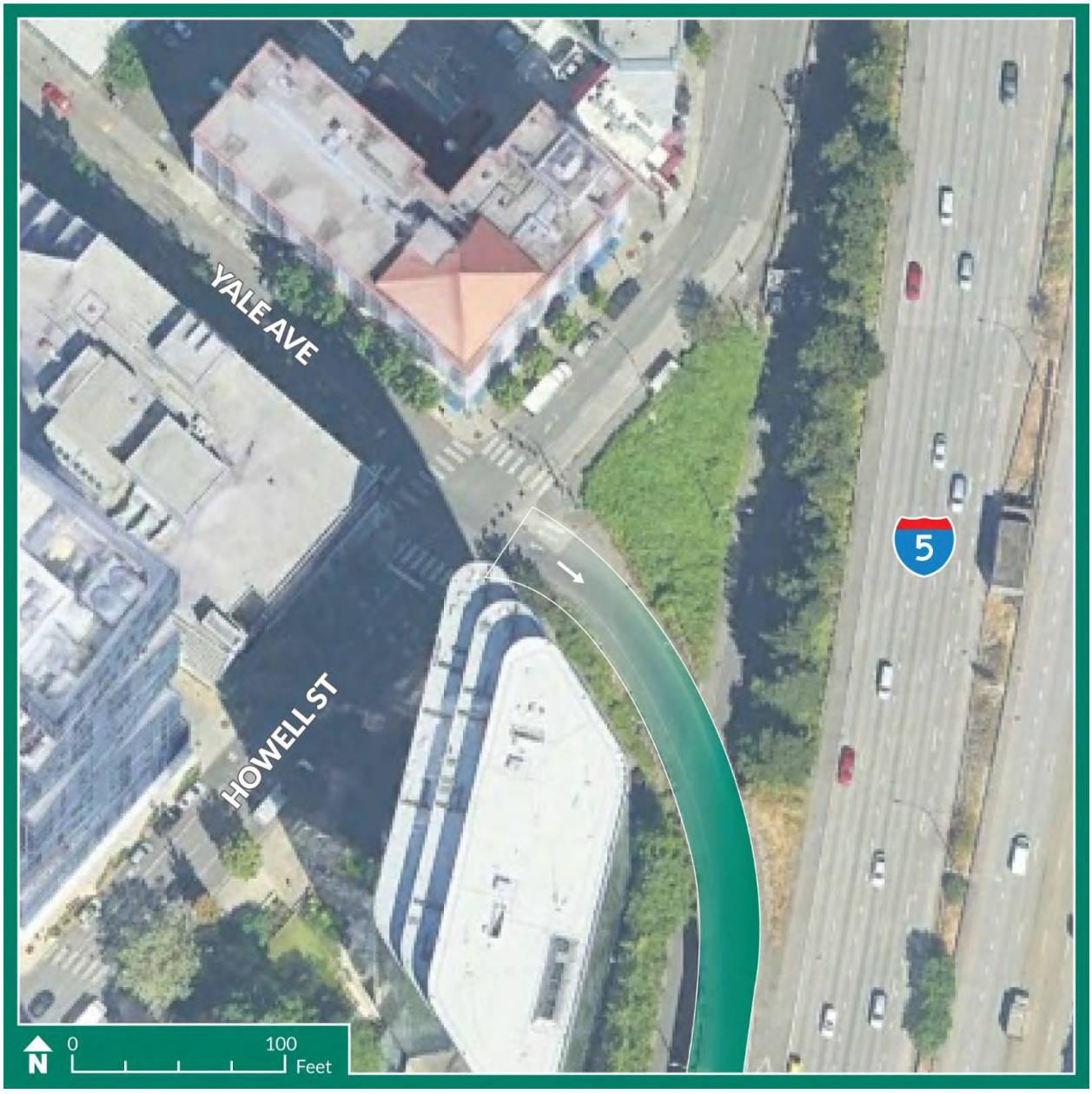


Image: Google Earth

Figure 179. Yale Ave. On-Ramp Entrance, Looking South

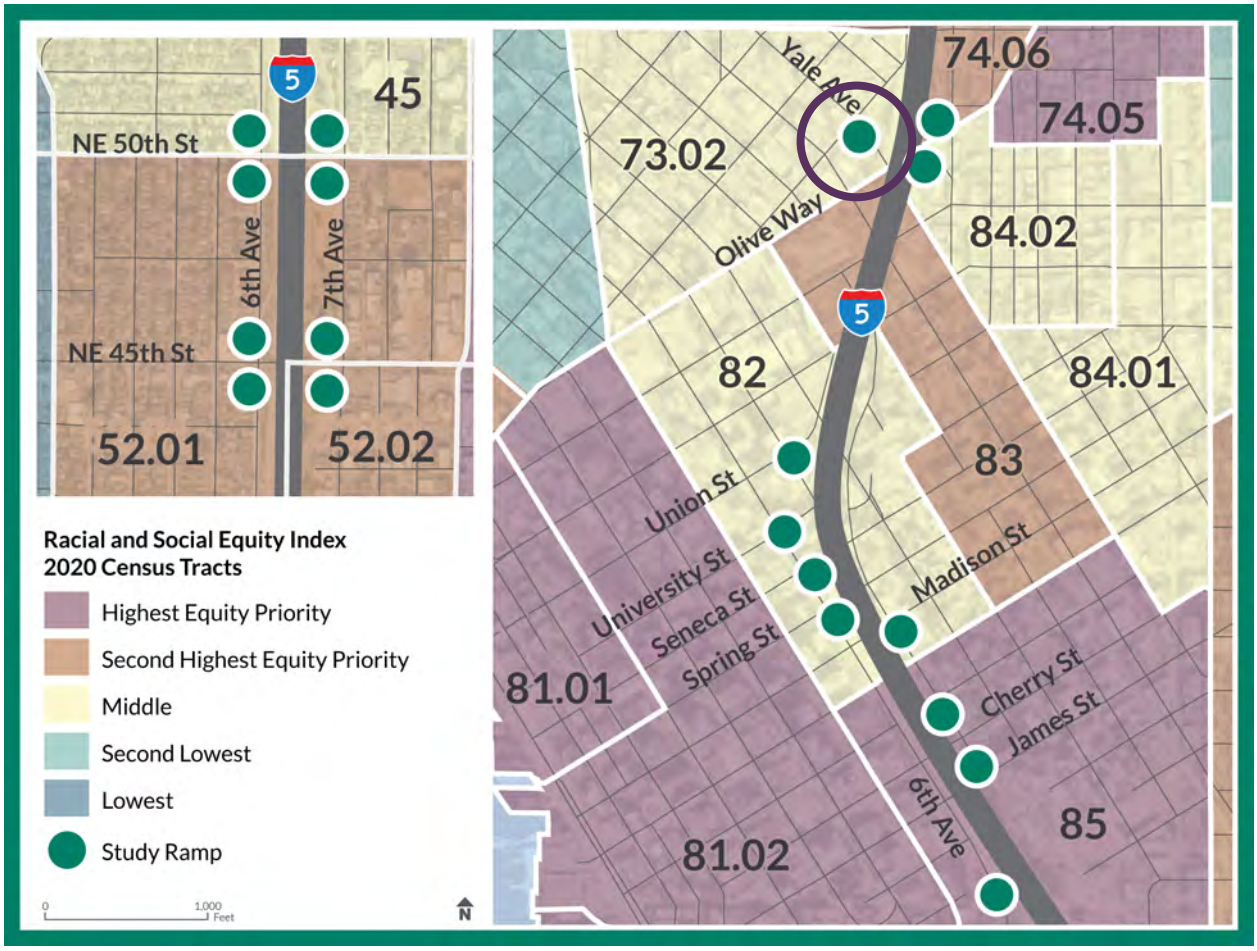
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the Yale Street on-ramp, although there is a missing sidewalk segment on Eastlake Avenue. East-west bicycle facilities are present on Stewart Street and Howell Street. Frequent east-west transit service is present on Denny Way, and frequent north-south transit service is present on Stewart Street and Howell Street. Specific features of the Yale Street on-ramp study area are discussed in the following sections.

2.10.1 Equity and Demographic Composition

The area around the Yale Avenue on-ramp is rated by the RSEI as Middle Equity Priority, although it is adjacent to higher priority areas to the north, east, and south (Figure 180).

Figure 180. City of Seattle's Race and Social Equity Index Snapshot – Yale Ave. On-Ramp



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the Yale Avenue on-ramp is generally within Census Tract 73.02, which includes approximately 77 acres bordering Denny Way to the north, Eastlake Avenue to the west, Olive Way to the south, and Westlake Avenue to the west. Details about this Census Tract and its relationship to the City are provided in Table 24 below.

Census Tract 73.02 is over three times as densely populated as the City as a whole. Community members are generally younger, more racially diverse, and more affluent than the City as a whole. Rents are higher than the City average, and the proportion of renters is higher; however, renters are less burdened. Census Tract 73.02 also has a larger proportion of households without a vehicle and a lower percentage of people with a disability.

Table 24. Demographic Comparison: Census Tract 73.02

Demographic	Census Tract 73.02	Seattle
Population	4,783	734,471
Occupied Housing Units	3,315	345,184
Average Household Size	1.37	2.13
Density (People/Acre)	61.8	13.7
Density (Housing/Acre)	49.6	6.9
Female	38%	49%
Male	62%	51%
People of Color	65%	39%
Hispanic or Latino	10.1%	7.5%
Median Age	30.8	36.5
Under 18	3%	14%
65 and Over	3%	13%
Median Household Income	$144,315	$120,338
Per Capita Income	$114,684	$77,630
Unemployed	3.4%	4.2%
% Below 200% Poverty	15%	18%
Renter Households	90%	56%
Median Gross Rent	$2,838	$1,968
Burdened Renters	38%	44%
Speak a Language Other than English	51%	23%
Bachelor's Degree or Higher	80%	67%
Population with a Disability	8%	10%
Households Without a Vehicle	49%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.10.2 Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the Yale Avenue on-ramp (Figure 181). Stewart Street and Eastlake Avenue/Howell Street are the two primary north-south bicycle facilities in this part of Downtown. Specific gaps and other aspects of these networks are listed later in this section.

Figure 181. Existing Bicycle and Pedestrian Facilities Near Yale Ave. On-Ramp

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the Yale Avenue on-ramp features sidewalks that are approximately 6 to 19 feet wide. Sidewalks are widest on the east side of Howell Street south of Yale and narrowest on the north side of Minor Avenue west of Howell Street. Sidewalks are present on all blocks except the east side of Eastlake Avenue (Figure 182).

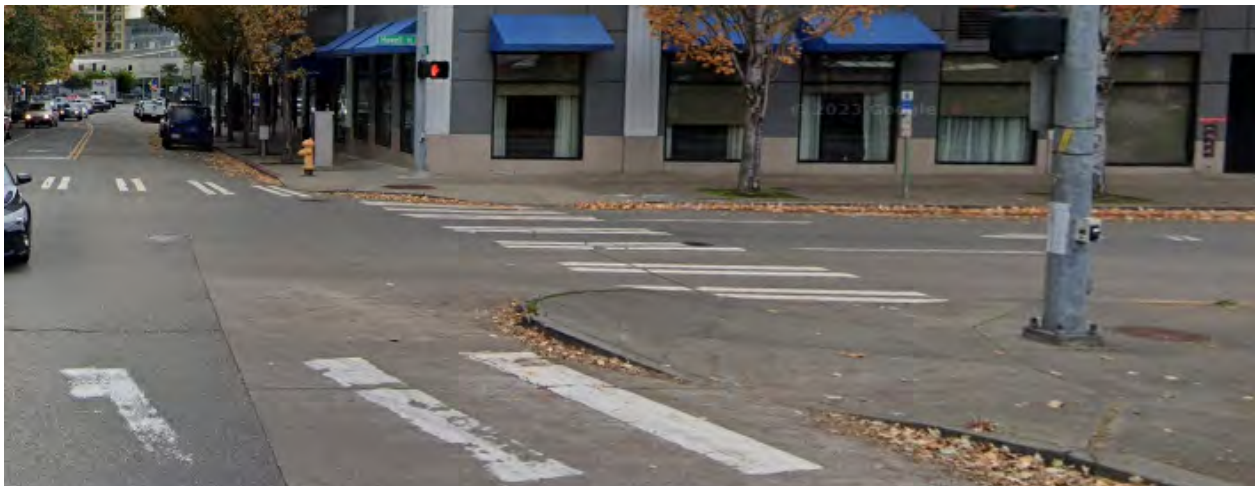
Figure 182. Missing Sidewalk, Eastlake Ave., Looking North

Source: 2024 Google

Crosswalks

All crossings in the area near the Yale Avenue on-ramp feature signal-controlled, twin-stripe continental crosswalks (Figure 183). Crossings range from 32 to 50 feet.

Figure 183. Yale Ave. Crossing Howell St., Looking North

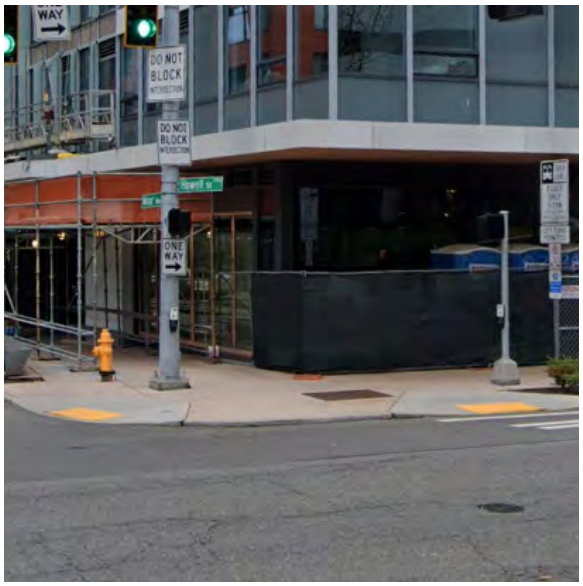


Source: 2024 Google

Curb Ramps

All crossings near the Yale Avenue on-ramp feature curb ramps, although the type varies. All curb ramps are in line with the crosswalk. Most curb ramps are ADA-compliant (Figure 184), while others are not compliant (Figure 185).

Figure 184. ADA-Compliant Curb Ramps, Howell St. and Minor Ave.



Source: 2024 Google

Figure 185. Non-ADA-Compliant Curb Ramps, Howell St. and Yale Ave.

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near the Yale Avenue on-ramp features shared lane markings on Stewart Street and Howell Street/Eastlake Avenue (Figure 186). All street segments near the Yale Avenue on-ramp have Bicycle Level of Traffic Stress ratings from Medium to High except for E Denny Way west of I-5, which has a rating of Medium-Low[39].

[39] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Figure 186. Shared Lane Markings, Howell St. at Minor Ave., Looking North

Source: 2024 Google

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes on Stewart Street[40].

[40] Bicycle Master Plan - Transportation | seattle.gov

2.10.3 Transit Conditions

The area around the Yale Avenue on-ramp features several transit routes with a range of route types and varying frequencies (Figure 187). Metro and Sound Transit lines run southbound along Stewart Street and northbound along Eastlake Avenue. One Metro Line runs east-west on E Denny Way. There are two transit stops near the Yale Avenue on-ramp. The sections below describe the existing transit network in greater detail.

Figure 187. Existing Transit Network Near Yale Ave. On-Ramp

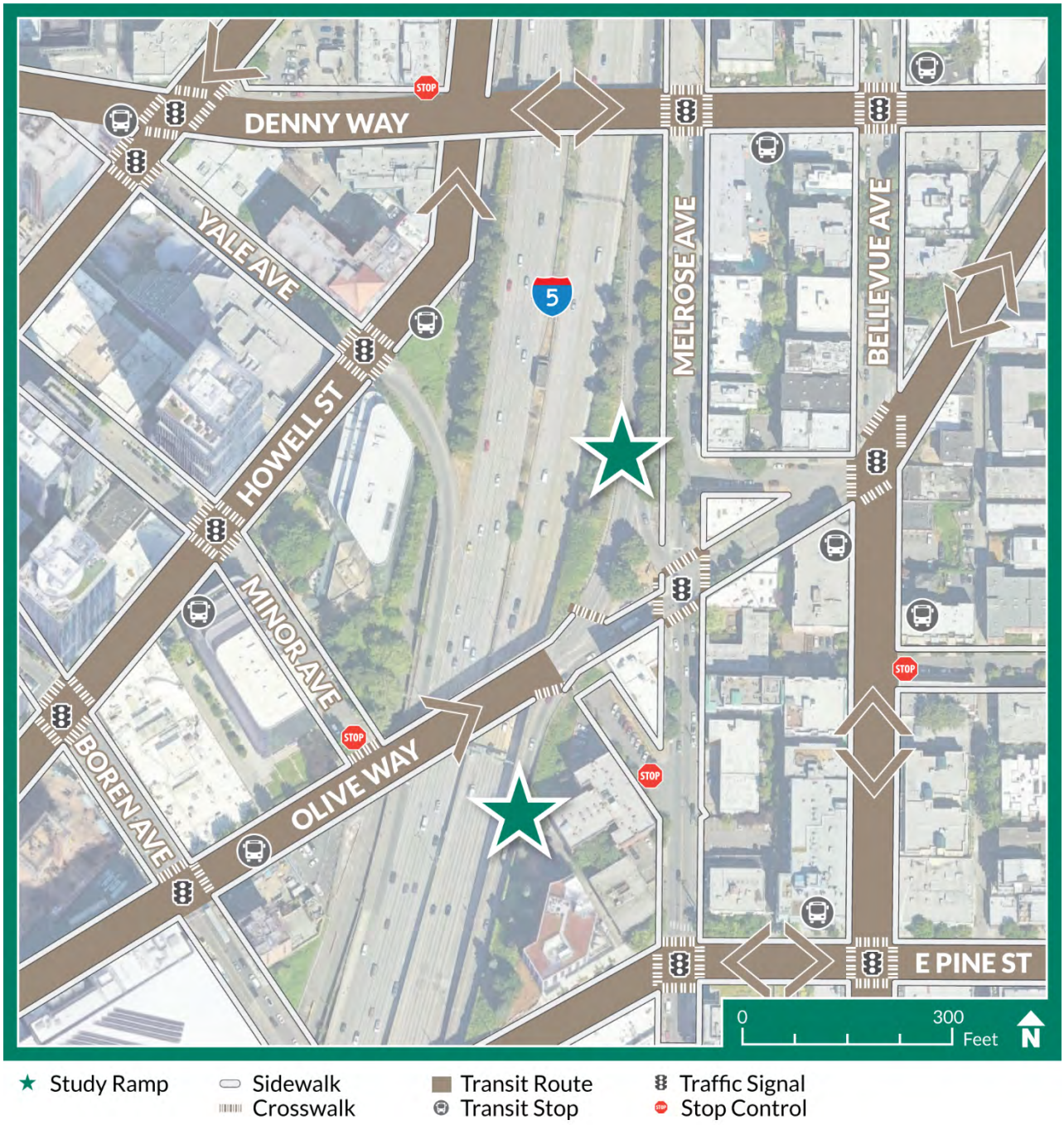


Image: Google Earth
Data: King County Metro, Sound Transit, Community Transit

Existing Routes

Metro Line 8 runs east-west on E Denny Avenue. Metro Lines 218, 257, 311, and Sound Transit Line 545 travel west on Stewart Street. Community Transit Lines 402, 405, 410, 415, 417, 422, and Sound Transit Lines 510, 577, 590, 592, 594, and 594 travel eastbound along Howell Street/Eastlake Avenue. There are transit reliability challenges for routes on Denny Way where it crosses I-5.

Existing Stops

The bus stops nearest the Yale Avenue on-ramp include:

- Stewart Street at Denny Way serving Metro Line 8.
- Stewart Street at Yale Avenue N serving Metro Lines 218, 257, 311, and Sound Transit Line 545.
- Howell Street at Yale Avenue serving Community Transit Lines 402, 405, 410, 415, 417, 422, and Sound Transit Lines 510, 577, 578, 590, 592, 594, and 595.
- Eastlake Avenue at Stewart Street serving Sound Transit Lines 577, 578, 590, 592, and 594.
- Howell Street at Minor Avenue serving Metro Lines 111 and 177.

Existing Headways and Span-of-Service

Frequent transit service near the Yale Avenue on-ramp includes Metro Line 8 which runs east-west along Denny Way connecting Pacific Center and Mt. Baker Transit Center. Other frequent services include Sound Transit Lines 545, 594, and 595, which connect communities like Gig Harbor, Lakewood, and Redmond to Downtown Seattle and terminate a block or two from the on-ramp. These lines generally run in the morning and evening, with headways ranging from 10-60 minutes.

Other transit service includes Metro Lines 218, 257, and 311; Sound Transit Line 510; and Community Transit Lines 402, 405, 410, 415, 417, and 422. These operate on weekday mornings and evenings, averaging 30-minute headways.

Table 25 lists specific service spans and headways as of June 2024.

Table 25. Existing Transit Headways, Span-of-Service, and Days of Service Near Yale Ave. On-Ramp

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
8 WB	5:31 AM	1:03 AM	12-30	Yes
8 EB	5:00 AM	12:57 AM	12-30	Yes
218 WB	6:08 AM	8:32 AM	19-46	No
218 EB	3:34 PM	6:57 PM	20-42	No
257 SB	5:00 AM	9:45 AM	50	No
257 NB	3:15 PM	7:15 PM	50	No
311 SB	5:30 AM	9:45 AM	50	No
311 NB	3:15 PM	7:30 PM	50	No
Sound Transit				
510 SB	4:00 AM	9:30 AM	20	No
510 NB	2:30 PM	7:45 PM	10-20	No
545 EB	5:00 AM	12:30 AM	10-30	Yes
545 WB	4:30 AM	12:00 AM	10-20	Yes
577 SB	5:30 AM 2:40 PM	8:15 AM 6:15 PM	15-30	No
577 NB	4:45 AM	9:30 AM	8-25	No
578 SB	4:55 AM	12:15 AM	30-60	Yes
578 NB	7:20 AM	10:25 PM	20-60	Yes
590 SB	2:40 PM	7:30 PM	10-20	No
590 NB	3:45 AM	9:50 AM	10-50	No
592 SB	2:10 PM	7:55 PM	30-40	No
592 NB	4:05 AM	9:25 AM	20-35	No
594 SB	5:30 AM 6:40 PM	4:15 PM 1:10 AM	20-60	Yes
594 NB	5:00 AM	11:25 PM	30-60	Yes
595 SB	5:32 AM 6:40 PM	4:11 PM 1:10 AM	20-60	Yes
595 NB	8:30 AM	11:30 PM	30-60	Yes
Community Transit				
402 NB	2:30 PM	7:00 PM	20-30	No
402 SB	5:15 AM	9:15 AM	15-30	No

Line	Begin	End	Headway (Minutes)	Weekend Service
405 NB	3:15 PM	6:45 PM	40	No
405 SB	5:45 AM	8:45 AM	30-50	No
410 NB	3:00 PM	6:30 PM	30	No
410 SB	5:15 AM	9:10 AM	50-80	No
415 NB	2:30 PM	6:30 PM	15-30	No
415 SB	5:15 AM	9:45 AM	30	No
417 NB	3:15 PM	7:00 PM	30-60	No
417 SB	5:45 AM	9:15 AM	30-60	No
422 NB	4:00 PM	7:00 PM	60	No
422 SB	5:15 AM	8:00 AM	50	No

NB = Northbound, SB = Southbound

Planned Transit Improvements

King County Metro is planning a new 24-hour, 7-day-a-week bus rapid transit line, the RapidRide J Line, to run northbound and southbound on Fairview Avenue N with a planned stop near the Yale Avenue on-ramp near Boren Avenue and Stewart Street.

2.10.4 Key Destinations

Several destinations are located near the Yale Avenue on-ramp (Figure 188). There is one community organization nearby, YouthCare Orion Center. There are also two medical destinations, Paramount Dental Center and Halcyon Dental Care. People use the ramp to access Interbay, Belltown, Duwamish, Capitol Hill, and Downtown Seattle.

Figure 188. Key Destinations Near Yale Ave. On-Ramp

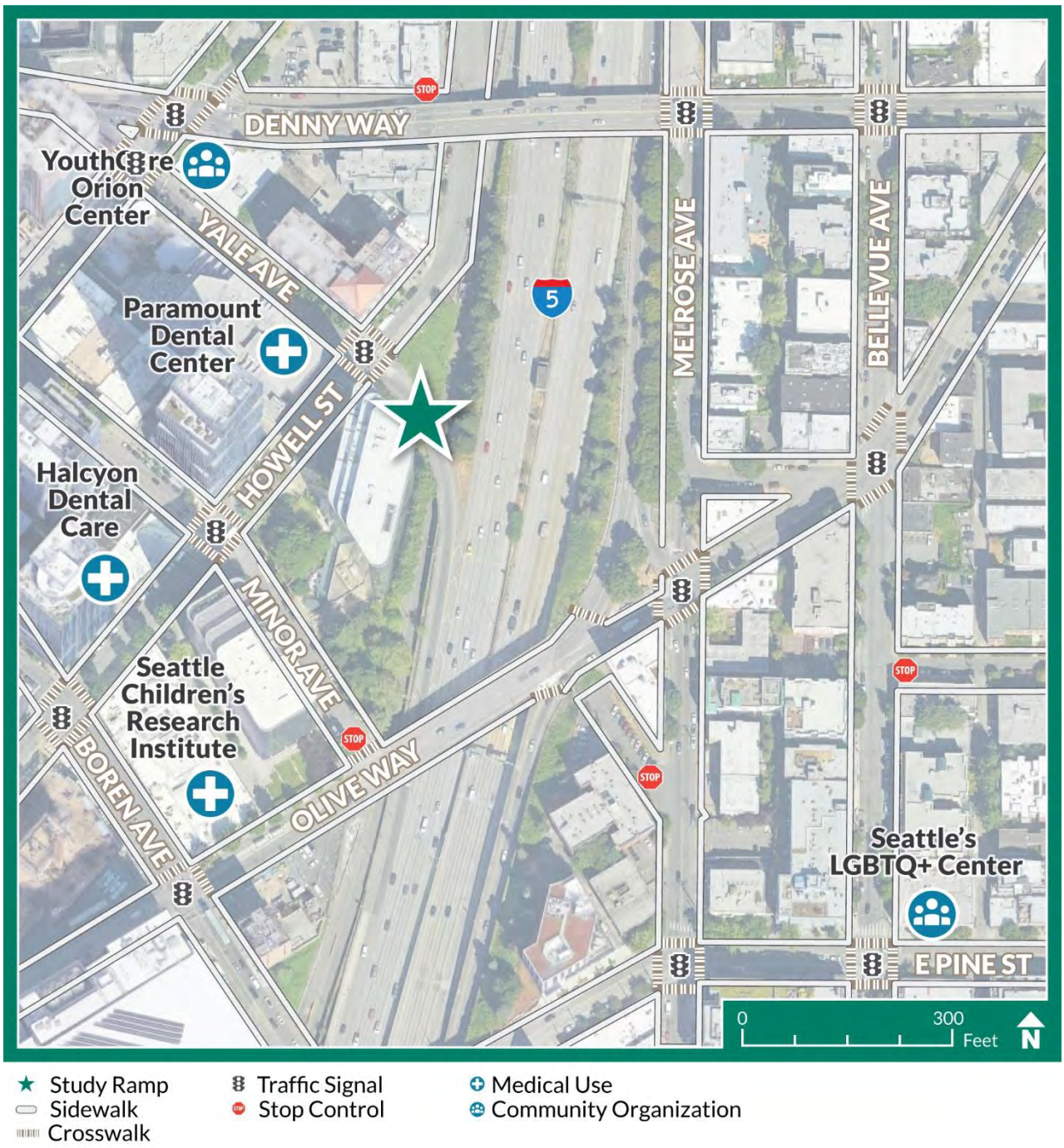


Image: Google Earth
Data: City of Seattle

2.10.5 Traffic Volumes and Patterns

Average Daily Volume

Traffic volumes for the Yale Avenue on-ramp include 16,690 daily trips (Table 26), the second highest of Downtown segment ramp volumes and 77% the volume of the highest Downtown segment ramp. AM peak hour volume is 66% of the maximum theoretical capacity, and PM peak hour volume is 57% of the maximum theoretical capacity.

Table 26. Average Weekday Volumes for Yale Ave. On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	1,190	66%
On-Ramp	PM	1,030	57%
On-Ramp	AWD	16,690	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

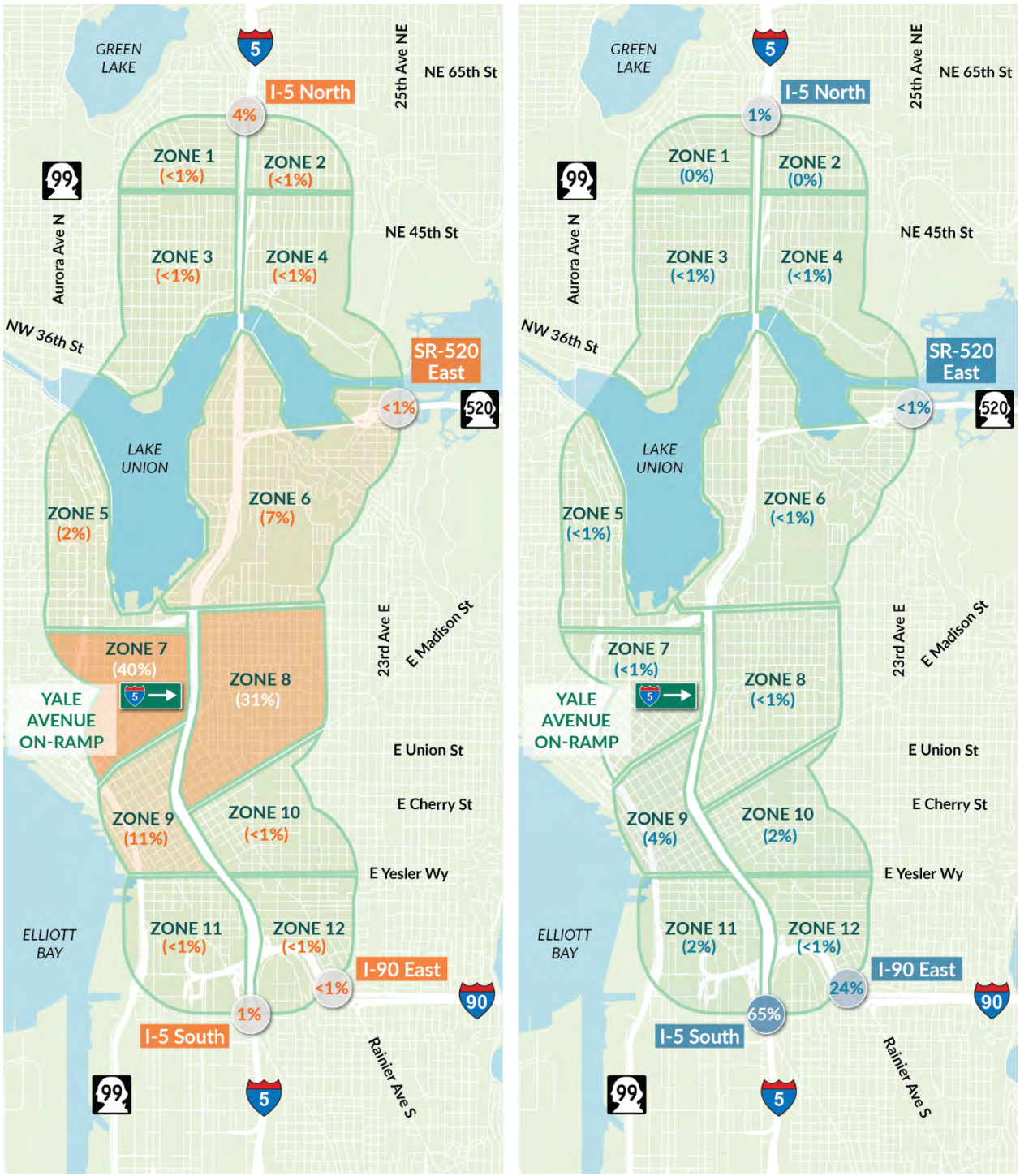
The Yale Avenue on-ramp is located within Zone 7. Figure 189 shows the traffic volumes traveling between Zone 7 and the other study area zones. The highest volumes traveling to and from Zone 7 are from Zones 8 and 9 and from beyond the study area to the south, north, and east via I-5, I-90, and SR 520.

Figure 189. Origin and Destination Trips to and from Zone 7, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 190 shows a subset of trips between Zone 7 and other study area zones that access the Yale on-ramp specifically. 40% of trips that access the Yale Avenue on-ramp have origins within Zone 7 near the ramp, and 31% have origins within Zone 8. 65% of trips that access the Yale Avenue on-ramp have destinations south of the study area, and 24% have destinations east of the study area.

Figure 190. Origin and Destination Trips to and from Yale Ave. On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 191 shows the routes and relative volumes for traffic traveling from the Yale Avenue on-ramp. Most trips that access the ramp travel south beyond the study area via I-5 or east beyond the study area via I-90.

Figure 191. Trip Routes from Yale Ave. On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

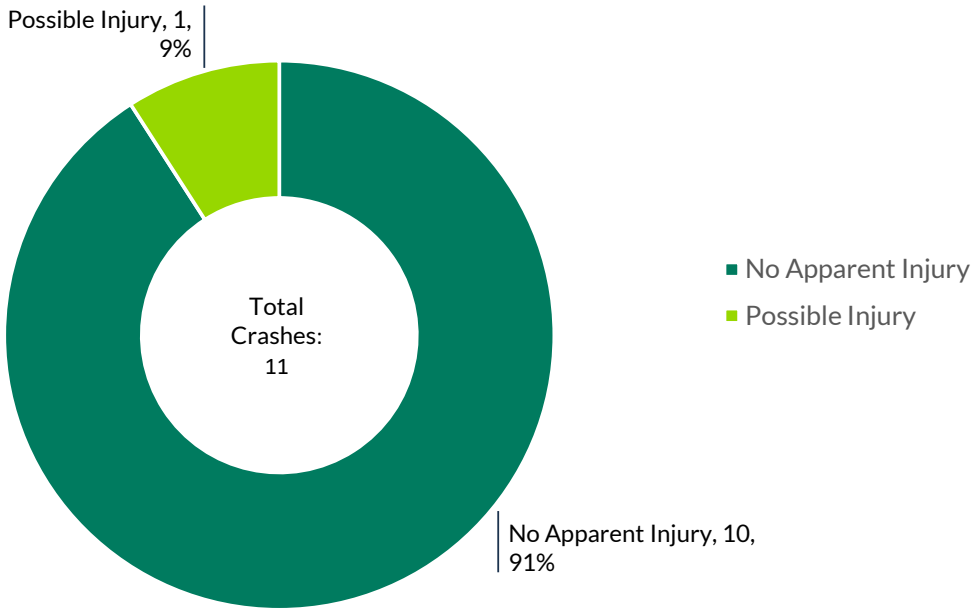
2.10.6 Safety

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks. There were 11 reported crashes within 200 feet of the Yale Avenue on-ramp during the period.

Crash Severity

Figure 192 shows that most crashes near the Yale Avenue on-ramp during the study period reported no apparent injury (91%).

Figure 192. Crash Severity, Yale Ave. On-Ramp Study Area, Jan. 2019 through Dec. 2023

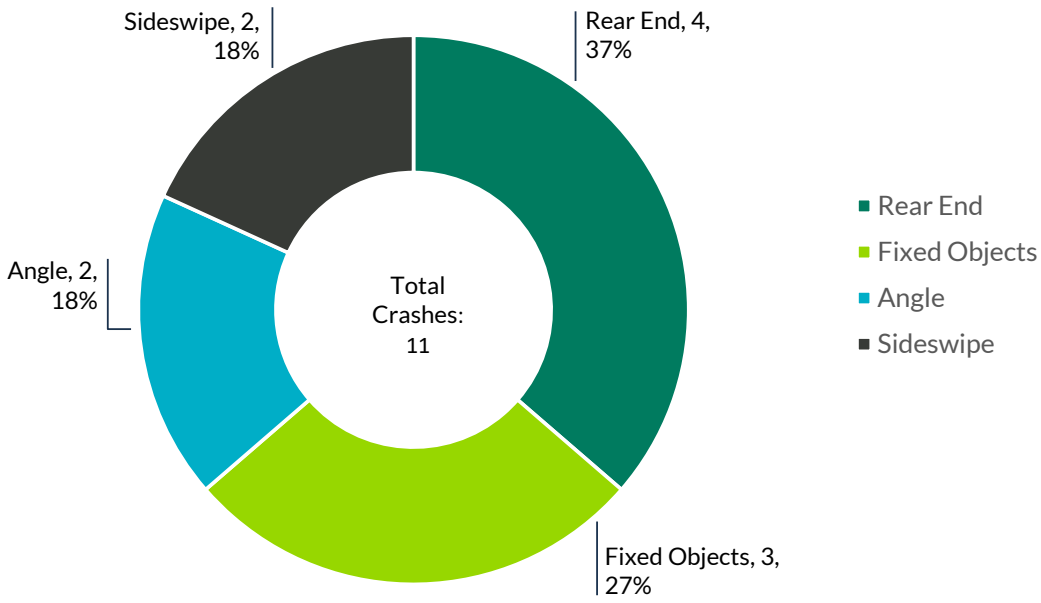


Data: WSDOT

Crash Type

Figure 193 shows that the most common crash type reported near the Yale Avenue on-ramp during the study period was rear end (37%), followed by fixed objects (27%).

Figure 193. Crash Type, Yale Ave. On-Ramp Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.11 NE 45th Street On-Ramps and Off-Ramps

NE 45th Street intersects with four I-5 ramps. The northbound on-ramp and off-ramp intersect with NE 45th Street at 7th Avenue NE. The two-lane off-ramp merges with two-lane 7th Avenue NE before meeting NE 45th Street with four total lanes (Figure 195). The rightmost off-ramp lane and leftmost 7th Avenue NE lane cross each other such that traffic from both the ramp and 7th Avenue NE may either turn right onto NE 45th Street, travel straight to the northbound on-ramp, travel straight to 7th Avenue NE, or turn right onto NE 45th Street. A concrete barrier bifurcates the four lanes at the intersection with a central pedestrian refuge. A crosswalk in the center of the intersection connects the refuge to a large island with a covered bus shelter that separates the northbound on-ramp from 7th Avenue NE north of NE 45th Street. The nearest northbound off-ramps are NE 50th Street, approximately 0.25 miles to the north, and Lakeview Boulevard E, approximately 2.0 miles to the south.

The northbound on-ramp is two lanes and metered (Figure 196). Traffic from 7th Avenue NE may merge with the on-ramp north of the island. The ramp may also be accessed from either eastbound or westbound NE 45th Street. The nearest northbound on-ramps are NE 50th Street, approximately 0.25 miles to the north, and Harvard Avenue, approximately 1 mile to the south.

The southbound on-ramp and off-ramp intersect with NE 45th Street at 5th Avenue NE (Figure 197). The off-ramp is one lane that merges with the two-lane southbound 5th Avenue NE to meet NE 45th Street with three lanes. The leftmost lane must turn left onto NE 45th Street. The other two lanes may travel straight through the intersection. The rightmost lane may also turn right onto NE 45th Street. The nearest southbound off-ramps are NE 50th Street, approximately 0.25 miles to the north, and Boylston Avenue E, approximately one mile to the south.

The southbound on-ramp is two lanes and metered (Figure 198). South of the NE 45th Street intersection, the left two 5th Avenue NE lanes diverge and merge into one lane before merging with I-5 southbound. The ramp may be accessed from 5th Avenue NE, the I-5 southbound off-ramp, and eastbound and westbound NE 45th Street. The nearest southbound on-ramps are NE 50th Street, approximately 0.25 miles to the north, and Boylston Avenue E, approximately 1.75 miles to the south.

Figure 194. NE 45th St. On-Ramps and Off-Ramps Study Area

Image: Google Earth
Source: 2024 Google

Figure 195. NE 45th St. Northbound Off-Ramp, Looking North

Source: 2024 Google

Figure 196. NE 45th St. Northbound On-Ramp Entrance, Looking North

Source: 2024 Google

Figure 197. NE 45th St. Southbound Off-Ramp, Looking North

Source: 2024 Google

Figure 198. NE 45th St. Southbound On-Ramp Entrance, Looking South

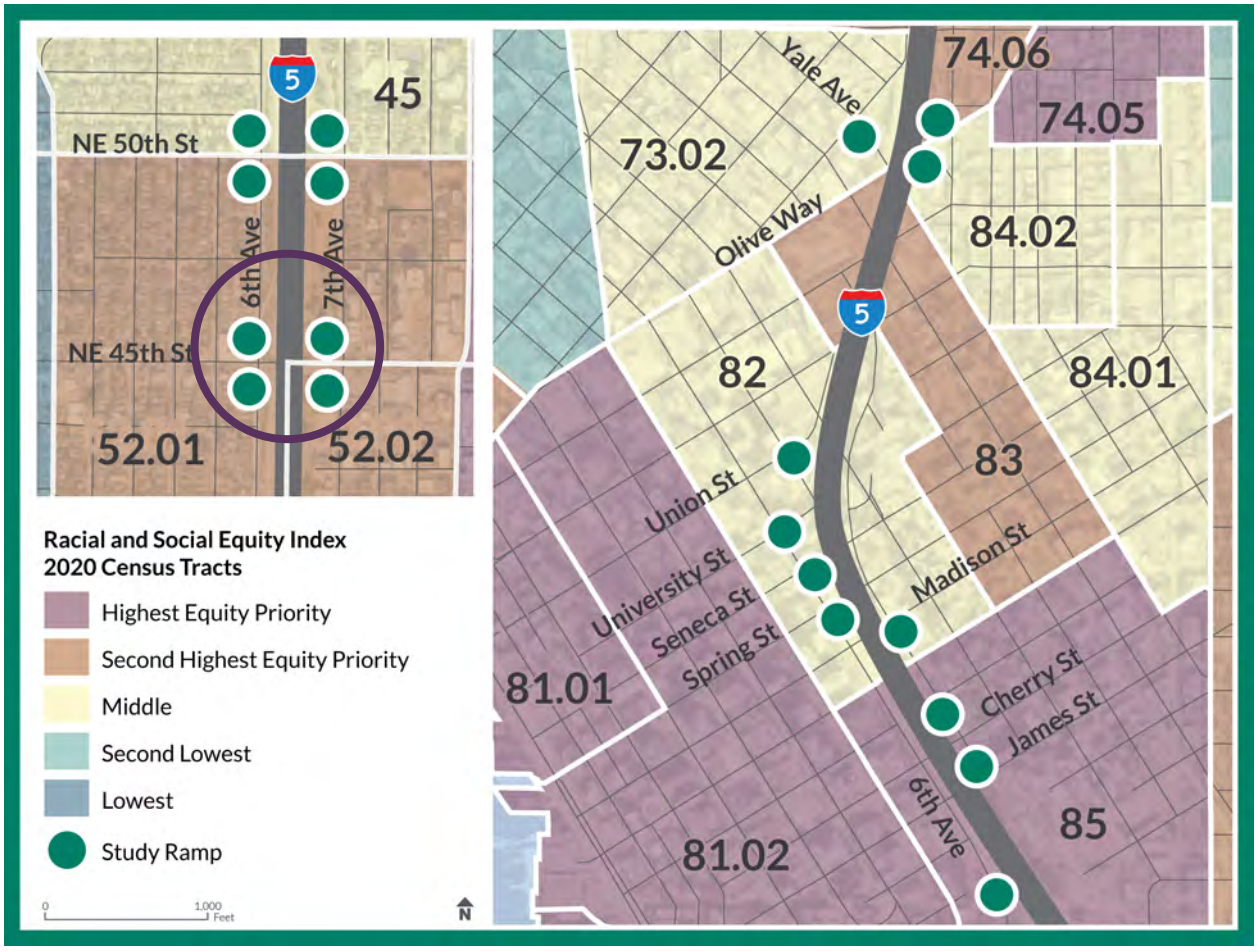
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are typically present near the NE 45th Street on-ramps and off-ramps, although most intersections north and south of NE 45th Street do not have marked crosswalks. North-south bicycle facilities are present on 7th Avenue NE and 5th Avenue north of NE 45th Street, and east-west bicycle facilities are present on NE 45th Street. Frequent east-west transit service is present on NE 45th Street, and frequent north-south transit service is present along I-5. Specific features of the NE 45th Street ramps study area are discussed in the following sections.

2.11.1 Equity and Demographic Composition

The NE 45th Street on- and off-ramps are located near the intersection of Census Tracts 52.01 and 52.02. These Census Tracts are rated by the RSEI as Second Highest Equity Priority (Figure 199).

Figure 199. City of Seattle's Race and Social Equity Index Snapshot – NE 45th St. Ramps



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the NE 45th Street ramps is generally within Census Tracts 52.01 and 52.02, which includes approximately 240 acres bordering NE 50th Street to the north, Roosevelt Way NE to the east, Lake Union to the south, and 1st Avenue NE to the west. Details about these Census Tracts and their relationship to the City are provided in Table 27.

Census Tracts 52.01 and 52.02 are over 50% and over 250% more densely populated than the City as a whole, respectively. Community members are generally younger, more racially diverse, and less affluent than the City as a whole. Rents are lower than the City average, and the proportions of renters and burdened renters are higher. Census Tract 52.02 also has markedly lower median incomes and higher rates of poverty and proportion of households without a vehicle than Census Tract 52.01 and the City as a whole.

Table 27. Demographic Comparison: Census Tracts 52.01 and 52.02

Demographic	Census Tract 52.01	Census Tract 52.02	Seattle
Population	3,697	3,223	734,471
Occupied Housing Units	1,709	1,666	345,184
Average Household Size	2.15	1.93	2.13
Density (People/Acre)	21.4	48.4	13.7
Density (Housing/Acre)	10.4	32.1	6.9
Female	51%	45%	49%
Male	49%	55%	51%
People of Color	45%	59%	39%
Hispanic or Latino	6.5%	4%	7.5%
Median Age	29.6	24.7	36.5
Under 18	12%	1%	14%
65 and Over	7%	<1%	13%
Median Household Income	$86,510	$44,532	$120,338
Per Capita Income	$72,287	$44,687	$77,630
Unemployed	4.2%	4.1%	4.2%
% Below 200% Poverty	24%	44%	18%
Renter Households	69%	96%	56%
Median Gross Rent	$1,899	$1,858	$1,968
Burdened Renters	60%	56%	44%
Speak a Language Other than English	28%	39%	23%
Bachelor's Degree or Higher	70%	72%	67%
Population with a Disability	5%	2%	10%
Households Without a Vehicle	19%	51%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.11.2Walking, Biking, and Rolling Conditions

Sidewalks, marked crossings, and ADA-compliant curb ramps are typically present near the NE 45th Street on-ramps and off-ramps (Figure 200). 5th Avenue NE and 7th Avenue NE are the two primary north-south bicycle facilities in the area. Specific gaps and other aspects of these networks are listed later in this section.

Figure 200. Existing Bicycle and Pedestrian Facilities Near NE 45th St. Ramps

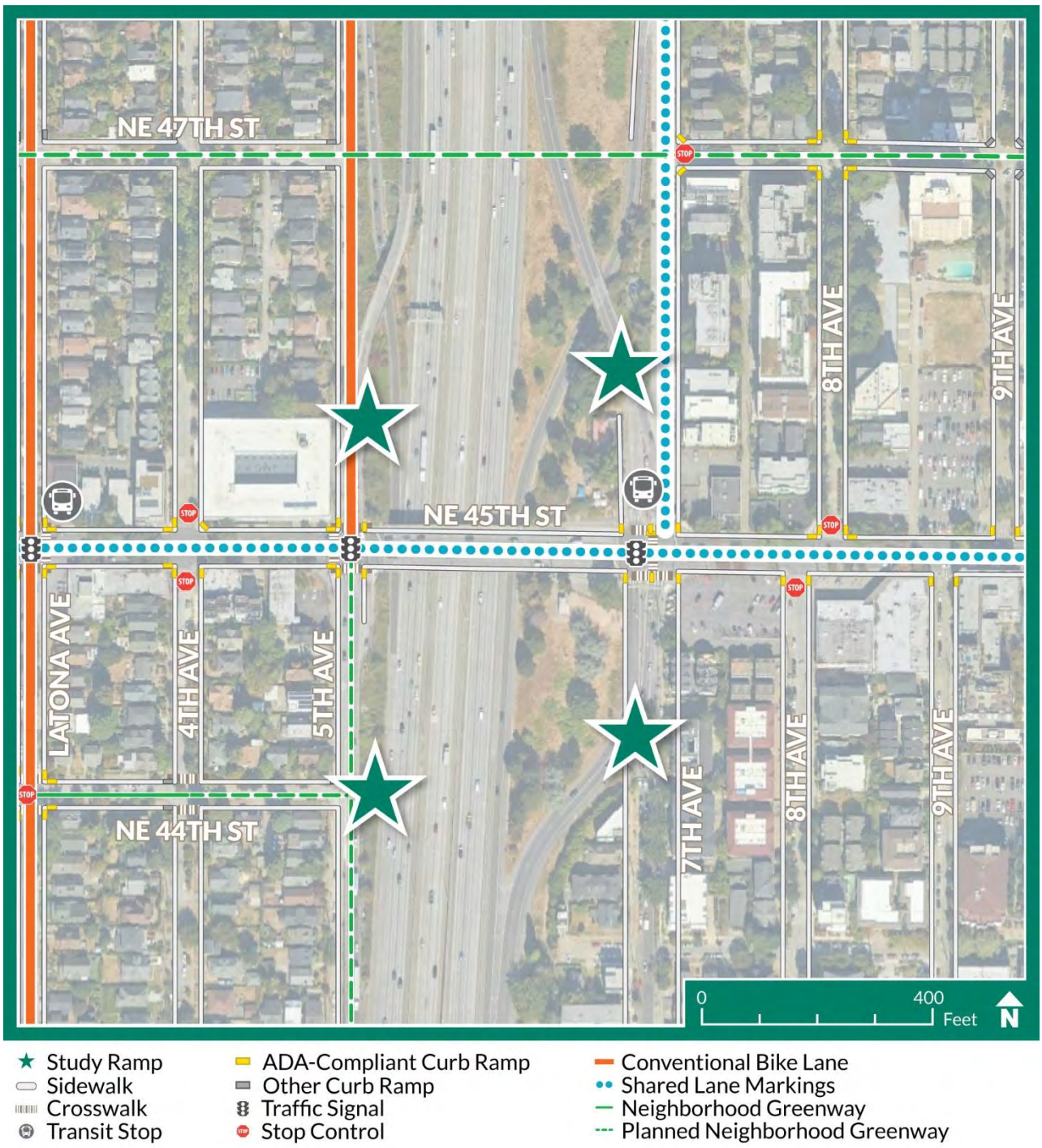


Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around the NE 45th Street on-ramps and off-ramps features sidewalks that are approximately 6 to 14 feet wide. Sidewalks are widest on the south side of NE 45th Street west of I-5 and narrowest on the east side of 7th Avenue NE south of NE 45th Street. Sidewalks are present on all blocks

not adjacent to a highway ramp. NE 45th Street is the principal east-west walking pathway between the Wallingford Neighborhood and the University District, the U District Link Light Rail Station, and the University of Washington campus.

Crosswalks

Most crossings where NE 45th Street meets 5th Avenue NE and 7th Avenue NE feature signal-controlled, twin-stripe continental crosswalks. The exception is the eastern leg of the 5th Avenue NE intersection, which is closed (Figure 201). The north-south crossings at the 7th Avenue NE intersection are combined into one crossing at the center of the intersection, connecting the southern pedestrian refuge and the northern pedestrian island that holds a bus shelter (Figure 202).

Most crossings north and south of NE 45th Street near the ramps are not signal-controlled, stop-controlled, or marked (Figure 203). Crossings range from 25 to 60 feet.

Figure 201. Closed Crossing, 5th Ave. NE and NE 45th St., Looking South

Source: 2024 Google

Figure 202. Center Crossing, 7th Ave. NE and NE 45th St., Looking South

Source: 2024 Google

Figure 203. Uncontrolled, Unmarked Crossing, NE 47th St. and 4th Ave. NE, Looking North

Source: 2024 Google

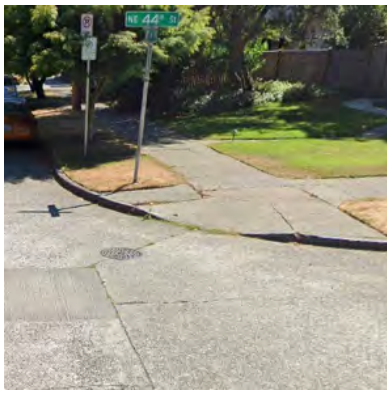
Curb Ramps

Most crossings near NE 45th Street on-ramps and off-ramps feature curb ramps, although the type varies. Most curb ramps are ADA-compliant (Figure 204), while others are not compliant (Figure 205) or missing altogether (Figure 206).

Figure 204. ADA-Compliant Curb Ramps, 7th Ave. NE and NE 45th St.

Source: 2024 Google

Figure 205. Non-ADA-Compliant Curb Ramp, NE 44th St. and 4th Ave. NE



Source: 2024 Google

Figure 206. Missing Curb Ramp, NE 44th St. and 4th Ave. NE

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near NE 45th Street on-ramps and off-ramps features a conventional bike lane along 5th Avenue NE north of NE 45th Street (Figure 207) and shared lane markings along NE 45th Street (Figure 208). All street segments near the NE 45th Street on-ramps and off-ramps have Bicycle Level of Traffic Stress ratings from Medium to High except for 5th Avenue NE, which has a rating of Medium-Low[41].

Figure 207. Conventional Bike Lane, 5th Ave. NE at NE 47th St., Looking South

Source: 2024 Google

Figure 208 Shared Lane Markings, NE 45th St. at 5th Ave. NE, Looking West

Source: 2024 Google

[41] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Planned Bicycle Facilities

The City's Bicycle Master Plan includes protected bike lanes along NE 43rd Street and an improved greenway connection along 4th Avenue NE. [42]. It also includes several improvements along NE 45th Street, including a protected bike lane between 8th Avenue NE and Latona Avenue and improved signal timing and bike signal detection between 4th Avenue NE and Brooklyn Avenue NE. A bicycle/pedestrian-only bridge crossing I-5 is planned at NE 47th Street[43].

[42] Bicycle Master Plan - Transportation | seattle.gov

[43] Seattle Transportation Plan - Transportation | seattle.gov

2.11.3 Transit Conditions

The area around the NE 45th Street on-ramps and off-ramps features several transit routes with a range of route types and varying frequencies (Figure 209). Metro Lines turn eastbound and westbound along NE 45th Street. Sound Transit has one line along I-5 connecting Everett with Downtown Seattle with one stop in the study area on an island near the northbound on-ramp. The lines along NE 45th Street have stops adjacent to the study area at 9th Avenue NE and Latona Avenue. The sections below describe the existing transit network in greater detail.

Figure 209. Existing Transit Network Near NE 45th St. Ramps

Image: Google Earth
Data: King County Metro, Sound Transit

Existing Routes

Metro Lines 20 and 44 run east-west on NE 45th Street. Sound Transit Line 512 runs north along I-5 and uses NE 45th Street northbound off-ramp and on-ramp to access the stop on 7th Avenue NE.

Existing Stops

The bus stops nearest the NE 45th Street on-ramps and off-ramps include:

- 7th Avenue NE at northbound on-ramp serving Sound Transit Line 512.
- NE 45th Street at 9th Avenue NE serving Metro Lines 20 and 44.
- NE 45th Street at Latona Avenue NE serving Metro Line 44.
- Latona Avenue NE at NE 45th Street serving Metro Line 20.

Existing Headways and Span-of-Service

Frequent transit service near the NE 45th Street on-ramps and off-ramps includes Metro Lines 20 and 44, which run east-west along NE 45th Street, connecting the University of Washington with Lake City and the Ballard neighborhood. These lines generally run early in the morning to late in the evening, with headways ranging from 10-60 minutes.

Other transit service includes Sound Transit Line 512, which runs north and south along I-5 connecting Everett to Downtown Seattle. This line operates on weekday mornings and evenings, averaging 30-minute headways.

Table 28 lists specific service spans and headways as of June 2024.

Table 28. Existing Transit Headways, Span-of-Service, and Days of Service Near NE 45th St. Ramps

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
20 SB	5:45 AM	12:45 AM	15-60	Yes
20 NB	6:00 AM	12:45 AM	15-60	Yes
44 WB	4:32 AM	4:16 AM	10-45	Yes
44 EB	5:07 AM	4:46 AM	10-45	Yes
Sound Transit				
512 SB	4:35 AM	12:00 AM	10-30	Yes
512 NB	5:59 AM	1:28 AM	10-30	Yes

NB = Northbound, SB = Southbound

Planned Transit Improvements

The City of Seattle's Transit Master Plan includes several new Metro RapidRide corridors. RapidRide Corridor 5 would connect the Ballard neighborhood and the University of Washington via NE 45th Street. RapidRide Corridor 7 will connect Northgate and the University of Washington with Downtown Seattle via Roosevelt Way NE and 11th Avenue NE. Bus rapid transit features along this corridor could include 20-24 hour/day service, exclusive transit lanes, Business Access Lanes (BAT), improved signalization, and improved bike and ped infrastructure. RapidRide Corridor 4 would connect the University of Washington and Ranier Beach, and the northern terminus would be located less than half a mile east of the NE 45th Street on-ramps and off-ramps. Sound Transit also has a future light rail extension planned along NE 45th Street.

2.11.4 Key Destinations

Wallingford Seattle KinderCare is the one educational destination near NE 45th Street on-ramps and off-ramps (Figure 210). People use these ramps to access Wallingford, the University District, the University of Washington, Husky Stadium, South Lake Union, Queen Anne, Montlake, Green Lake, and Ravena.

Figure 210. Key Destinations Near NE 45th St. Ramps

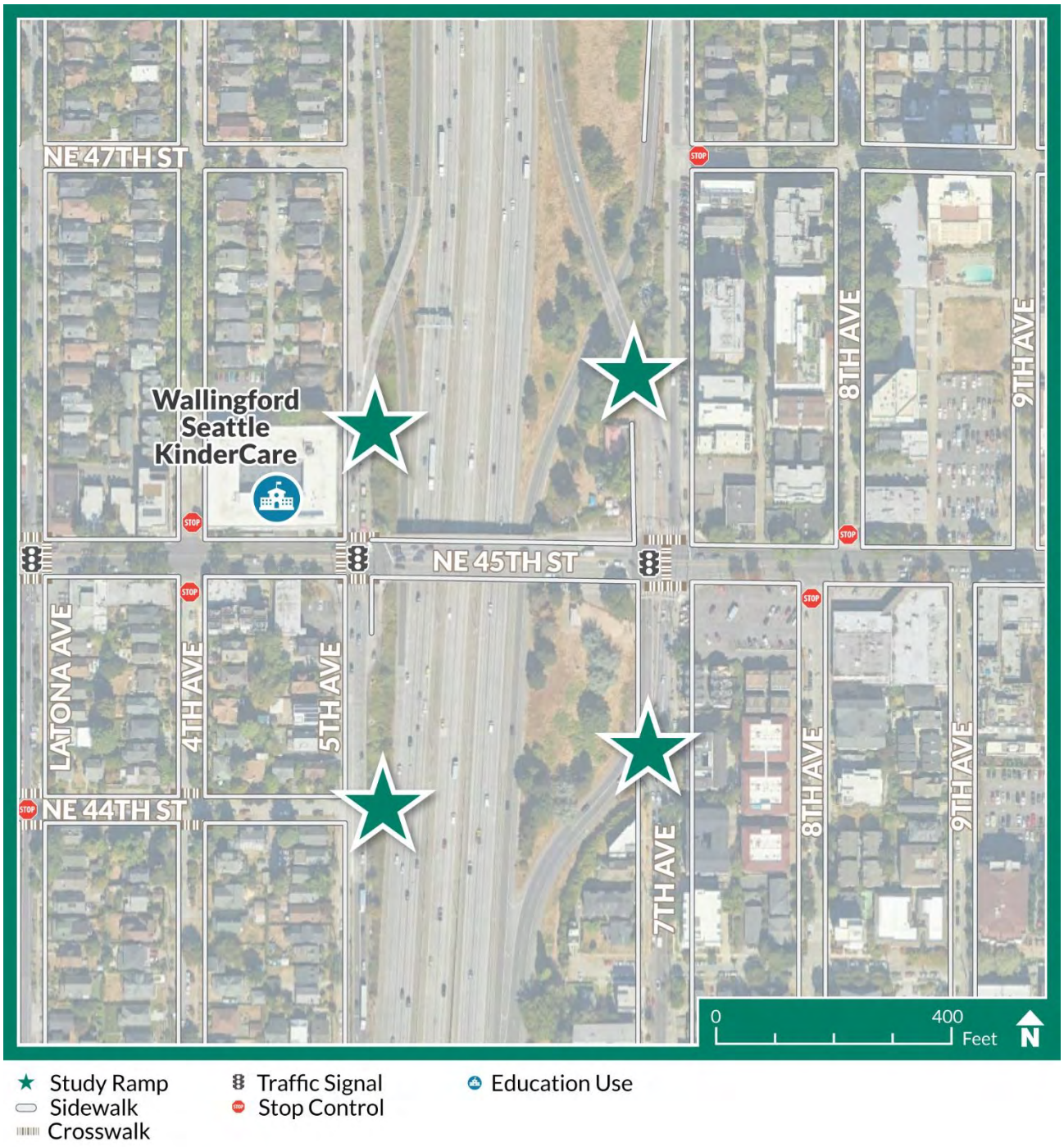


Image: Google Earth. Data: City of Seattle

2.11.5 Traffic Volumes and Patterns (Southbound Off-Ramp)

Average Daily Volume

Traffic volumes for the NE 45th Street southbound (SB) off-ramp include 10,930 daily trips (Table 29), the second highest of University District segment ramps, and 92% of the volume of the highest University District segment ramp. AM peak hour volume is 49% of the maximum theoretical capacity, and PM peak hour volume is 38% of the maximum theoretical capacity.

Table 29. Average Weekday Volumes for NE 45th St. SB Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	880	49%
Off-Ramp	PM	680	38%
Off-Ramp	AWD	10,930	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

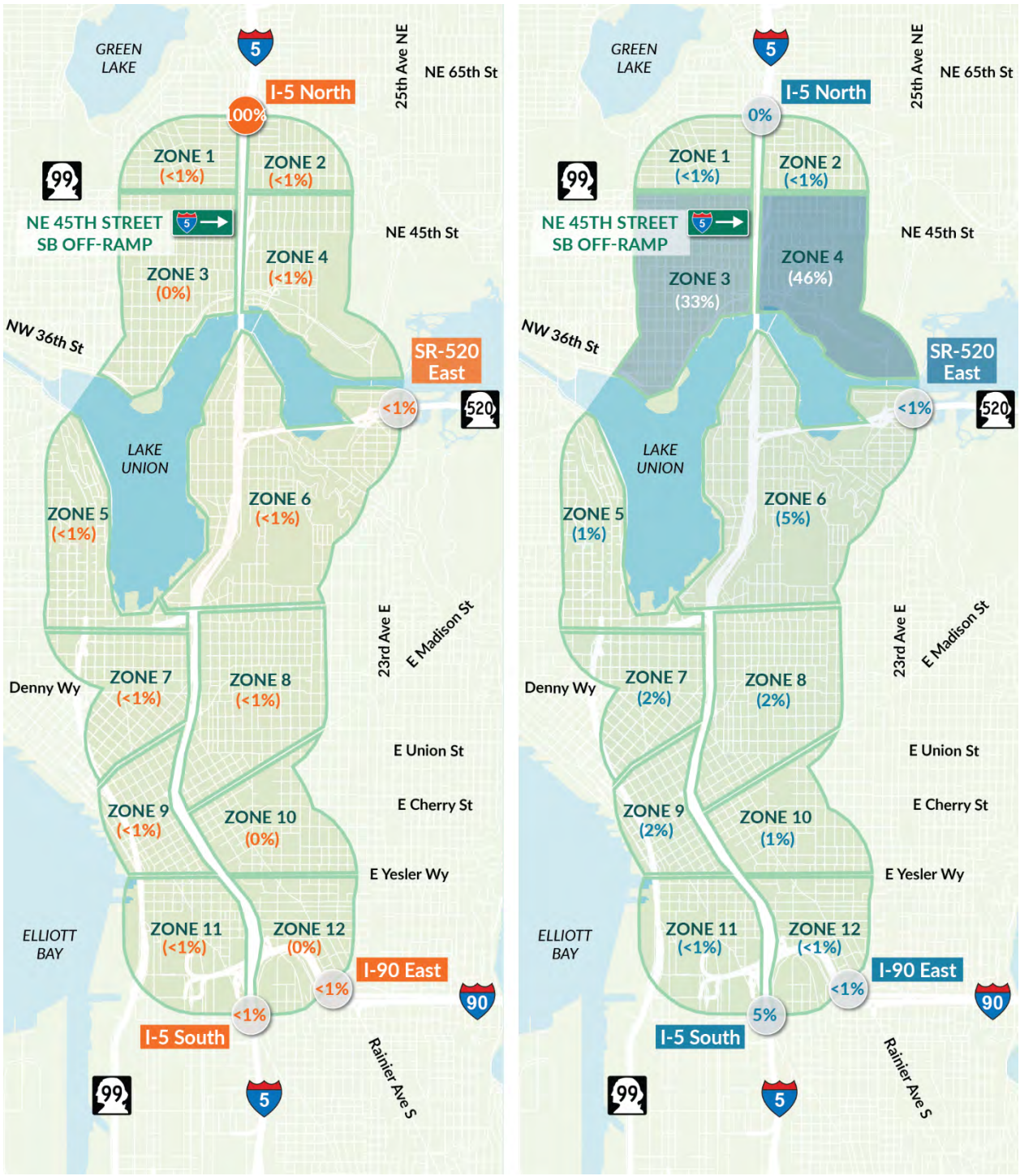
The NE 45th Street southbound off-ramp is located within Zone 3. Figure 211 shows the traffic volumes traveling between Zone 3 and the other study area zones. The highest volumes traveling to and from Zone 3 are from beyond the study area to the north and south via I-5.

Figure 211. Origin and Destination Trips to and from Zone 3, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 212 shows a subset of trips between Zone 3 and other study area zones that access the NE 45th Street southbound off-ramp specifically. Almost all trips that access the NE 45th Street southbound off-ramp have origins north of the study area. 46% of trips that access the NE 45th Street southbound off-ramp have destinations within Zone 4, and 33% have destinations within Zone 3.

Figure 212. Origin and Destination Trips to and from NE 45th St. Southbound Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 213 shows the routes and relative volumes for traffic traveling to the NE 45th Street southbound off-ramp. Most trips that access the ramp are traveling from north of the study area via I-5.

Figure 213. Trip Routes to NE 45th Southbound Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

2.11.6 Traffic Volumes and Patterns (Southbound On-Ramp)

Average Daily Volume

Traffic volumes for the NE 45th Street southbound (SB) on-ramp include 7,680 daily trips (Table 30), the fourth lowest of University District segment ramps, and 65% the volume of the highest University District segment ramp. AM and PM peak hour volumes are 26% of the maximum theoretical capacity.

Table 30. Average Weekday Volumes for NE 45th ST. SB On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	460	26%
On-Ramp	PM	460	26%
On-Ramp	AWD	7,680	

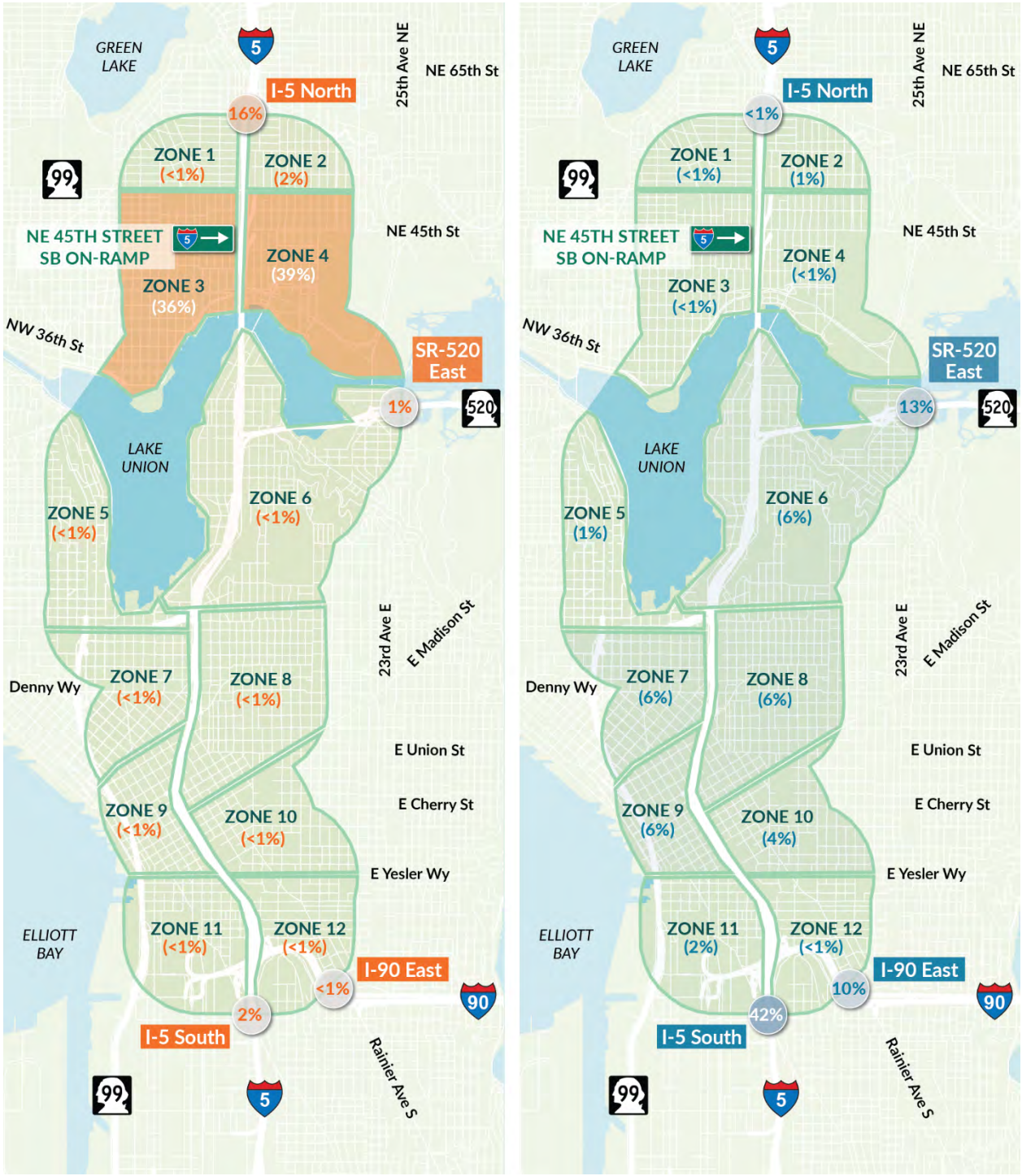
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The NE 45th Street southbound on-ramp is located within Zone 3. Figure 211 in Section 2.11.6 shows the traffic volumes traveling between Zone 3 and the other study area zones. The highest volumes traveling to and from Zone 3 are from beyond the study area to the north and south via I-5.

Figure 214 shows a subset of trips between Zone 3 and other study area zones that access the NE 45th Street southbound on-ramp specifically. 39% of trips that access the ramp have origins within Zone 4, and 36% have origins within Zone 3 near the ramp. 42% of trips that access the NE 45th Street southbound on-ramp have destinations south of the study accessed, and 23% have destinations east of the study area.

Figure 214. Origin and Destination Trips to and from NE 45th St. Southbound On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 215 shows the routes and relative volumes for traffic traveling from the NE 45th Street southbound on-ramp. Most trips that access the ramp travel south of the study area via I-5.

Figure 215. Trip Routes from NE 45th St. Southbound On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

2.11.7 Traffic Volumes and Patterns (Northbound Off-Ramp)

Average Daily Volume

Traffic volumes for the NE 45th Street northbound (NB) off-ramp include 11,820 daily trips (Table 31), the highest among University District segment ramps. AM peak hour volume is 48% of the maximum theoretical capacity, and PM peak hour volume is 38% of the maximum theoretical capacity.

Table 31. Average Weekday Volumes for NE 45th St. NB Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	870	48%
Off-Ramp	PM	690	38%
Off-Ramp	AWD	11,820	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

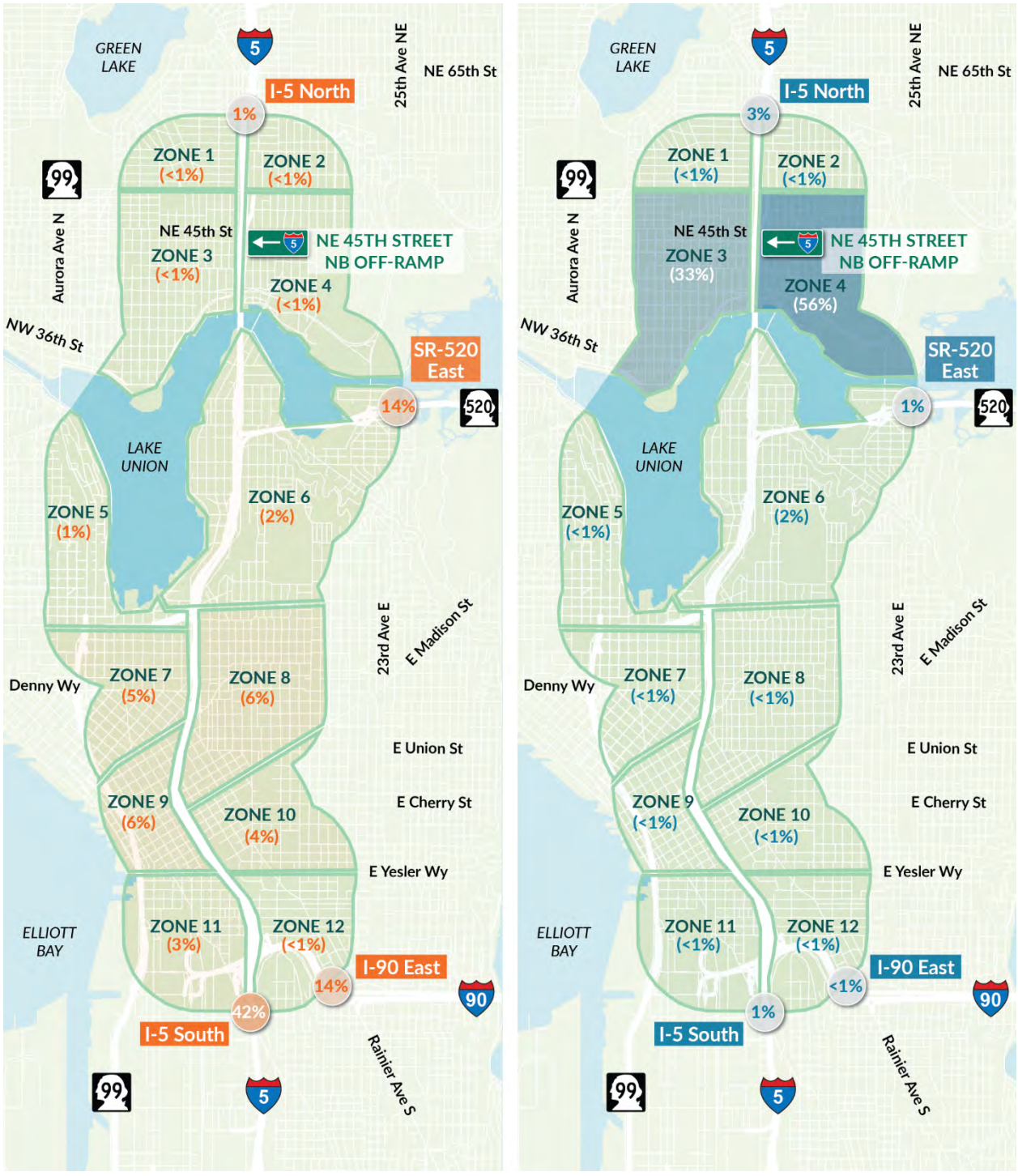
The NE 45th Street northbound off-ramp is located within Zone 4. Figure 216 shows the traffic volumes traveling between Zone 4 and the other study area zones. The highest volumes traveling to and from Zone 4 are from beyond the study area to the north and south via I-5.

Figure 216. Origin and Destination Trips to and from Zone 3, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 217 shows a subset of trips between Zone 4 and other study area zones that access the NE 45th Street northbound off-ramp specifically. 42% of trips that access the ramp have origins south of the study area and 28% have origins east of the study area (I-90 and SR 520 gates with 14% of trips each). 56% of trips that access the NE 45th Street northbound off-ramp have destinations within Zone 4 near the ramp, and 33% have destinations within Zone 3.

Figure 217. Origin and Destination Trips to and from NE 45th Northbound Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 218 shows the routes and relative volumes for traffic traveling to the NE 45th Street northbound off-ramp. Most trips that access the ramp travel from the south of the study area via I-5.

Figure 218. Trip Routes to NE 45th St. Northbound Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

2.11.8 Traffic Volumes and Patterns (Northbound On-Ramp)

Average Daily Volume

Traffic volumes for the NE 45th Street northbound (NB) on-ramp include 9,030 daily trips (Table 32), the third highest among University District segment ramps and 76% the volume of the highest University District segment ramp. AM peak hour volume is 48% of the maximum theoretical capacity, and PM peak hour volume is 38% of the maximum theoretical capacity.

Table 32. Average Weekday Volumes for NE 45th St. NB On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	530	870	48%
On-Ramp	PM	690	38%
On-Ramp	AWD	9,030	

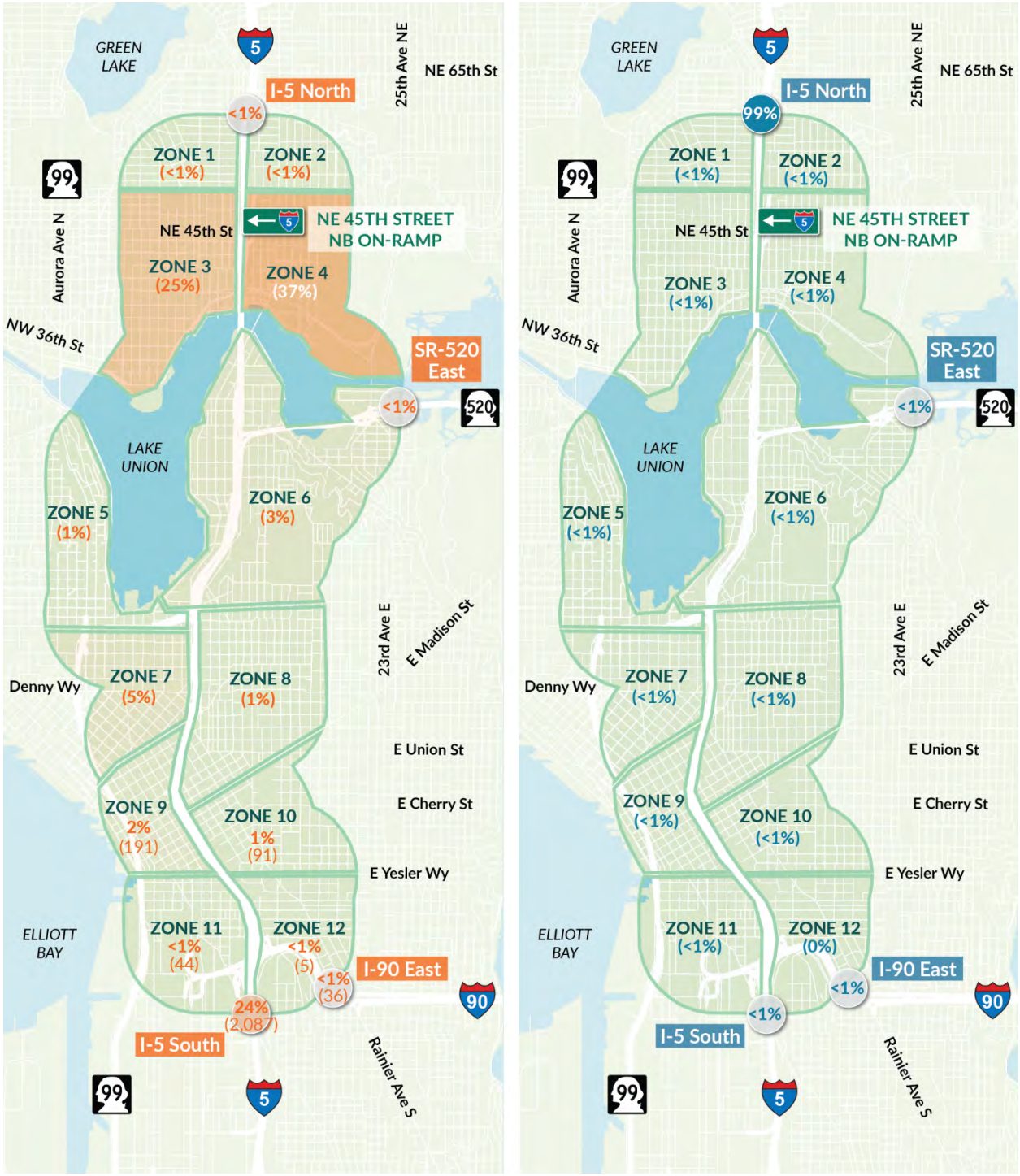
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The NE 45th Street northbound on-ramp is located within Zone 4. Figure 216 in Section 2.11.7 shows the traffic volumes traveling between Zone 4 and the other study area zones. The highest volumes traveling to and from Zone 4 are from beyond the study area to the north and south via I-5.

Figure 219 shows a subset of trips between Zone 4 and other study area zones that access the NE 45th Street northbound on-ramp specifically. 37% of trips that access the ramp have origins within Zone 4, 25% have origins within Zone 3, and 24% have origins south of the study area. Almost all trips that access the NE 45th Street northbound on-ramp have destinations north of the study area.

Figure 219. Origin and Destination Trips to and from NE 45th St. Northbound On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 220 shows the routes and relative volumes for traffic traveling from the NE 45th Street northbound on-ramp. Most trips that access the ramp travel north of the study area via I-5.

Figure 220. Trip Routes from NE 45th St. Northbound On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

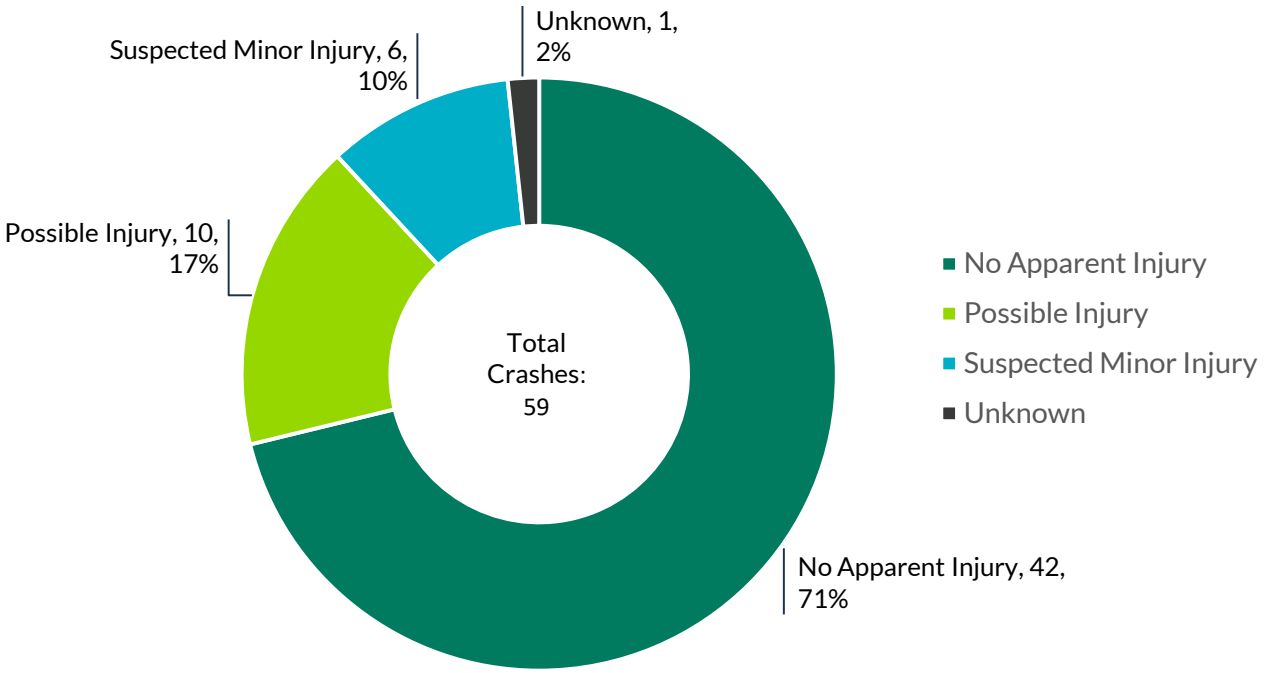
2.11.9 Safety (All NE 45th St. Ramps)

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks and considers all NE 45th Street northbound, southbound, on- and off-ramps as one location due to their proximity. There were 59 reported crashes within 200 feet of the NE 45th Street ramps during the period.

Crash Severity

Figure 221 shows that most crashes near the NE 45th Street ramps during the study period reported no apparent injury (71%).

Figure 221. Crash Severity, NE 45th St. SB, NB, Off- and On-Ramps Study Area, Jan. 2019 through Dec. 2023

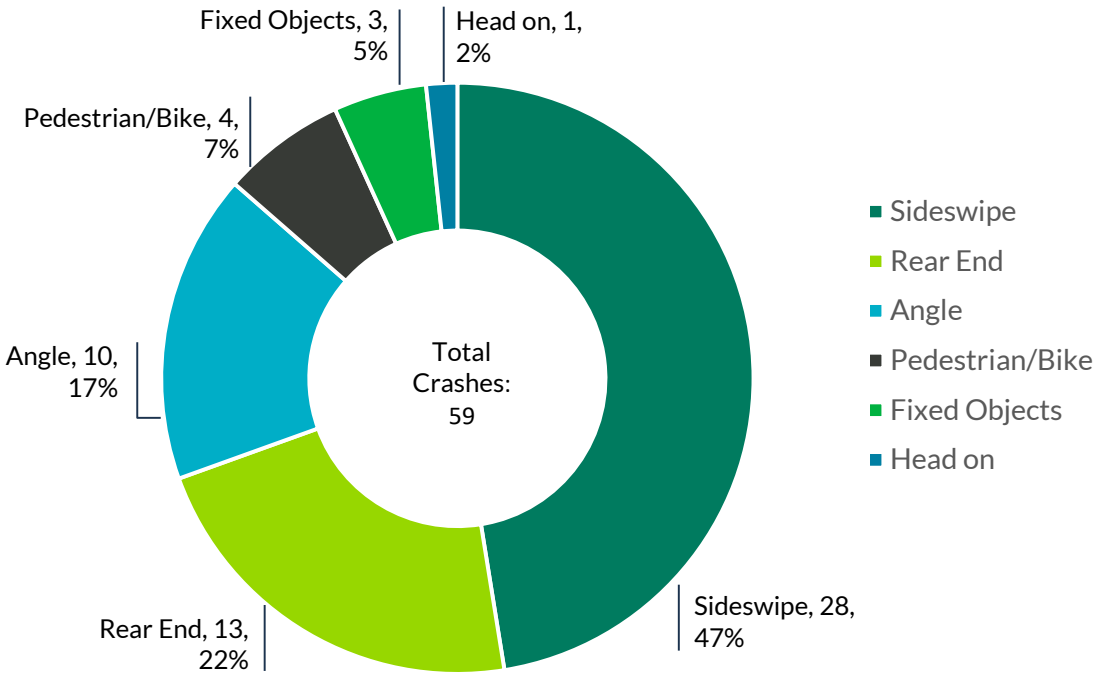


Data: WSDOT

Crash Type

Figure 222 shows that the most common crash type reported near the NE 45th Street ramps during the study period was sideswipe (47%), followed by rear end (22%). There were four reported pedestrian/bike crashes during the study period.

Figure 222. Crash Type, NE 45th St. SB, NB, Off- and On-Ramps Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT

2.12 NE 50th Street On-Ramps and Off-Ramps

NE 50th Street intersects with four I-5 ramps (Figure 223). The northbound on-ramp and off-ramp intersect with NE 50th Street at 7th Avenue NE. The one-lane off-ramp merges with one-lane 7th Avenue NE south of NE 50th Street before it expands to three lanes at the intersection (Figure 224). The left lane must turn left onto NE 50th Street westbound, the middle lane can turn left or travel straight to either 7th Avenue NE or the northbound on-ramp, and the right lane must turn right onto NE 50th Street eastbound. The nearest northbound off-ramps are NE 45th Street, approximately 0.25 miles to the south, and NE Ravenna Boulevard, approximately 0.75 miles to the north.

The northbound on-ramp is two lanes, metered, and is located north of the NE 50th Street intersection (Figure 225). Traffic can access 7th Avenue NE and the ramp from NE 50th Street eastbound and westbound and from 7th Avenue NE northbound. The nearest northbound on-ramps are NE 45th Street, approximately 0.25 miles to the south, and NE 70th Street, approximately one mile to the north.

The southbound on-ramp and off-ramp intersect with NE 50th Street at 5th Avenue NE (Figure 226). The one-lane off-ramp merges with one-lane 5th Avenue NE north of the intersection before it expands to four lanes at the intersection. The leftmost lane must turn left. The second lane may turn left or travel straight through the intersection to 5th Avenue NE or the southbound on-ramp. The third lane must travel straight, and the rightmost lane must turn right. The nearest southbound on-ramps are NE 45th, approximately 0.25 miles to the south, and 6th Avenue NE, approximately one mile to the north.

The southbound on-ramp diverges from 5th Avenue NE south of NE 50th Street (Figure 227). It is one lane and metered. The ramp can be accessed from both directions of NE 50th Street and southbound 5th Avenue NE. The nearest southbound on-ramps are NE 45th Street, approximately 0.25 miles to the south, and N 85th Street, approximately 2.0 miles to the north.

Figure 223. NE 50th St. On-Ramps and Off-Ramps Study Area

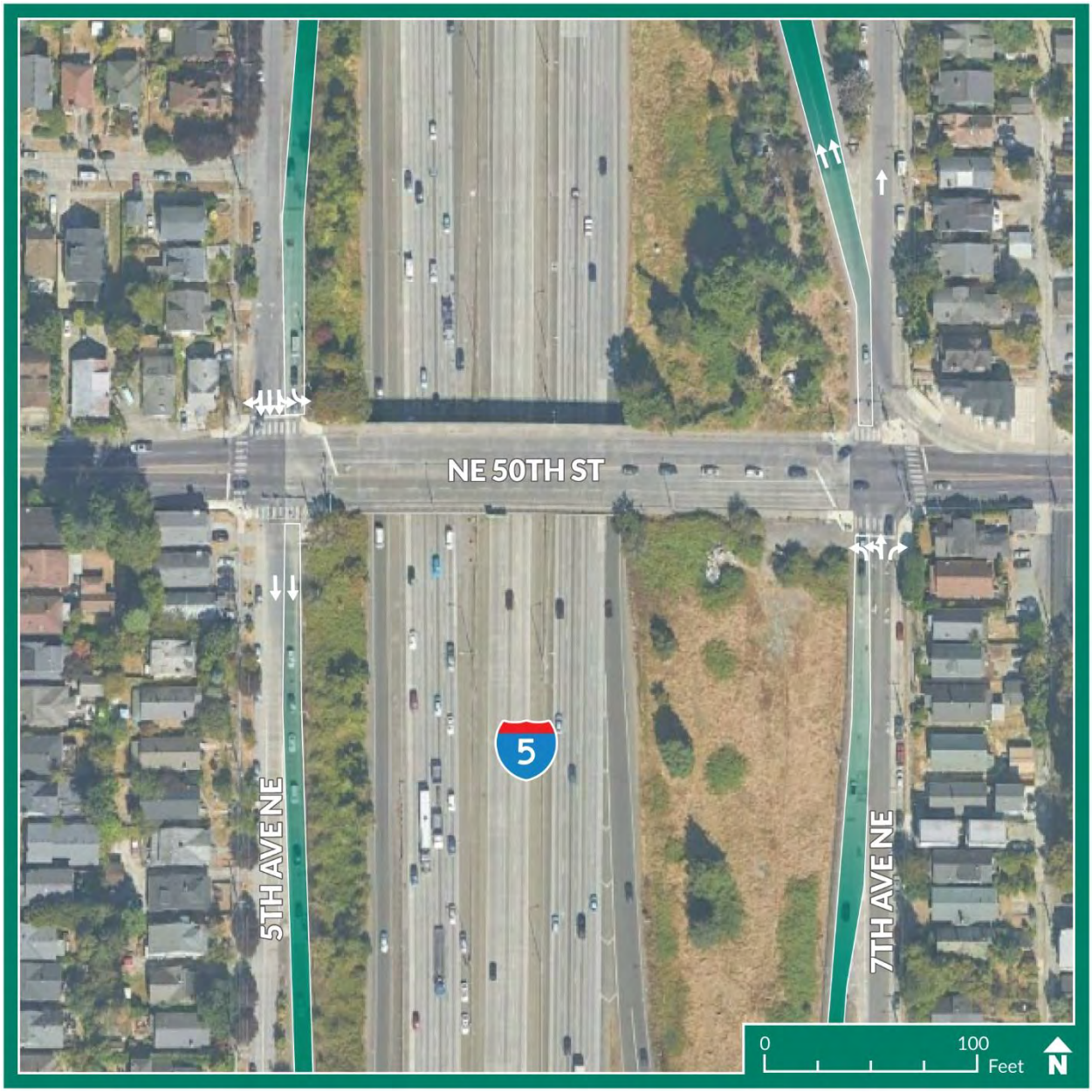


Image: Google Earth

Figure 224. NE 50th St. Northbound Off-Ramp Terminal, Looking North

Source: 2024 Google

Figure 225. NE 50th St. Northbound On-Ramp Entrance, Looking North

Source: 2024 Google

Figure 226. NE 50th St. Southbound Off-Ramp, Looking North

Source: 2024 Google

Figure 227. NE 50th St. Southbound On-Ramp Entrance, Looking South

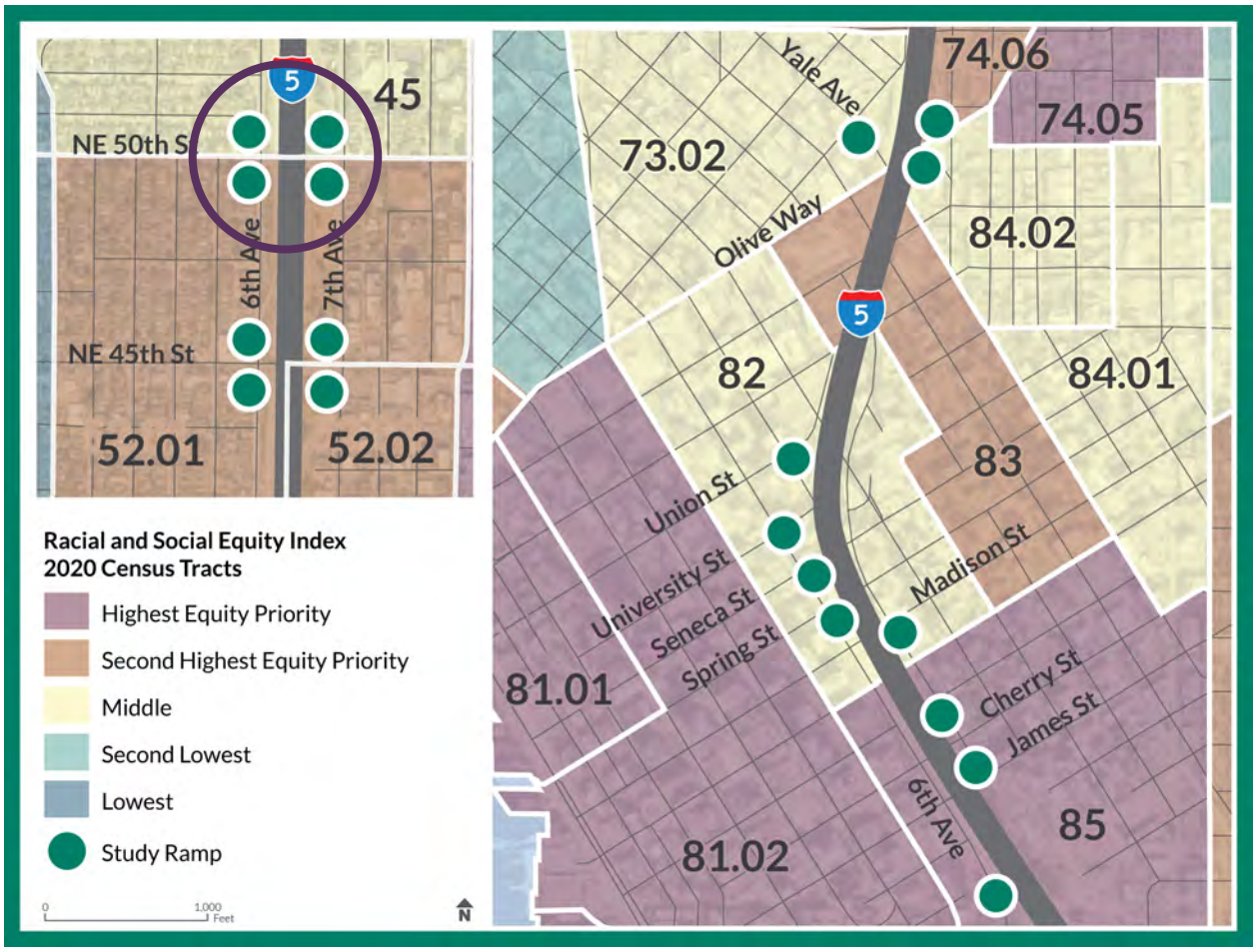
Source: 2024 Google

Sidewalks, marked crosswalks, and curb ramps are present near NE 50th Street on-ramps and off-ramps, although crossings north and south of NE 50th Street are largely unmarked. North-south bicycle facilities are present south of NE 50th Street on 5th Avenue NE and 7th Avenue NE. There is no transit service in the immediate vicinity of the NE 50th Street ramps; however, frequent north-south transit service is present adjacent to the study area to the east and west. Specific features of the NE 50th Street ramps study area are discussed in the following sections.

2.12.1 Equity Demographic Composition

The NE 50th Street on-ramps and off-ramps are located near the intersection of Census Tracts 45 and 52.01. These Census Tracts are rated by the RSEI as Middle and Second Highest Equity Priority, respectively (Figure 228).

Figure 228. City of Seattle's Race and Social Equity Index Snapshot – NE 50th St. Ramps



Source: City of Seattle, RSEI
https://experience.arcgis.com/experience/494bdbb2da4f4574bb330f072bc77073
Data: SDOT, Google Earth

The area around the NE 50th Street ramps is generally within Census Tracts 45 and 52.01, which includes approximately 339 acres bordering NE 60th Street to the north, Roosevelt Way NE to the east, Lake Union to the south, and 1st Avenue NE to the west. Details about these Census Tracts and their relationship to the City are provided in Table 33 below.

Census Tracts 52.01 and 45 are both over 50% more densely populated than the City as a whole. Community members are generally younger than the City as a whole. Census Tract 52.01 is also more racially diverse and less affluent than the City. Rents are lower than the City average, and both proportions of renters and burdened renters are higher. Census Tract 45 has larger households with higher median household income but lower per capita income than the City.

Table 33. Demographic Comparison: Census Tracts 45 and 52.01

Demographic	Census Tract 52.01	Census Tract 45	Seattle
Population	3,697	3,676	734,471
Occupied Housing Units	1,709	1,044	345,184
Average Household Size	2.15	3.52	2.13
Density (People/Acre)	21.4	22.2	13.7
Density (Housing/Acre)	10.4	6.6	6.9
Female	51%	45%	49%
Male	49%	55%	51%
People of Color	45%	32%	39%
Hispanic or Latino	6.5%	5.5%	7.5%
Median Age	29.6	27.6	36.5
Under 18	12%	15%	14%
65 and Over	7%	6%	13%
Median Household Income	$86,510	$143,750	$120,338
Per Capita Income	$72,287	$57,412	$77,630
Unemployed	4.2%	4.5%	4.2%
% Below 200% Poverty	24%	35%	18%
Renter Households	69%	46%	56%
Median Gross Rent	1,899	$ 2,740	$1,968
Burdened Renters	60%	44%	44%
Speak a Language Other than English	28%	15%	23%
Bachelor's Degree or Higher	70%	80%	67%
Population with a Disability	5%	7%	10%
Households Without a Vehicle	19%	14%	19%

Source: 2022 U.S. Census Bureau's American Community Survey (ACS), 5-year Series and retrieved through the City of Seattle's Neighborhood Profiles service.
https://seattlecitygis.maps.arcgis.com/apps/dashboards/f1d03858ab394ba0ba77d09e49d1e0da

2.12.2 Walking, Biking, and Rolling Conditions

Marked crossings and ADA-compliant curb ramps are typically present near NE 50th Street on-ramps and off-ramps (Figure 229). 5th Avenue NE and 7th Avenue NE are the two primary north-south bicycle facilities in this part of the City. Specific gaps and other aspects of these networks are listed later in this section.

Figure 229. Existing Bicycle and Pedestrian Facilities Near NE 50th St. Ramps

Image: Google Earth
Data: City of Seattle

Sidewalks

The pedestrian network around NE 50th Street on-ramps and off-ramps features sidewalks that are approximately 6 to 9 feet wide. Sidewalks are widest on the north side of NE 50th Street between 5th Avenue NE and 7th Avenue NE and narrowest on the west side of 5th Avenue NE south of NE 50th Street. Sidewalks are present on all blocks not adjacent to highway ramps. A sidewalk gap is present along the east side of 5th Avenue NE.

Crosswalks

The intersections of NE 50th Street at 5th Avenue NE and 7th Avenue NE feature traffic signals and twin-stripe continental crosswalks at most of their crossings (Figure 230). The exceptions are the eastern leg of the 5th Avenue NE intersection (Figure 231) and the western leg of the 7th Avenue NE intersection, which are both closed.

Most crossings north and south of NE 50th Street near the ramps are not signal-controlled, stop-controlled, or marked (Figure 232). Crossings range from 17 to 60 feet.

Figure 230. Marked Crossing, 5th Ave. NE and NE 50th St., Looking North

Source: 2024 Google

Figure 231. Closed Crossing, 5th Ave. NE and NE 50th St., Looking North

Source: 2024 Google

Figure 232. Uncontrolled, Unmarked Crossing, NE 47th St. and 4th Ave. NE, Looking North

Source: 2024 Google

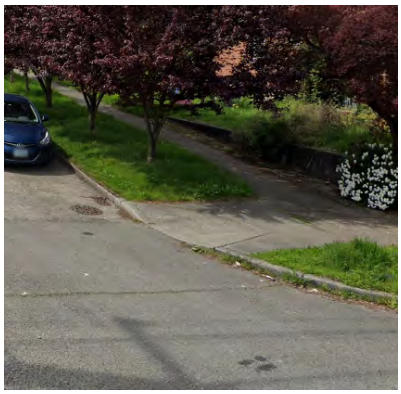
Curb Ramps

All crossings near NE 50th Street on-ramps and off-ramps feature curb ramps, although the type and orientation vary. Most curb ramps are ADA-compliant (Figure 233), while others are not compliant (Figure 234). Most curb ramps are in line with the crosswalk, while some are oriented toward the center of the intersection (Figure 235).

Figure 233. ADA-Compliant Curb Ramps, NE 50th St. and 5th Ave. NE

Source: 2024 Google

Figure 234. Non-ADA-Compliant Curb Ramp, NE 51st St. and 5th Ave. NE



Source: 2024 Google

Figure 235. Curb Ramp Oriented to Center of Intersection, NE 50th St. and 5th Ave. NE

Source: 2024 Google

Existing Bicycle Facilities

The existing bicycle network near NE 50th Street on-ramps and off-ramps features a conventional bike lane along 5th Avenue NE south of NE 50th Street (Figure 236) and shared lane markings along 7th Avenue NE south of NE 50th Street. (Figure 237). All street segments near NE 50th Street on-ramps and off-ramps have Bicycle Level of Traffic Stress ratings from Medium to High except for 5th Avenue NE south of NE 50th Street and 8th Avenue NE north of NE 50th Street, which have ratings of Medium-Low[44].

Figure 236. Conventional Bike Lane, 5th Ave. NE, Looking South

Source: 2024 Google

Figure 237. Shared Lane Markings, 7th Ave. NE, Looking South

Source: 2024 Google

[44] Bicycle Level of Traffic Stress - Transportation | seattle.gov

Planned Bicycle Facilities

The City's Bicycle Master Plan includes plans for north-south facilities near the study area on Latona Avenue NE (conventional bike lane) and 9th Avenue NE (neighborhood greenway) and east-west facilities on NE 47th Street (neighborhood greenway)[45]. A bicycle/pedestrian-only bridge crossing I-5 is planned at NE 47th Street[46].

[45] Bicycle Master Plan - Transportation | seattle.gov

[46] Seattle Transportation Plan - Transportation | seattle.gov

2.12.3 Transit Conditions

The study area near NE 50th Street on-ramps and off-ramps does not feature transit routes or stops (Figure 238). However, two Metro Lines run approximately 0.25 miles east and west of the study area. There are no east-west lines in the study area. The sections below describe the existing transit network in greater detail.

Figure 238. Existing Transit Network Near NE 50th St. Ramps

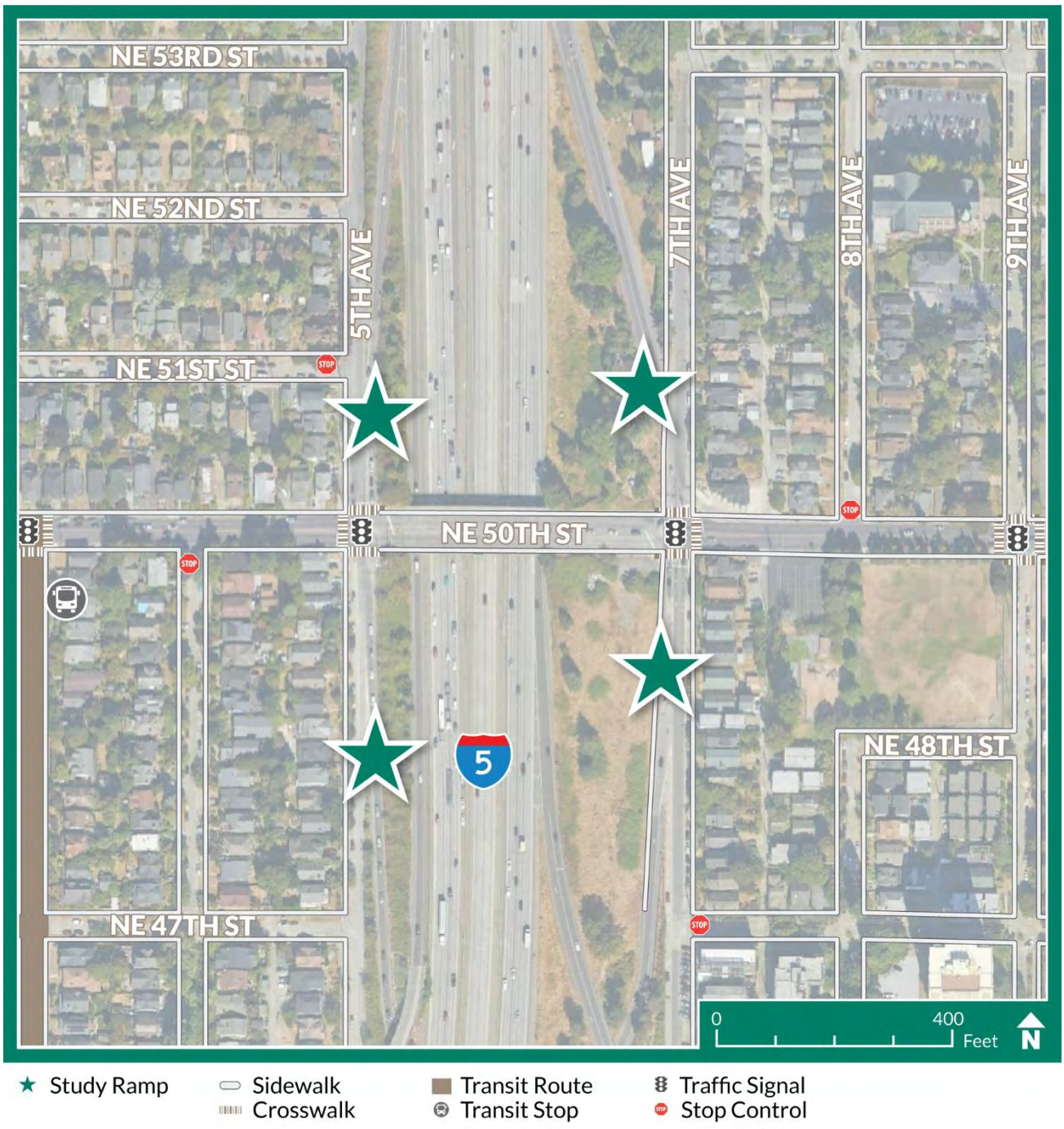


Image: Google Earth

Existing Routes

Metro Line 20 runs north on Latona Avenue NE and south on Thackeray Place NE. Metro Line 67 runs north on 11th Avenue NE and south on Roosevelt Way NE.

Existing Stops

The bus stops nearest the NE 50th Street on-ramps and off-ramps include:

- Latona Avenue NE at NE 50th Street serving Metro Line 20 northbound.
- Latona Avenue NE at NE 51st Street serving Metro Line 20 northbound.
- Thackeray Place NE at NE 50th Street serving Metro Line 20 southbound.
- 11th Avenue NE at NE 50th Street serving Metro Line 67 northbound.
- Roosevelt Way NE at NE 50th Street serving Metro Line 67 southbound.

Existing Headways and Span-of-Service

Frequent transit service near the NE 50th Street on-ramps and off-ramps includes Metro Lines 20 and 67 which run north-south less than 0.25 miles east and west of I-5. These connect the University of Washington with Lake City and Northgate. These lines generally run early in the morning to late in the evening, with headways ranging from 10-60 minutes.

Table 34 lists specific service spans and headways as of June 2024.

Table 34. Existing Transit Headways, Span-of-Service, and Days of Service Near NE 50th St. Ramps

Line	Begin	End	Headway (Minutes)	Weekend Service
King County Metro				
20 SB	5:45 AM	12:45 AM	15-60	Yes
20 NB	6:00 AM	12:45 AM	15-60	Yes
67 SB	4:45 AM	2:30 AM	15-60	Yes
67 NB	5:30 AM	3:45 AM	15-60	Yes

NB = Northbound, SB = Southbound

Planned Transit Improvements

The City of Seattle's Transit Master Plan includes King County Metro's RapidRide Corridor 7, which will connect Northgate and the University of Washington with Downtown Seattle via Roosevelt Way NE and 11th Avenue NE[47]. Bus rapid transit features along this corridor could include 20-24 hour/day service, exclusive transit lanes, Business Access Lanes (BAT), improved signalization, and improved bike and ped infrastructure.

[47] https://www.seattle.gov/documents/Departments/SDOT/TransitProgram/TMPSupplmtALL2-16FINAL.pdf

2.12.4 Key Destinations

University Playground Park is the one public space near the NE 50th Street study area at 8th Avenue NE (Figure 239). Civic locations include the University Branch library and Fire Station 17. People use the ramps to access Wallingford, the University District, the University of Washington, South Lake Union, Queen Anne, Montlake, Green Lake, and Ravena.

Figure 239. Key Destinations Near NE 50th St. Ramps

Image: Google Earth
Data: City of Seattle

2.12.5 Traffic Volumes and Patterns (Southbound Off-Ramp)

Average Daily Volume

Traffic volumes for the NE 50th Street southbound (SB) off-ramp include 7,010 daily trips (Table 35), the lowest of all University District segment ramps and 59% the volume of the highest University District segment ramp. AM peak hour volume is 28% of the maximum theoretical capacity, and PM peak hour volume is 26% of the maximum theoretical capacity.

Table 35. Average Weekday Volumes for NE 50th St. SB Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	500	28%
Off-Ramp	PM	470	26%
Off-Ramp	AWD	7,010	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

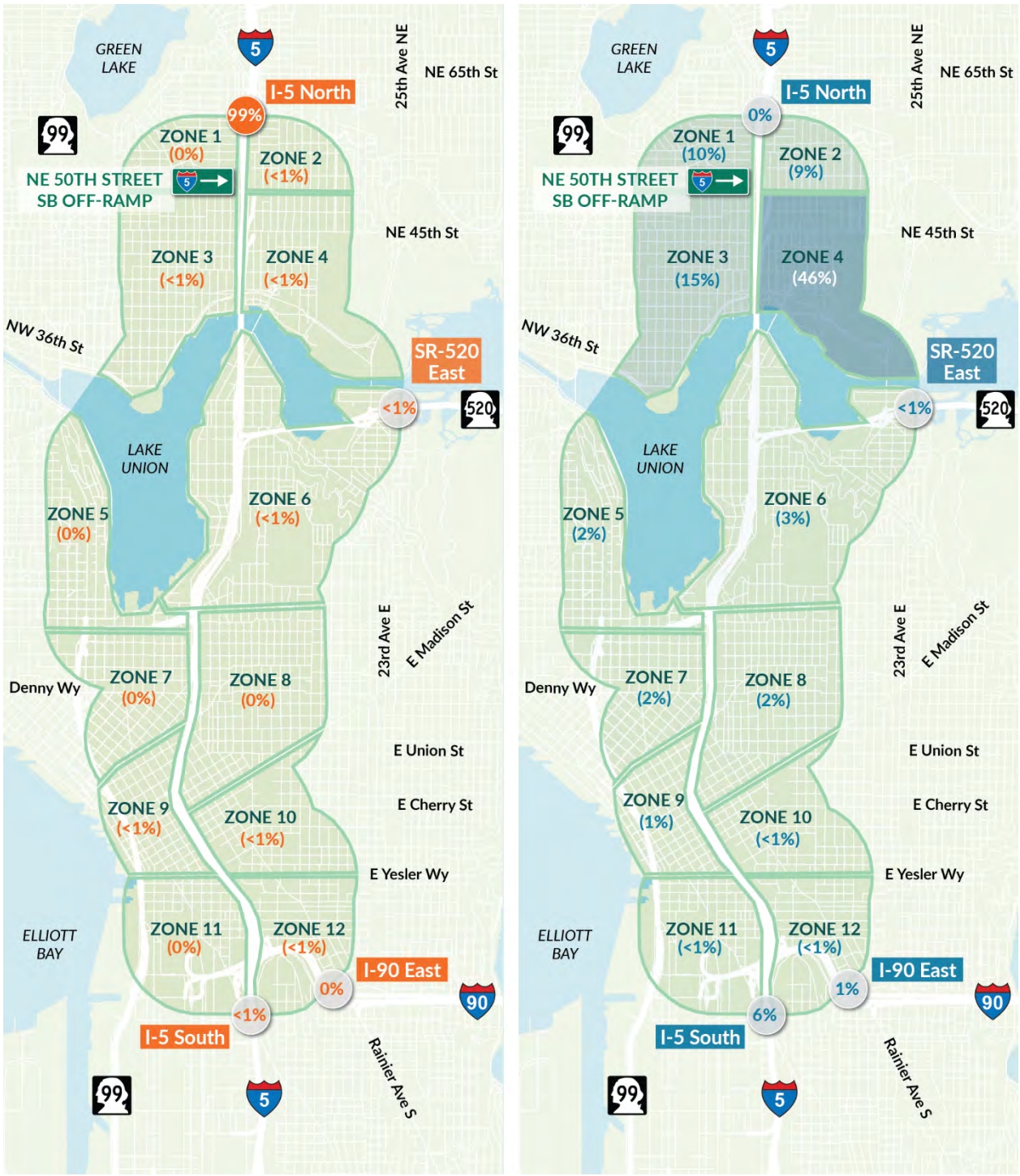
The NE 50th Street southbound off-ramp is located within Zone 1. Figure 240 shows the traffic volumes traveling between Zone 1 and the other study area zones. The highest volumes traveling to and from Zone 1 are from Zone 3 and from beyond the study area to the north via I-5.

Figure 240. Origin and Destination Trips to and from Zone 1, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 241 shows a subset of trips between Zone 1 and other study area zones that access the NE 50th Street southbound off-ramp specifically. Almost all trips that access the ramp have origins north of the study area. 46% of trips that access the NE 50th Street southbound off-ramp have destinations within Zone 4, and 15% have destinations within Zone 3.

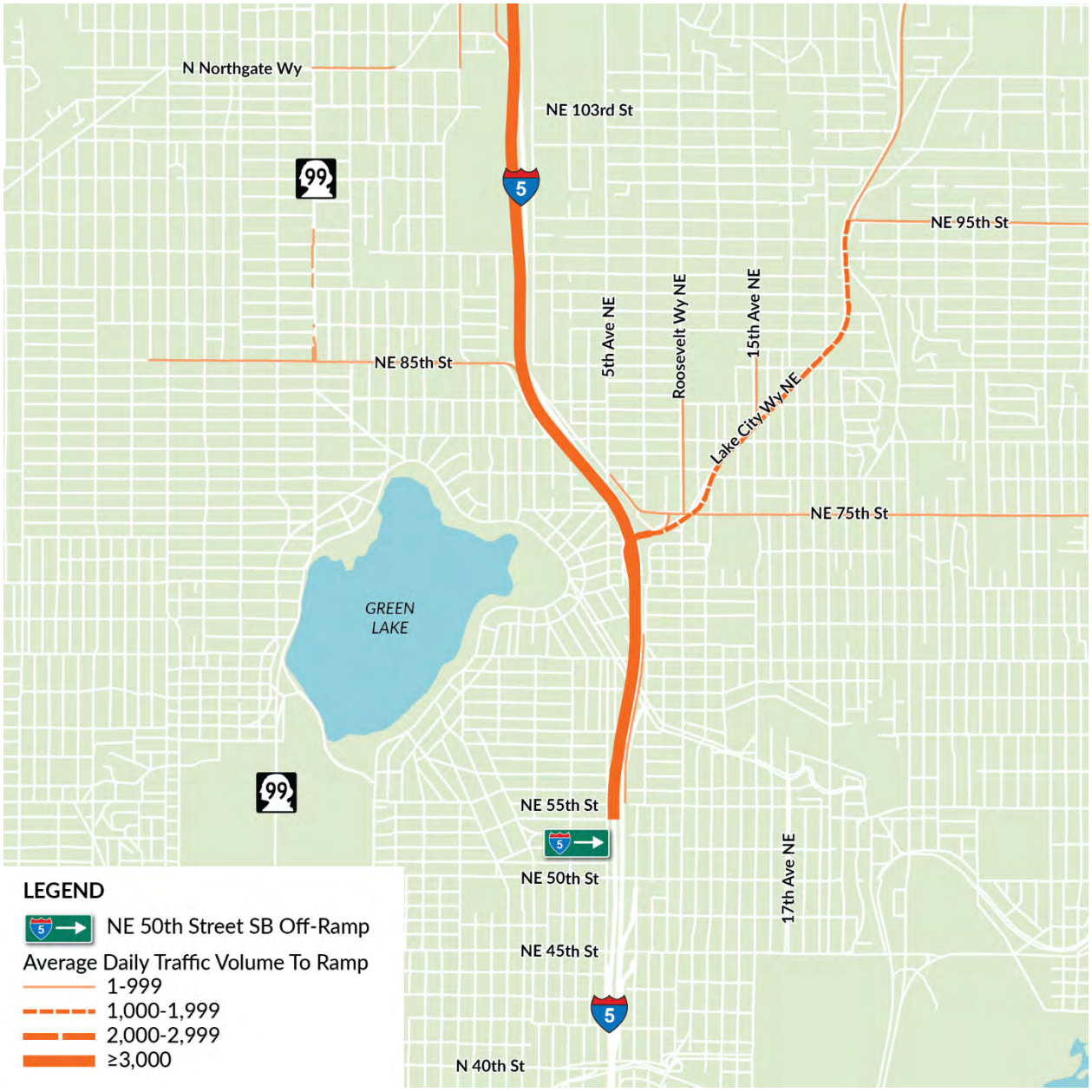
Figure 241. Origin and Destination Trips to and from NE 50th St. Southbound Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 242 shows the routes and relative volumes for traffic traveling to the NE 50th Street southbound off-ramp. Most trips that access the ramp are traveling from north of the study area via I-5.

Figure 242. Trip Routes to NE 50th Southbound Off-Ramp from Origins



Data: WSDOT, Third-party cellular, GPS, and other data

2.12.6 Traffic Volumes and Patterns (Southbound On-Ramp)

Average Daily Volume

Traffic volumes for the NE 50th Street southbound (SB) on-ramp include 7,450 daily trips (Table 36), the third lowest of University District segment ramps and 63% the volume of the highest University District segment ramp. AM peak hour volume is 29% of the maximum theoretical capacity, and PM peak hour volume is 24% of the maximum theoretical capacity.

Table 36. Average Weekday Volumes for NE 50th St. SB On-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	520	29%
On-Ramp	PM	430	24%
On-Ramp	AWD	7,450	

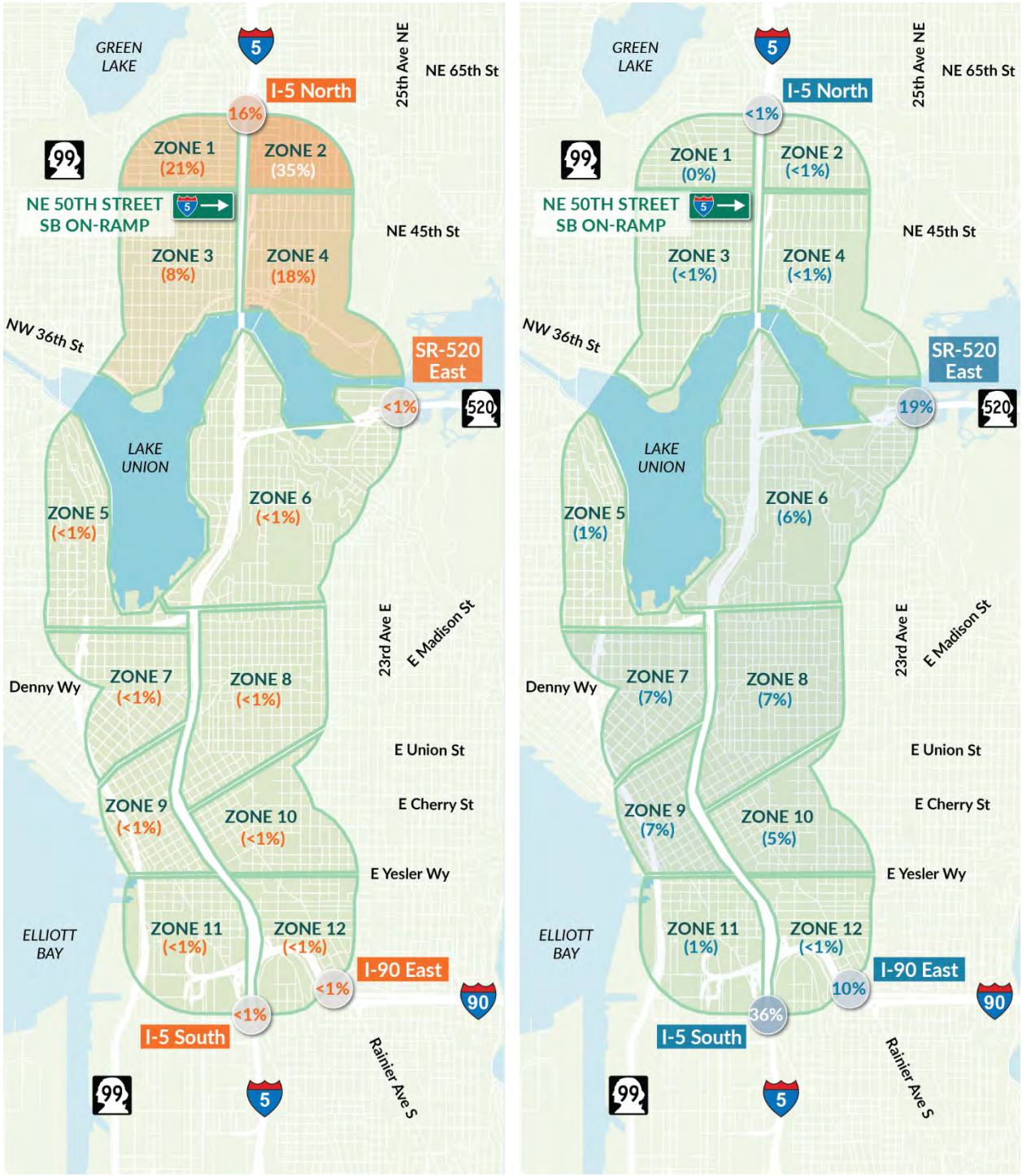
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The NE 50th Street southbound on-ramp is located within Zone 3. Figure 211 in Section 2.11.5 shows the traffic volumes traveling between Zone 3 and the other study area zones. The highest volumes traveling to and from Zone 3 are from beyond the study area to the north and south via I-5.

Figure 243 shows a subset of trips between Zone 3 and other study area zones that access the NE 50th Street southbound on-ramp specifically. 35% of trips that access the ramp have origins within Zone 2, and 21% have origins within Zone 1. 36% of trips that access the NE 50th Street southbound on-ramp have destinations south of the study, and 19% have destinations east of the study area.

Figure 243. Origin and Destination Trips to and from NE 50th St. Southbound On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 244 shows the routes and relative volumes for traffic traveling from the NE 50th Street southbound on-ramp. Most trips that access the ramp travel south of the study area via I-5.

Figure 244. Trip Routes from NE 50th St. Southbound On-Ramp to Destinations

Data: WSDOT, Third-party cellular, GPS, and other data

2.12.7 Traffic Volumes and Patterns (Northbound Off-Ramp)

Average Daily Volume

Traffic volumes for the NE 50th Street northbound (NB) off-ramp include 7,010 daily trips (Table 37), the second lowest among University District segment ramps and 59% the volume of the highest University District segment ramp. AM peak hour volume is 28% of the maximum theoretical capacity, and PM peak hour volume is 26% of the maximum theoretical capacity.

Table 37. Average Weekday Volumes for NE 50th St. NB Off-Ramp

On/Off	Time Period	Volume	Capacity %
Off-Ramp	AM	500	28%
Off-Ramp	PM	470	26%
Off-Ramp	AWD	7,010	

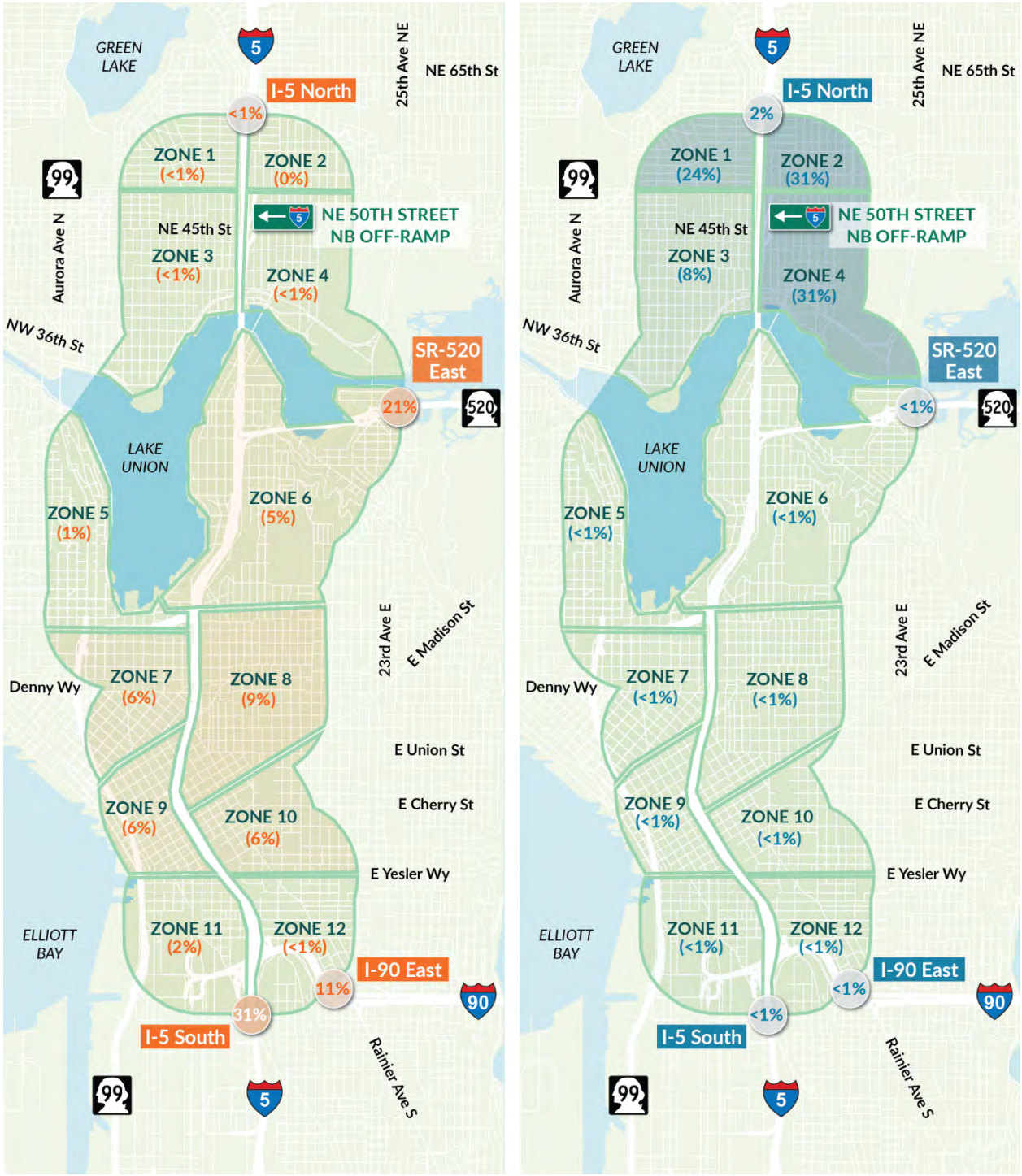
Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

The NE 50th Street northbound off-ramp is located within Zone 4. Figure 216 in Section 2.11.7 shows the traffic volumes traveling between Zone 4 and the other study area zones. The highest volumes traveling to and from Zone 4 are from beyond the study area to the north and south via I-5.

Figure 245 shows a subset of trips between Zone 4 and other study area zones that access the NE 50th Street northbound off-ramp specifically. 31% of trips that access the ramp have origins south of the study area, and 21% have origins east of the study area. 31% of trips that access the NE 50th Street northbound off-ramp have destinations within Zone 4, 31% have destinations within Zone 2, and 24% have destinations within Zone 1.

Figure 245. Origin and Destination Trips to and from NE 50th St. Northbound Off-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 246 shows the routes and relative volumes for traffic traveling to the NE 50th Street northbound off-ramp. Most trips that access the ramp travel from the south of the study area via I-5.

Figure 246. Trip Routes to NE 50th St. Northbound Off-Ramp from Origins

Data: WSDOT, Third-party cellular, GPS, and other data

2.12.8 Traffic Volumes and Patterns (Northbound On-Ramp)

Average Daily Volume

Traffic volumes for the NE 50th Street northbound (NB) on-ramp include 7,450 daily trips (Table 37), the third lowest among University District segment ramps and 63% the volume of the highest among University District segment ramps. AM peak hour volume is 29% of the maximum theoretical capacity, and PM peak hour volume is 24% of the maximum theoretical capacity.

Table 38. Average Weekday Volumes for NE 50th St. NB Off-Ramp

On/Off	Time Period	Volume	Capacity %
On-Ramp	AM	520	29%
On-Ramp	PM	430	24%
On-Ramp	AWD	7,450	

Source: WSDOT 2022 Ramp and Roadway Traffic Volume Report
Note: Capacity % is peak hour volume as a proportion of HCM 1,800 vph single-lane ramp capacity assumption

Origins and Destinations

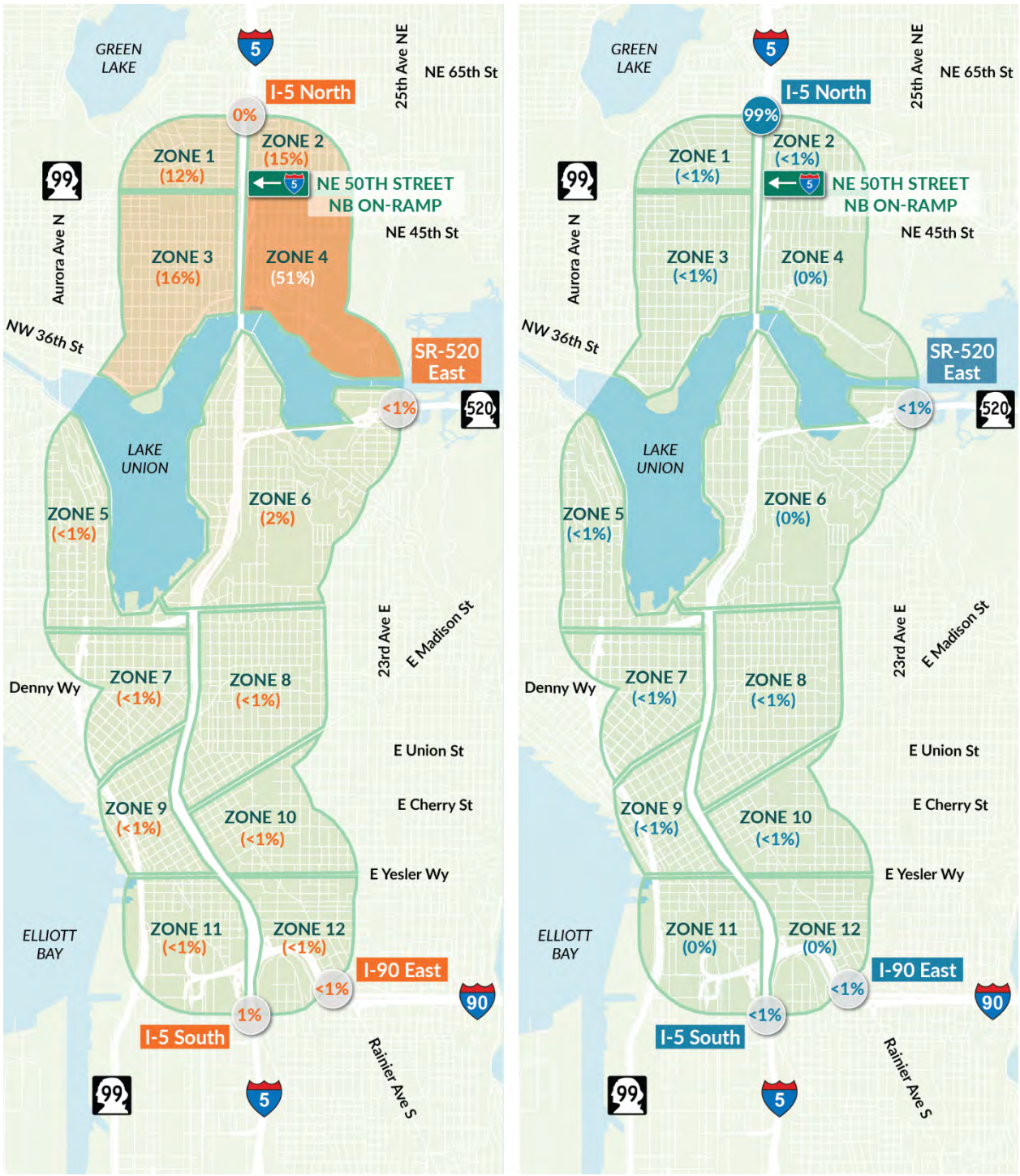
The NE 50th Street northbound on-ramp is located within Zone 2. Figure 247 shows the traffic volumes traveling between Zone 2 and the other study area zones. The highest volumes traveling to and from Zone 2 are from Zone 4 and from beyond the study area to the north and south via I-5.

Figure 247. Origin and Destination Trips to and from Zone 2, Typical 24-Hour Weekday, March 2023 through May 2023

Data: WSDOT, Third-party cellular, GPS, and other data

Figure 248 shows a subset of trips between Zone 2 and other study area zones that access the NE 50th Street northbound on-ramp specifically. 51% of trips that access the ramp have origins within Zone 4, 16% have origins within Zone 3, and 15% have origins within Zone 2. Almost all trips that access the NE 50th Street northbound on-ramp have destinations north of the study area.

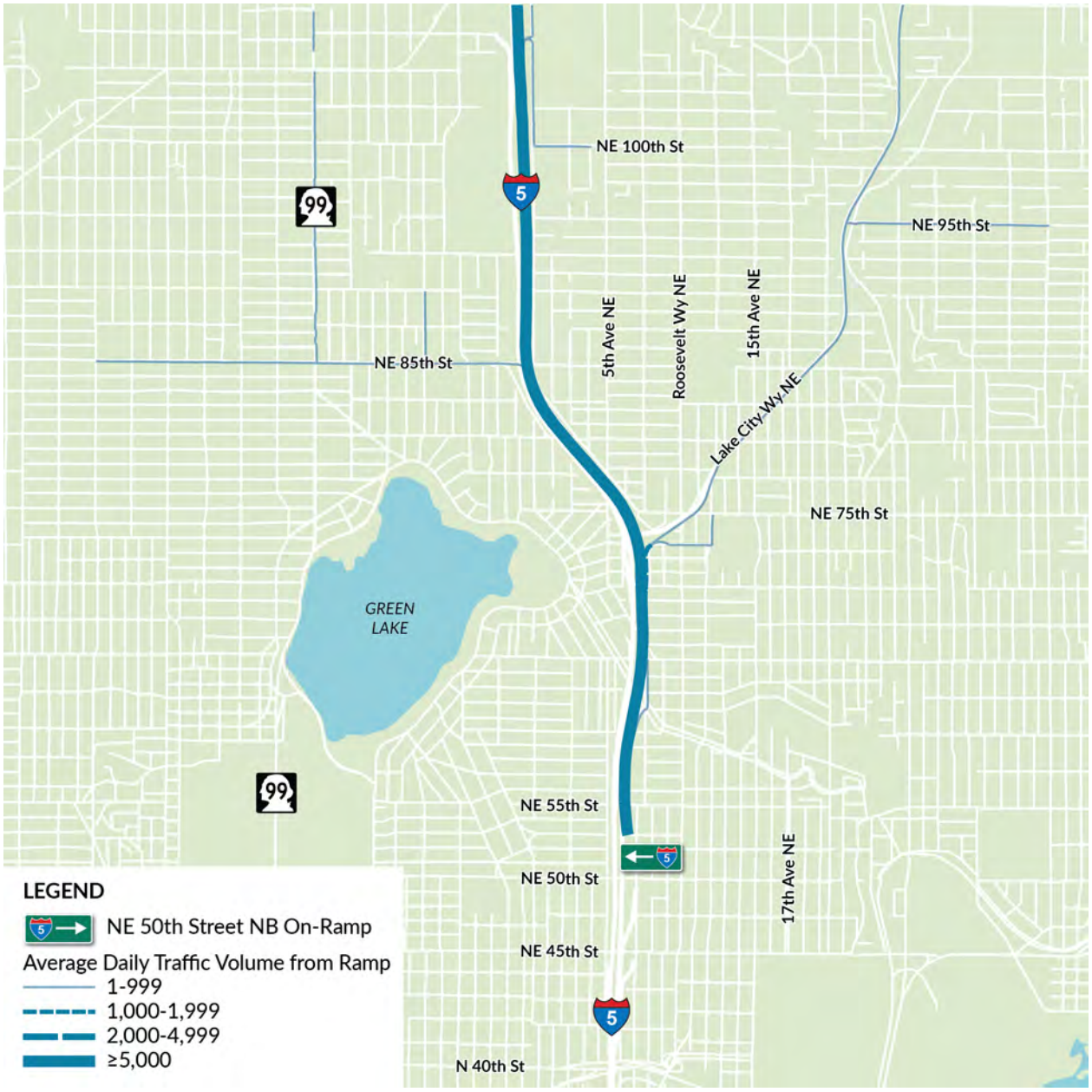
Figure 248. Origin and Destination Trips to and from NE 50th St. Northbound On-Ramp, Typical 24-Hour Weekday, March 2023 through May 2023



Data: WSDOT, Third-party cellular, GPS, and other data

Figure 249 shows the routes and relative volumes for traffic traveling from the NE 50th Street northbound on-ramp. Most trips that access the ramp travel north of the study area via I-5.

Figure 249. Trip Routes from NE 50th St. Northbound On-Ramp to Destinations



Data: WSDOT, Third-party cellular, GPS, and other data

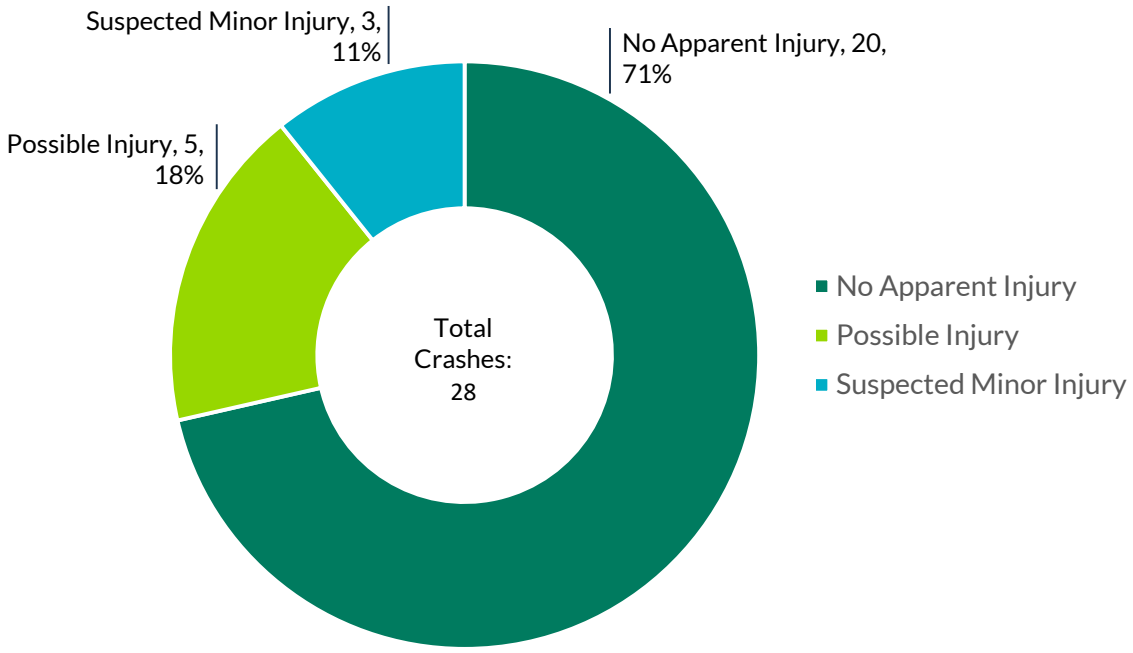
2.12.9 Safety (All NE 50th St. Ramps)

This section combines 5-year (January 2019 through December 2023) crash data for cars and trucks and considers all NE 50th Street northbound, southbound, on- and off-ramps as one location due to their proximity. There were 28 reported crashes within 200 feet of the NE 50th Street ramps during the period.

Crash Severity

Figure 250 shows that most crashes near the NE 50th Street ramps during the study period reported no apparent injury (71%).

Figure 250. Crash Severity, NE 50th St. SB, NB, Off- and On-Ramps Study Area, Jan. 2019 through Dec. 2023

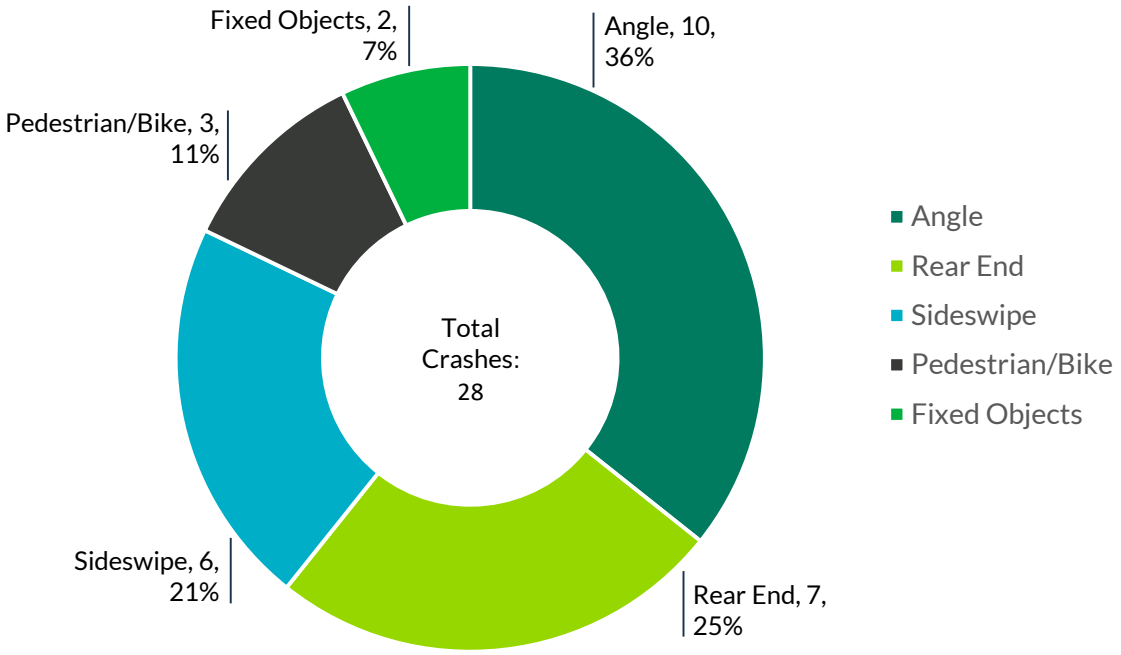


Data: WSDOT

Crash Type

Figure 251 shows that the most common crash type reported near the NE 50th Street ramps during the study period was angle (36%), followed by rear end (25%). There were three reported pedestrian/bike crashes during the study period.

Figure 251. Crash Type, NE 50th St. SB, NB, Off- and On-Ramps Study Area, Jan. 2019 through Dec. 2023



Data: WSDOT