

Roadway Network

The CTIP study established four categories of performance measures for the roadway network: arterial corridor level of service, arterial signalized intersection level of service, non-arterial/residential streets, and traffic safety. The City of Seattle's streets are classified based on the definitions in **Table 3-8**. **Figure 3-17** illustrates the classified streets and traffic signal locations within the study area.

Arterials

The Northgate study area's arterials are primarily oriented toward north/south streets, but east/west through-street access is limited to two principal arterials: NE 125th/130th Street and Northgate Way. These two principal arterials, together with NE 92nd, a minor arterial, are the only roadways providing an east/west crossing of Interstate 5 within the study area. At NE 85th Street, westbound vehicles can cross Interstate-5 from Banner Way NE to N 85th Street, but eastbound vehicles crossing Interstate 5 are routed to NE 80th Street by way of Corliss Way N. Meridian Avenue N, 1st Avenue N, 5th Avenue NE, Roosevelt Avenue NE, 15th Avenue NE, and Lake City Way NE all provide north/south arterial linkages.

Table 3-8. City of Seattle Street Classification Definitions

Classification	Definition
Interstate Freeways	Limited-access roadways that provide the highest capacity and least impeded traffic flow for longer vehicle trips (5 miles or more).
Principal Arterials	Streets that are intended to serve as the principal route for the movement of traffic through the city. They connect Urban Centers and urban villages to one another, or to the regional transportation network.
Minor Arterials	Streets that distribute traffic from principal arterials to collector arterials and commercial and residential access streets.
Collector Arterials	Streets that collect and distribute traffic from principal and minor arterials to local access streets or provide direct access to destinations.
Commercial Access Streets (Non-Arterial)	Streets that provide access to commercial and industrial land uses and provide localized traffic circulation.
Residential Access Streets (Non-Arterial)	Streets that provide access to neighborhood land uses and access to higher-level traffic streets.
Alleys	Travel ways that provide access to the rear of residences and businesses and are not intended for the movement of through trips. Where a continuous alley network exists, it is the preferred corridor for utility facilities.

State Facilities and Access

Interstate 5 runs north/south through the study area, with general-purpose north and south on-ramps at Northgate Way. The northbound on-ramp to Interstate 5 draws traffic from 1st Avenue at Northeast 107th and 1st Avenue at Northgate Way. Improvements at both locations have been completed as recommended in the 1993 NACP. N 107th provides access to southbound Interstate 5 from Corliss Avenue, just east of Meridian Avenue N. Northbound general-purpose traffic on Interstate 5 exits to 1st Avenue at NE 107th Street, and southbound general purpose traffic exits to NE Northgate Way at Corliss Avenue. Southbound general-purpose traffic can also exit Interstate 5 to westbound N 85th Street, but not to eastbound NE 85th Street. Carpools and transit may enter and exit the reversible lanes on Interstate 5 from the intersection of 1st Avenue NE and NE 103rd Street.

Major Truck Streets

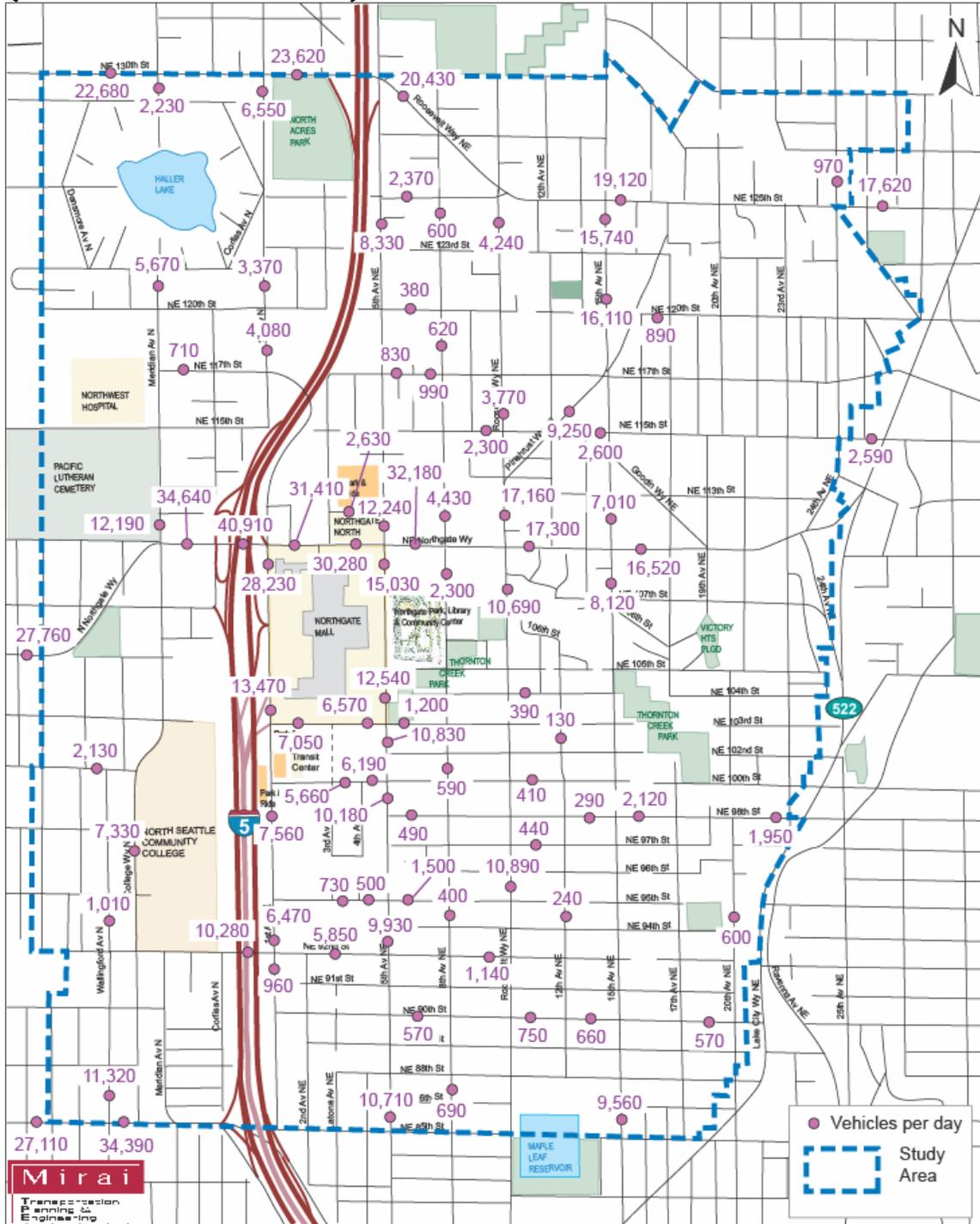
The Seattle Comprehensive Plan defines “major truck streets” as arterial streets that accommodate significant freight movement through the city and to and from major freight traffic generators. These streets are regularly evaluated as part of the City’s Freight Mobility Strategic Action Plan, the third edition of which was issued in June 2005. Major Truck Streets generally carry heavier loads and higher truck volumes than other arterials. Within the CTIP study area, I-5, Lake City Way, and N/NE Northgate Way west of I-5 are designated as major truck streets.

The 1993 Northgate Comprehensive Plan required that “substantial development in the core area” provide internal circulation to reduce the use of the arterial street system to access various parts of the site. In addition, that plan identified a set of specific turning restrictions and intersection improvements to manage vehicular access to core area arterials.

Traffic Volumes

Figure 3-18 displays 2003–2004 average weekday traffic volumes at select locations within the study area. **Appendix 3-7** illustrates traffic volumes for each PM peak hour turning movement of selected intersections within the study area.

Figure 3-18. Existing Average Weekday Traffic Volumes (2003/2004 Traffic Counts)



Arterials in Excess of 20,000 Vehicles per Day

The major east/west corridors in the study area, NE 130th/NE 125th streets, NE Northgate Way, and NE 85th Street west of I-5, experience the highest average weekday traffic volumes among the arterials in the study area, with NE Northgate Way carrying over 31,000 vehicles between Meridian Avenue N and 8th Avenue NE. The volume at I-5 on NE Northgate Way is almost 41,000 vehicles per day. NE 85th Street near Wallingford Avenue N carries over 34,000 vehicles and NE 130th Street near Interstate 5 carries over 20,000 vehicles. First Avenue N just south of NE Northgate Way carries over 28,000 vehicles, but that volume drops significantly south of the mall to over 13,000 vehicles, and then drops again south of the park-and-ride lot to 7,500 vehicles.

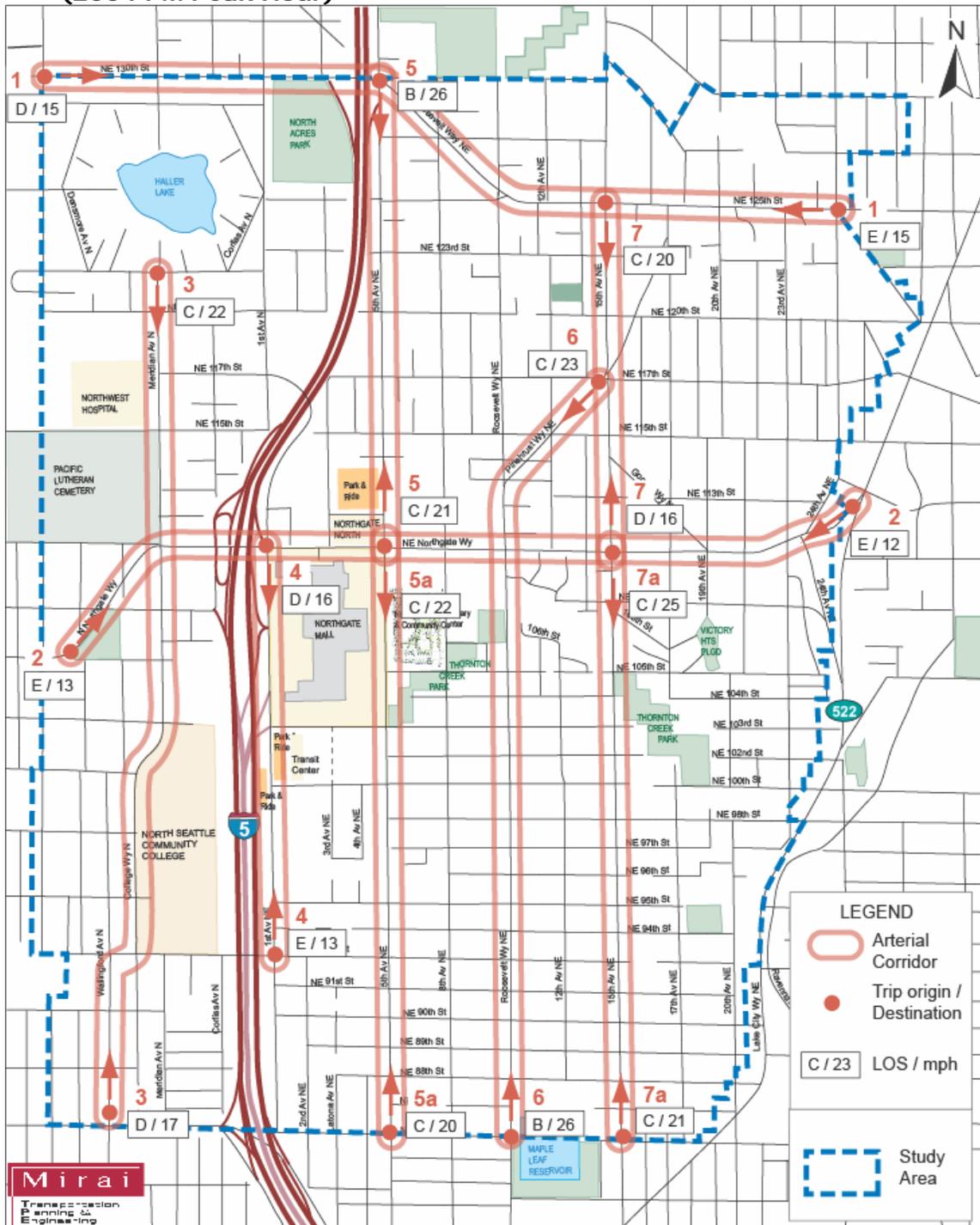
Arterials Carrying between 10,000 and 20,000 Vehicles per Day

Most of the arterials within the study area that carry between 10,000 and 20,000 vehicles are in the vicinity of or south of NE Northgate Way. The exceptions are 15th Avenue NE north of NE 120th Street and NE 125th Street just east of 25th Avenue NE (just outside the study area boundaries). Roosevelt Way NE south of Pinehurst carries 17,000 vehicles, but that volume drops substantially to about 11,000 vehicles south of NE Northgate Way. Fifth Avenue NE carries 11,000–12,000 vehicles from just north of NE Northgate Way to NE 85th Street, with the exception of a higher volume (15,000) just south of NE Northgate Way. Northeast 92nd Street at Interstate 5 carries over 10,000 vehicles, but that figure drops to 6,000 east of 1st Avenue N.

Arterial Corridor Levels of Service

An arterial corridor's level of service (LOS) is a measure of the average travel speed for through vehicles along an urban street. The travel speed along a segment is influenced by the average travel speed between signalized intersections and the amount of delay incurred at the signalized intersections. Table 3-9 shows urban arterial corridor LOS definitions for the arterials in the study area. Figure 3-19 illustrates the existing conditions for arterial corridor PM peak hour levels of service. Within the study area, the lowest average speeds are observed along Northgate Way in both directions, NE 125th Street in the westbound direction and 1st Avenue NE in the northbound direction.

Figure 3-19. Existing Arterial Corridor Levels of Service, Delay and Trip Time (2004 PM Peak Hour)



Arterial corridors in the study area appear to perform reasonably well in terms of vehicle travel time and average intersection delay. Fifth Avenue NE, Roosevelt Way NE, and 15th Avenue NE all

Table 3-9. Arterial Corridor Level of Service Definitions

LOS	Average Travel Speed (mph)
A	> 30
B	> 24–30
C	> 18–24
D	> 14–18
E	> 10–14
F	< 10

Source: Highway Capacity Manual 2000

achieve LOS C both northbound and southbound during the PM peak hour. Eastbound NE Northgate Way performs somewhat worse at LOS D, and westbound NE Northgate Way is one of the most congested corridors in the study area, showing LOS E during the PM peak hour. The NE 130th/NE 125th Street corridor performs at LOS D traveling eastbound and at LOS E traveling westbound. Southbound Meridian Avenue North also performs at LOS

D, due to congestion at the Meridian Avenue N/NE Northgate Way intersection. First Avenue NE between NE 92nd Street and NE Northgate Way performs at LOS D both north- and southbound, in large part due to congestion at the Interstate 5 express lanes off-ramp at NE 103rd Street.

Signalized Intersection Levels of Service

The most recent Highway Capacity Manual 2000 defines urban area levels of service in terms of seconds of delay at an intersection. The scale ranges from A at the best performing level to F at the worst performing level (see **Table 3-10**).

Table 3-10. Intersection Level of Service Definitions

LOS	Average Signalized Intersection Delay Per Vehicle (seconds)	Descriptions of Level of Service Operations
A	< 10	Highest driver comfort. Little delay. Free flow.
B	< 10–20	High degree of driver comfort. Little delay.
C	< 20–35	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
D	< 35–55	Long cycle length. Some driver frustration. Efficient traffic operation.
E	< 55–80	Approaching capacity. Notable delays. High level of driver frustration.
F	> 80	Flow breaks down. Excessive delays.

Source: Highway Capacity Manual 2000

As shown in **Figure 3-20** below, all of the signalized intersections in the study area operate at LOS D or better, with a significant majority performing at LOS C or better.

Signalized Intersections at LOS D

- NE 130th/1st Ave NE
- NE 125th/15th Ave NE
- NE Northgate Way/Meridian Ave N
- NE Northgate Way/5th Ave NE
- NE Northgate Way/Roosevelt Way NE
- NE 103rd/1st Ave NE

Non-Arterial/Residential Streets

The CTIP study developed criteria against which to evaluate residential streets, as shown in **Table 3-11**. Using this rating system, streets with higher scores are more in need of attention than those with lower scores. **Figure 3-21** maps the results. In addition, **Figure 3-22** shows the current location of traffic control devices throughout the study area.

Table 3-11. Residential Street Performance Criteria

Indicator	Points	Point Allocation
Vehicle Volume (Weekday, 24-hour)	0 to 20	1 point for every 100 vehicles per day
Speed (85th percentile)	0 to 20	1 point for every 1 mph over 20 mph
Pedestrian Facility (sidewalks or walkways)	0 to 20	20 points = no curb, gutter or sidewalk/walkway on either side 15 points = walkway on 1 side 10 points = curb, gutter, sidewalk on 1 side 5 points = curb, gutter, sidewalk on 1 side and walkway on other side 0 points = curb, gutter, sidewalk on both sides
Crashes	0 to 10	2 points for each reported collision over past 3 years
School Walkway Route	0 or 10	10 points for designated school route
Pedestrian Route	0 or 10	10 points for key pedestrian connector per Open Space & Pedestrian Plan (draft 2004)
Bicycle Route	0 or 5	5 points for designated bike route
Street Features	0 to 5	Up to 5 points for potential safety issues, e.g. poor sight distance, sharp curbs, wide street width

**Figure 3-21. Non-Arterial/Residential Street Scores
(lower scores indicate better performance)**

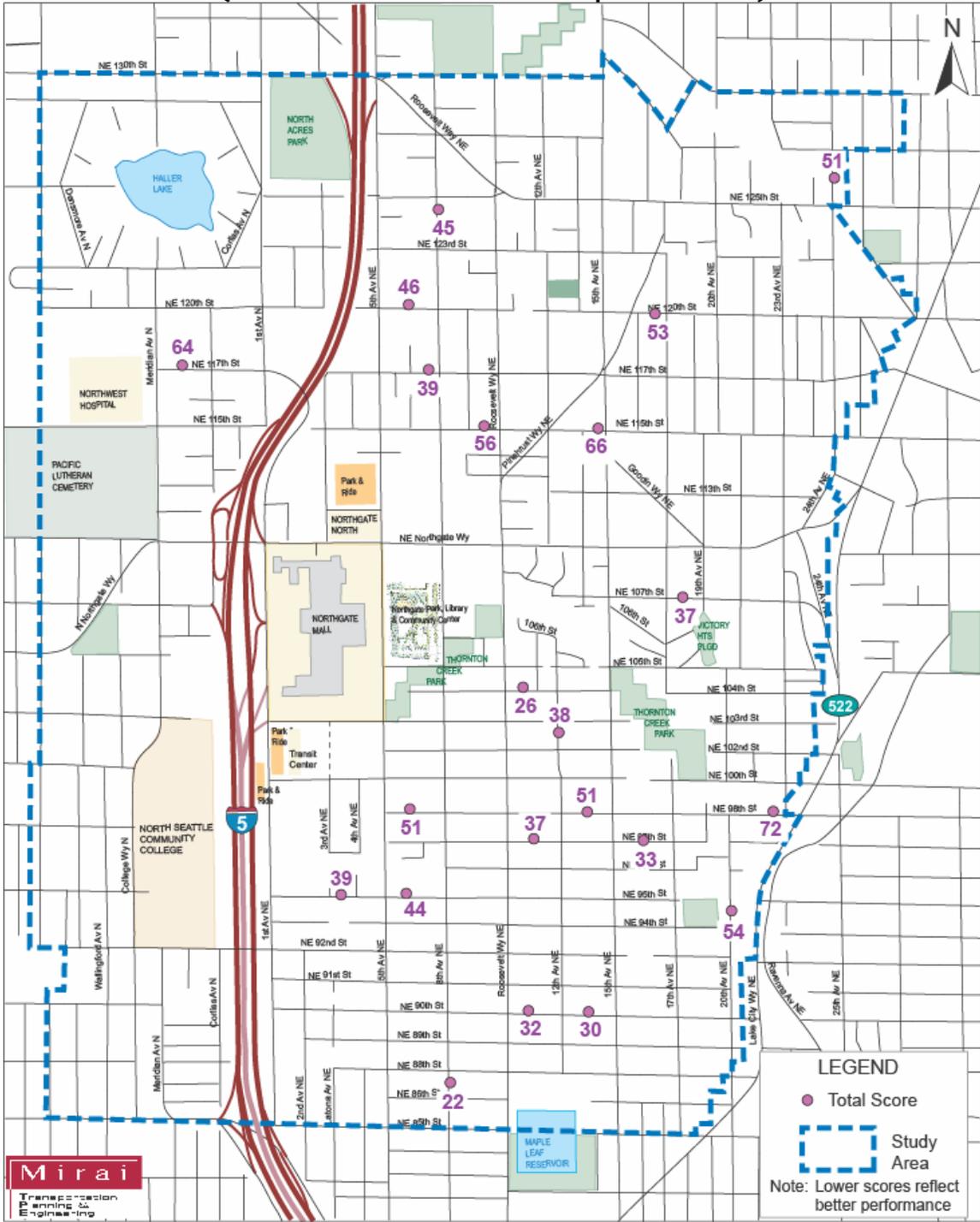


Figure 3-22. Northgate Area Neighborhood Traffic Control Devices

