Transportation Discipline Report

SEATTLE CENTRAL COLLEGE MIMP EIS

SDCI #: 3034600-LU

Prepared for:
Seattle Central College

March 2024

Prepared by:

transpogroup
WHAT TRANSPORTATION CAN BE.

12131 113th Avenue NE Suite 203
Kirkland, WA 98034-7120
Phone: 425-821-3665
Fax: 425-825-8434
www.transpogroup.com

1.19203.00

Table of Contents

Appendix

Figures

Tables

Chapter 1. Introduction

This document provides technical analyses in support of the transportation section of the Draft Environmental Impact Statement (DEIS) prepared for the proposed Seattle Central College (SCC) Major Institution Master Plan (MIMP). This chapter provides an overview of the project description and analysis approach. Further detail is provided in subsequent chapters specific to key transportation elements.

Summary of Alternatives Evaluated

The proposed SCC MIMP has a 10- to 15-year planning horizon. The projected number of full time equivalent (FTE) students for SCC is based on the State of Washington forecasts and is unrelated to the EIS Alternatives and MIMP. Campus population growth is anticipated to occur with or without the MIMP.[1] The campus population is anticipated to be the same for all Alternatives, including the No Action Alternative. The MIMP's main intent is to expand the campus boundary, improve existing facilities, provide additional teaching, and program space for specific campus programs, and provide on-campus student housing.

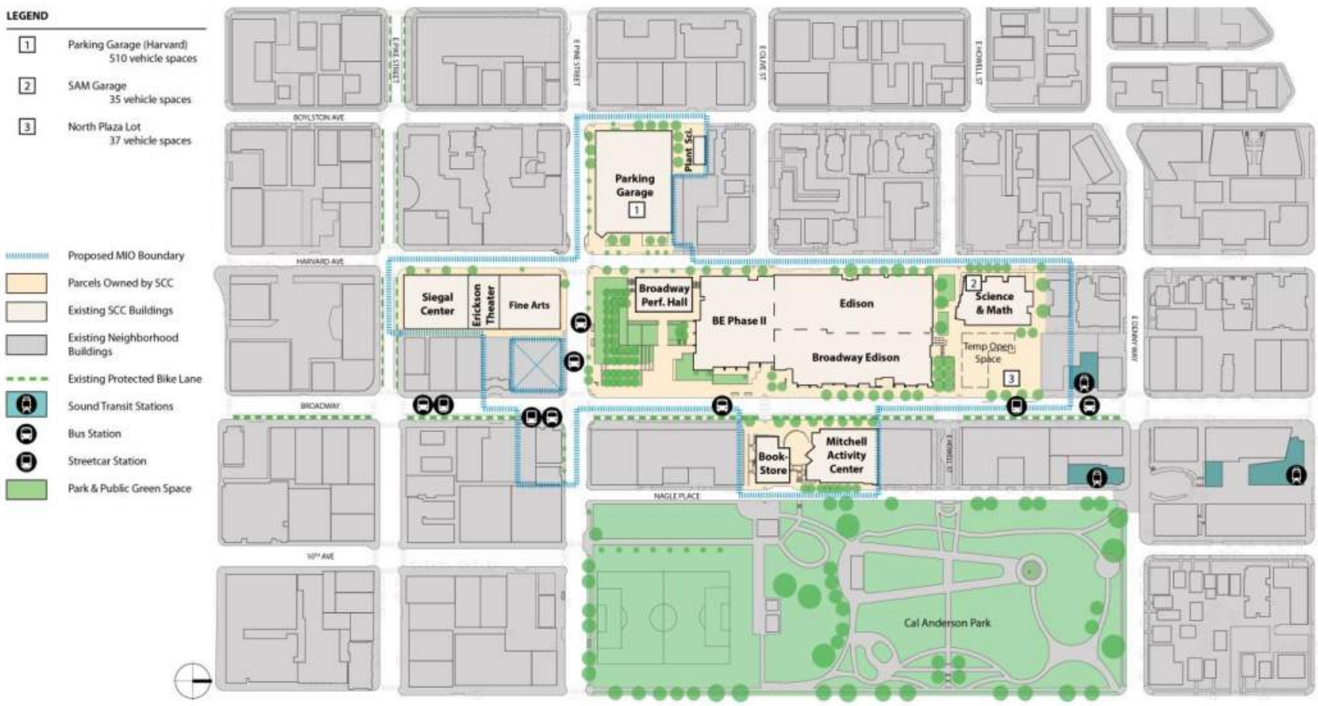
The MIMP includes four (4) planned and two (2) potential projects. The two (2) potential projects would site outside the current MIMP boundary on parcels not currently owned by SCC. The four (4) planned MIMP projects are new student housing with redevelopment of the Harvard parking garage, a new Information Technology Education Center (ITEC) building, renovation of Broadway Achievement Center, and renovation and expansion of the Student Union. The potential MIMP projects include two buildings approximately 50,000 square-feet each for either academic, administrative needs, or college housing (Harvard I and Harvard II) and a 15,000 square-foot district energy plant located below the existing South Plaza. Harvard I & II would be located on property currently not owned by SCC. Therefore, these projects may or may not occur within the timeframe of the MIMP.

From the transportation perspective, the only differences between the Alternatives are related to the number of commuter students versus residential students, and the location(s) of campus parking. The total campus population is the same for all Alternatives) The EIS Alternatives are:

- **No Action Alternative**: The No Action Alternative is consistent with existing campus conditions (see Figure 1). The campus population would include 7,500 FTE students on campus and 1,000 employees[2]. The on-campus student housing would continue to have 70 beds. The location of parking and the number of spaces (608 spaces) would not change. Renovation projects for the Broadway Achievement Center and Student Union planned with the MIMP could occur under the No Action Alternative, albeit with a reduced scope. Since the MIMP does not enable campus population, the two planned projects do not change the population forecasts.
- **Proposed MIMP Alternative**: The campus population would include 7,500 FTE students on campus and 1,000 employees. The on-campus student housing would include up to 580 beds with approximately 510 beds in a new building, replacing the existing Harvard parking garage.[3] All existing surface lots would be removed, and up to 494 parking spaces would be provided within 3 garages. The proposed parking would change the site access and parking space locations. Therefore, this study includes analysis of revised local trip distribution of traffic to and from campus. The MIMP alternative includes an expansion of the campus boundary west of Harvard Avenue and reduction of the boundary east of the Fine Arts Building and south of E Pine Street (see Figure 2).

[1] Growth for community colleges student population is driven by the surrounding community's economics and area population and not related to specific SCC programs. International student admittance is controlled by SCC and the maximum enrollment is not anticipated to change with the Alternatives.
2 Represents total campus employees not full time equivalent (FTE).
[3] The Master Plan assumes +/- 500 additional beds added (in addition to the existing 70 beds). For purposes of the analysis, this was assumed to be 510 beds added and 70 existing beds for a total of 580 beds on-campus.

- **No Boundary Expansion Alternative (West of Harvard Avenue)**: The campus population, on-campus student housing and parking supply would be the same as the Proposed MIMP Alternative. For this alternative, Harvard I & II would not be constructed, so the MIMP boundary would not be expanded west of Harvard Avenue. It is possible, however, that the academic or housing uses might be accommodated on the existing campus. The only site added to the campus would be the Sound Transit Parcel D (1827 Broadway) by expanding the boundary to the north to accommodate the ITEC building (see Figure 3). The boundary would be reduced east of the Fine Arts Building and south of E Pine Street.

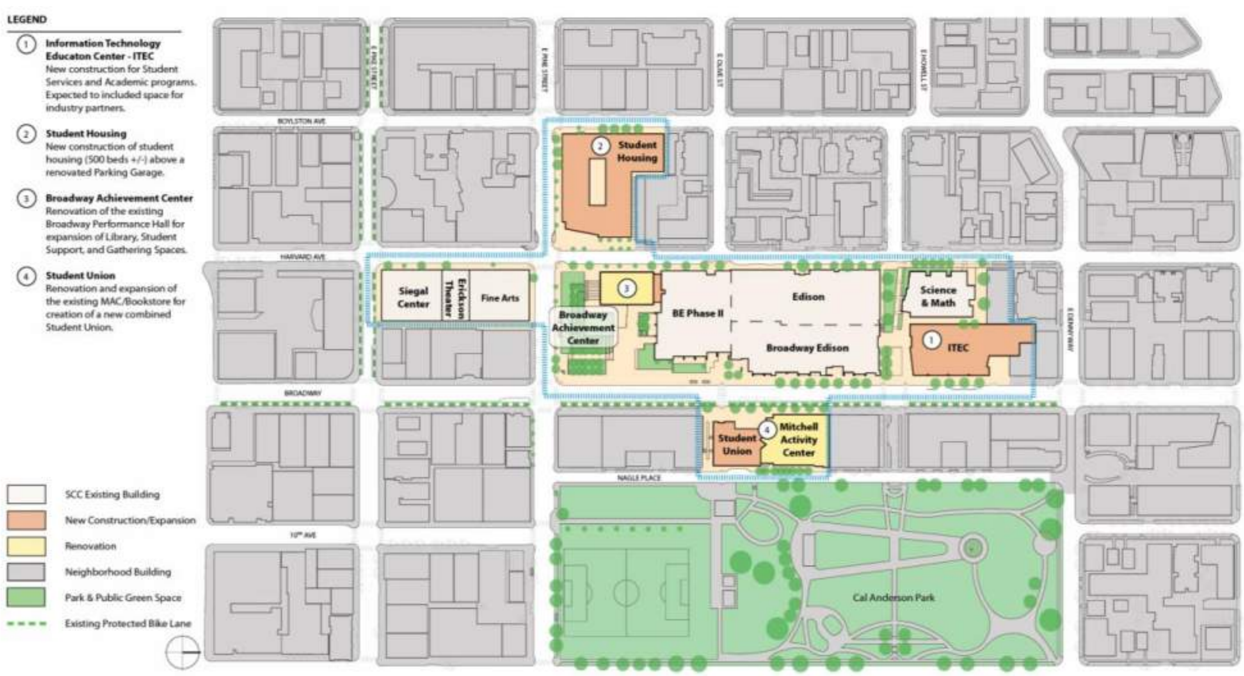


Source: Starling Whitehead & Lux Architects, March 2024

Figure 1. Existing Campus/No Action Alternative Map

Source: Starling Whitehead & Lux Architects, March 2024

Figure 2. Proposed MIMP Alternative – Campus Map



Source: Starling Whitehead & Lux Architects, November 2022

Figure 3. No Boundary Expansion Alternative - Campus Map

Campus Population Summary

The MIMP potential projects include additional college housing on campus, which could reduce parking demand and trips to campus. The analysis in subsequent chapters discusses the trip generation and parking demand characteristics associated with the potential projects and compares impacts related to the No Action and Proposed MIMP Alternatives.

The population for existing conditions and the Alternatives is summarized in Table 1.

Table 1. SCC Campus Population Assumptions

	FTE Students			
Alternative	**Commuting**	**Resident**	**Total**	**Employees/Staff**
Existing[1]	6,680	70	6,750	950
No Action	7,430	70	7,500	1,000
Action (Proposed MIMP and No Boundary Expansion)	6,920	580	7,500	1,000

Notes: FTE = full-time equivalent
1. Campus population based on 2019 conditions prior to COVID. During the COVID pandemic, when the analysis for this study was conducted, the SCC programming was conducted online.

As shown in Table 1, the campus population will increase by 750 students and 50 employees with the No Action and Action Alternatives.

Study Approach and Area

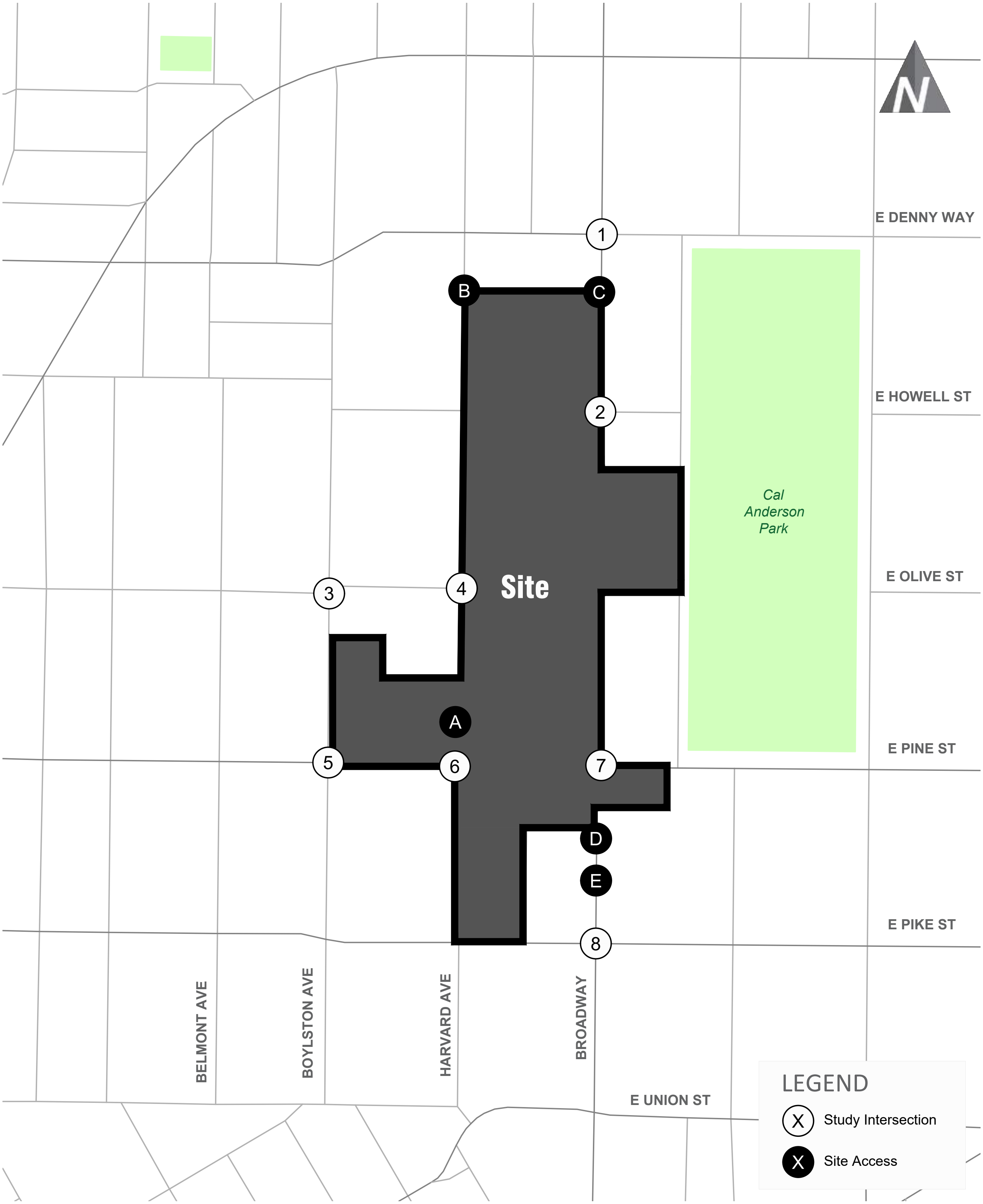
The scope of this transportation analysis for the DEIS was based on information from the *Seattle Central College MIMP Transportation Analysis Scoping* document (Transpo Group, November 2020) and was coordinated with Seattle Department of Transportation (SDOT) and Seattle Department of Construction and Inspections (SDCI) staff. The following transportation elements are evaluated in this report.

- Street System
- Non-Motorized Transportation
- Transit Service
- Traffic Volumes
- Traffic Operations
- Traffic Safety

The MIMP would be developed over the next 10 to 15 years; therefore, the analyses assume a 2035 horizon year, to be consistent with the Seattle Comprehensive Plan. New trips generated by the Action Alternatives are anticipated to be limited; however, there would be changes in travel patterns in the immediate vicinity of the campus based on the location of parking. Based on the location of parking, changes in travel patterns, and coordination with SDCI and SDOT staff, 8 study intersections were identified for weekday AM and PM peak hour analysis.

1. Broadway/E Denny Way
2. Broadway/E Howell Street
3. Boylston Avenue/E Olive Street
4. Harvard Avenue/E Olive Street
5. Boylston Avenue/E Pine Street
6. Harvard Avenue/E Pine Street
7. Broadway/E Pine Street
8. Broadway/E Pike Street

In addition to the study intersections listed above, the existing and future garage access points are evaluated with respect to traffic operations. The study intersections are shown on Figure 4.



Site Vicinity & Study Intersections

Seattle Central College MIMP

FIGURE 4

transpogroup

COVID-19 Considerations

The COVID-19 pandemic significantly changed how college education is delivered, and thus, travel patterns. When the majority of the transportation analyses were conducted, classes for SCC were primarily online and travel to campus was limited due to pandemic restrictions. Present day, according to SCC, more programming could remain online compared to pre-COVID conditions. However, conditions are continuing to evolve. Given the uncertainty of post-COVID conditions, this analysis assumes that transportation conditions will return to pre-COVID levels with most classes on-campus. This approach of assuming traffic levels consistent with pre-COVID conditions is likely a conservative estimate of transportation impacts since there may be more classes administered online.

In addition, at the time this study was conducted, it was not possible to collect existing trip generation data for the campus because classes were conducted fully online. The most recent campus trip generation data was collected in 2015, prior to the opening of the Capitol Hill Link Light Rail station. To reflect pre-COVID conditions more accurately *with* the Link Light Rail open, the 2015 trip generation is adjusted based on 2019 student and employee mode splits. The campus population was the same in both 2015 and 2019.

Traffic counts were also adjusted to reflect typical non-COVID conditions. Additional details on the traffic count adjustments are described under the analysis methods section.

Analysis Methods

The foundation of the transportation analyses is trip generation. Trip generation for the campus is related to students, staff/faculty, deliveries, and visitors. Campus trip generation was estimated for three user groups: (1) commuter-related trips (inclusive of staff/faculty, students, and visitors), (2) campus housing/resident trips and (3) other trips related to deliveries or visitors not using campus parking. Commuters and residents have different trip generating characteristics since on-campus residents typically drive than commuters.

While the Institute of Transportation Engineers' *Trip Generation Manual*, 10th Edition, contains information on University/College uses, trip generation estimates based on local model splits and travel characteristics is recommended. For this project, trips for existing conditions and the Alternatives were estimated based on local data. First, an Existing Conditions trip generation model was developed. Then, trips by transportation mode and changes in population were used to determine future trip generation with the Alternatives.

Trip generation for use in transportation impact analyses are typically estimated based on students or beds for University/College uses. Based on previous work with similar college projects in Seattle, SCC on-site student FTE provided the basis for estimating commuter trip generation. Commuter trips capture both student and employee trips. Residential trip generation was based on total campus beds.

The following subsections describe the methods, key assumptions and how the impacts of the Alternatives are identified for the transportation elements evaluated in this study. Impacts of the Action Alternatives are based on a comparison to the No Action Alternative.

Street System

The study provides a review of the existing and future planned street system and its connectivity to SCC and the surrounding area. Alternative impacts to the street system were evaluated based on potential changes to the nearby street network connectivity.

Non-Motorized Transportation

A review of the existing and future planned bicycle system and its connectivity to SCC and the surrounding area was conducted. Alternative impacts were evaluated based on potential changes to the nearby bicycle network connectivity.

An analysis of the existing sidewalk capacity was conducted along Broadway between E Denny Way and E Pike Street and along E Pine Street between Boylston Avenue and Broadway. The sidewalks along Broadway and E Pine Street are adjacent to the campus and serve as the primary pedestrian access to SCC. Pedestrian level of service (LOS) was calculated based on anticipated flow rates of pedestrians and effective walkway width of the sidewalks using the methods described in Chapter 23 of the Highway Capacity Manual (HCM) 2010 for sidewalk operations.[4] Table 2 shows the criteria and qualitative descriptions for pedestrian LOS. These are the bases for assessing sidewalk adequacy during the weekday AM and PM peak hours.

Table 2. Level of Service Criteria: Pedestrian Level of Service by Average Flow

Pedestrian Flow[1]	Pedestrian LOS by Average Flow	Flow Classification
< 5	A	Free Flow
>5 - 7	B	Free Flow
> 7 - 10	C	Free Flow
> 10 – 15	D	Restricted
> 15 – 23	E	Restricted
> 23	F	Severely Restricted

Source: Highway Capacity Manual (HCM2010), Transportation Research Board. Exhibit 23-1.
1. Average number of pedestrians per foot of effective sidewalk width per minute (p/ft/min). Measured at the critical (minimum) width of the sidewalk.

As shown in Table 2, LOS A through C includes free-flow conditions for pedestrian travel. Free-flow conditions mean there are open travel paths for people walking that allow free choice of speed and direction, with some adjustments needed to avoid conflicts with other people on the sidewalk. LOS D and E conditions include restricted conditions for pedestrian travel. The restricted condition includes more dense concentrations of people walking where speed and ability to pass other pedestrians is limited but allows platooned flow in the intended direction of travel. LOS F conditions are severely restricted where pedestrians make frequent contact with other users on the street and are not able to easily travel at a desired speed in the direction of intended travel. The City of Seattle's Comprehensive Plan does not define a LOS standard for pedestrian facilities; however, the City generally recognizes LOS F as poor pedestrian conditions.

Pedestrian volumes along the Broadway and E Pine Street segments were based on crosswalk volumes at the study intersections during the weekday AM peak (7–9 a.m.) and PM peak (4 – 6 p.m.) periods.[5] With the available crosswalk data, it is assumed that the highest adjacent crossing volume to the street segment would equal the hourly sidewalk segment volume. To account for a potential concentration of pedestrians between classes, an adjustment factor is applied such that half of the pedestrian volumes are assumed to occur during a single 15-minute period. The detailed pedestrian analysis is included in Appendix D.

Additionally, an evaluation of pedestrian connectivity between the campus and adjacent Cal Anderson Park located east of Nagle Place was conducted in 2023, as requested by SDOT staff.
Vehicular and pedestrian volumes were collected along Nagle Place at E Howell Street and in the vicinity of the 2 existing access points into Cal Anderson Park in October 2023 when school was in session and the weather was clear (not raining). Pedestrian crossing warrants and any appropriate enhancements were reviewed per *National Cooperative Highway Research Program (NCHRP) Report 562 Appendix A: Guidelines for Pedestrian Crossing Treatments*. The pedestrian path being reviewed is from the Broadway Edison building to the southern connection into Cal Anderson Park. This connection between the park and campus is illustrated on Figure 5 on an existing conditions map.

[4] This method is consistent with previously approved EIS pedestrian analyses in Seattle.
[5] Volumes were collected in December 2020 at all study intersections; however, due to COVID conditions at that time, historic traffic counts were utilized as classes were online during COVID-19 (at the time these analyses were conducted).

Figure 5. Pedestrian connection evaluated between the campus and adjacent Cal Anderson Park

Transit Service

Transit service to and from campus was evaluated on two factors: vehicle capacity analysis across screenlines; and, waiting areas for bus stops serving SCC.[6] Existing transit demand was based on pre-COVID, Fall 2019, average weekday AM and PM peak period ridership data provided by the transit agencies.[7] Transit impacts of the alternatives were based on a comparison of anticipated demand to capacity.

An annual background growth rate of 1 percent was applied to existing (2019) ridership, consistent with Seattle 2035 City Comprehensive Plan transit growth to determine future transit demand.

Transit bus vehicle capacity was estimated assuming bus frequency for weekday AM and PM peak periods (current in 2021). A load factor of 1.25 was applied, as shown in Table 3. The load factor accounts for the standing capacity of transit vehicles. Rail car capacity of 200 passengers per rail car was provided by Sound Transit with 3 rail cars assumed to be operating.

[6] Note that transit stop level data were used only for bus stops, as there was less stop-specific data available for either the Link Light Rail or Streetcar.
[7] The peak periods for the transit analysis are assumed to be 5-9 a.m. and 3-7 p.m. The agencies were King County Metro, Sound Transit, and SDOT.

Table 3. Transit Capacity

Type	Seated Capacity (per bus or rail car)	Load Factor[1]	Approximate Capacity *(Seated + Standing)* (passengers per bus or rail car)[2]
40-foot standard bus	35	1.25	45[5]
60-foot articulated	50	1.25	60[5]
Link light rail car	74	NA	200[1,3]
Streetcar	27	NA	140[1,4]

Source: King County Metro and Sound Transit (accessed 2021)
Note: NA means Not Applicable.
1. Based on coordination with King County Metro, Sound Transit, and SDOT, buses, light rail, and Streetcar typically accommodate additional standing passengers above what is seated. Metro provided a load factor and Sound Transit and SDOT provided a car capacity.
2. Assumes a portion of passengers will be accommodated through standing. Light rail and streetcar have a larger standing capacity than bus.
3. The number of light rail cars operating is assumed to be 3 cars for a total capacity of 600 passengers per trip.
4. As identified through coordination with SDOT, the streetcar can accommodate 27 seated passengers and 113 standing passengers.
5. Capacity's (*seated capacity* x *load factor*) were rounded to the nearest 5 passengers.

To understand how weekday transit capacity compares to transit demand, 7 screenlines were analyzed around SCC (see Figure 6 and Table 4). Screenlines are imaginary lines drawn across corridors to capture transit operations (capacity and demand) to and from the SCC.[8] Each screenline was evaluated by direction for the weekday AM and PM peak periods (5 to 9 a.m. and 3 to 7 p.m.). Based on coordination with SDOT, the bus transit, Link Light Rail, and streetcar were reviewed separately. Capacities identified in Table 3 for transit and frequency of service (trips per peak period) for the weekday AM and PM peak periods were used to determine transit capacities at each of the screenlines in aggregate. These are summarized in Table 4. The specific transit routes crossing each screenline were based on current transit service as noted in Table 4.

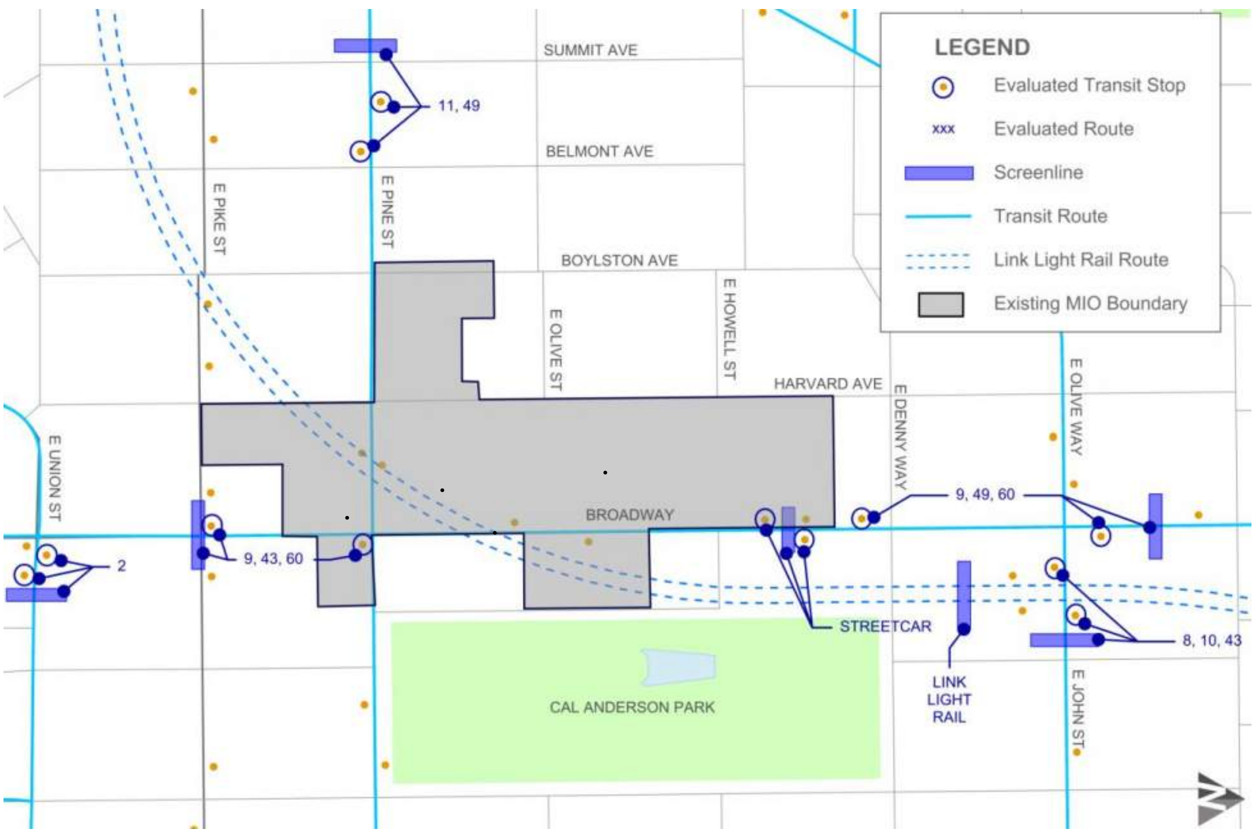


Figure 6. Transit Capacity Screenlines and Waiting Areas Reviewed

[8] Screenlines can be applied for other forms of transportation as well, such as private vehicles, trucks, or total traffic.

Table 4. Passenger Capacity at Screenlines

	Screenline/Location	Weekday Routes[1]	Direction of Travel	Peak Period Passenger Capacity: AM Peak Period	Peak Period Passenger Capacity: PM Peak Period
1	**E John Street** east of Broadway	8, 10, 43	EB	2,239	2,622
			WB	1,930	2,232
2	**Broadway** north of E Olive Way/E John Street	9, 49, 60	NB	2,056	2,232
			SB	1,619	2,293
3	**Broadway** south of E Pine Street	9, 43[2], 60	NB	1,395	1,012
			SB	704	1,142
4	**E Pine Street** west of Summit Avenue	11, 49	EB	1,531	1,924
			WB	1,575	1,924
5	**E Union Street** west of Broadway	2	EB	602	774
			WB	516	860
6	**First Hill Streetcar**	-	NB	2,660	2,660
			SB	2,520	2,660
7	**Link Light Rail** south of Capitol Hill Station	-	NB / SB	15,000	15,000

1. Assumes weekday peak period service and frequency as provided in the Fall 2019 service data from SDOT, King County Metro, and Sound Transit as well as the capacity's as noted in Table 3.
2. The Fall 2019 data included route 43 along Broadway and is assumed in the analysis. Route 43 continues to serve SCC but has been re-routed along E Olive Way and E John Street.

The bus stops with the greatest boardings in the vicinity of the project site were evaluated in terms of capacity to accommodate passengers waiting for transit. The waiting area (width and depth) was measured in the field. If a shelter is available, the shelter is the assumed width. If no shelter is present at the stop, the width is assumed to be 20 feet. The transit stops selected for evaluation are illustrated on Figure 6 and the stops and associated waiting areas are listed in Table 5.

Table 5. Transit Stop Waiting Areas

Corridor	Stop Location	Routes Served	Trip Direction/ Side of Street	Stop Waiting Area[1] (ft^2)
<u>Bus Route Stops</u>				
E John St	10th Ave E/ Broadway	8, 10, 43	WB / N Side	335
			EB / S Side	630
Broadway	E Denny Way/E Olive Way	9, 49, 60	NB / E Side	200
			SB / W Side	420
E Pine St	Broadway/Harvard Ave	11, 49	WB / N Side	415
			EB / S Side	475
E Union St	Broadway	2	WB / N Side	155
			EB / S Side	125

1. Area in square feet.

The waiting area analysis is based on *Transit Cooperative Research Program (TCRP) Report 165: Transit Capacity and Quality of Service Manual* (3rd Edition, 2013), which defines LOS for waiting areas for bus stops and station platforms. The LOS criteria for the waiting area are summarized in Table 6.

Table 6. LOS Criteria for Waiting Areas

LOS	Average Pedestrian Area (ft^2/p)[1]
A	≥ 13
B	10-13
C	7-10
D	3-7
E	2-3
F	< 2

Source: Transit Cooperative Research Program (TCRP) Report 165: Transit Capacity and Quality of Service Manual (3rd Edition, 2013). Exhibit 10-32.
1. Area (in square feet) per pedestrian.

The TCRP Report 165 identifies LOS A-D as typical for acceptable waiting area space and LOS E and F as crowded. The number of riders at a stop was based on boardings provided by the transit agencies and future projections consistent with the assumptions for the vehicle capacity analysis.

The total boardings (bus passengers waiting at the stop) during the 4-hour peak period is divided by the number of transit vehicle trips and then a factor is applied to represent a peak 15-minute condition, consistent with the pedestrian LOS analysis.[9]

The resulting waiting area LOS at the nearby transit stops is summarized in Table 12 in Chapter 2.

Traffic Volumes

Current traffic volumes were collected in December 2020 at all study intersections. Due to COVID conditions at that time, historic traffic counts were utilized at the study intersections when data was available. Adjustments were made to account for growth to represent 2021 traffic conditions.

Future traffic forecasts include background traffic growth and growth related to the campus. The background traffic growth is comprised of an annual background growth rate plus traffic generated from planned "pipeline" developments that would add traffic to the study area. An annual growth rate of 1 percent was applied to estimate future (2035) horizon year background traffic. The growth rate is consistent with other traffic analyses conducted for other projects in the site vicinity. Traffic from specific pipeline development projects in the vicinity were reviewed on the SDCI website and through coordination with City staff. The pipelines projects are listed in Appendix I.

For the Alternatives, traffic volume impacts were determined based on a review of that Alternative's percent increase in vehicle traffic at the study intersections.

Traffic Operations

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay. At side-street stop-controlled intersections, LOS is measured in average delay per vehicle and is reported for the worst operating movement of the intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Appendix G contains a detailed explanation of LOS criteria and definitions.

Signal timing and phasing information was obtained from SDOT. Weekday peak hour traffic operations were evaluated based on the procedures identified in the *Highway Capacity Manual* (HCM 6) and were

[9] For example, at the E John Street and 10th Avenue E westbound stop located on the north side of E John Street, there are 273 total pedestrians (i.e., ons/offs at the stop) during the AM peak period. The peak pedestrians at one time as shown in Table 12 is 42. To estimate this, the total pedestrians was divided by 13 (the total trips per route at the stop) and then a factor was applied to achieve the peak 15-minute pedestrians. 273/13*4*.5 = 42 peak pedestrians at one time at the stop. The detailed calculations are included in Appendix D.

evaluated using *Synchro 10*. *Synchro 10* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delay.

The City of Seattle's Comprehensive Plan does not define a LOS standard for individual intersections. The city generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations.

Traffic Safety

Recent collision records were reviewed within the study area to identify existing traffic safety issues at the study intersections. The most recent three-year summary of collision data from the Washington Department of Transportation (WSDOT) is for 2017-2019. SDOT defines High Collision Locations (HCL) as signalized intersections with 10 or more collisions in the previous year, unsignalized intersections with 5 or more collisions in the previous year, mid-block locations with 10 or more collisions in the previous year, and locations with 5 or more pedestrian or bicycle collisions in the last three years. Intersections designated as high accident locations are targeted for future safety improvements in an effort to reduce the occurrence of accidents.

Report Organization

The remainder of this report is organized into the following sections:

- **Chapter 2 Affected Environment** – This section documents the existing transportation conditions focusing on the transportation elements noted above.
- **Chapter 3 Impacts of No Action Alternative** – This chapter describes the No Action transportation conditions for the elements.
- **Chapter 4 Impacts of the Action Alternatives** – The impacts of the Action Alternatives on the transportation elements identified are described. Transportation impacts are identified through a comparison of Action Alternatives to the No Action Alternative.
- **Chapter 5 Mitigation** – This section describes the potential transportation mitigation measures to mitigate Alternative-related impacts.
- **Chapter 6 Secondary and Cumulative Impacts** – This chapter describes secondary and cumulative impacts that could occur with development of the MIMP.
- **Chapter 7 Significant and Unavoidable Adverse Impacts** – This section documents adverse transportation-related impacts that could not be fully mitigated with the MIMP Alternatives.

Chapter 2. Affected Environment

This section provides an overview of the existing conditions within the defined study area. The SCC existing trip generation is discussed first. The existing transportation system including street system, non-motorized transportation, transit service, traffic volumes, traffic operations, traffic safety and campus parking are also described.

Trip Generation

As noted previously, COVID-19 and campus operations during that time made it impossible to collect trip generation data at the time this study was conducted.

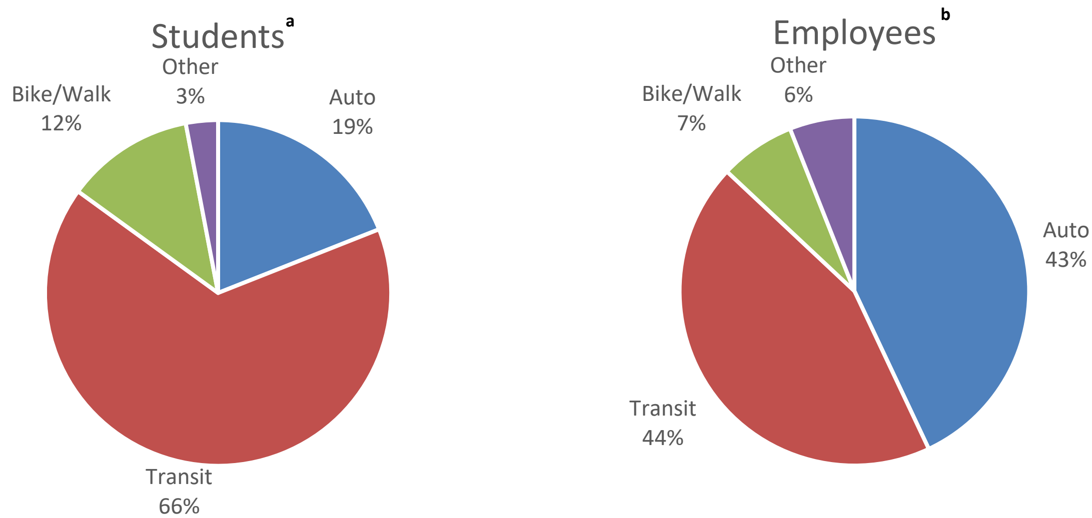
Therefore, there are two foundations of the existing trip generation related to determining campus population and travel modes. The first is the *Seattle Central College Site D and Campus Trip Generation and Parking* memorandum dated April 28, 2016 (herein referred to 2016 Campus Study), which used 2015 trip and parking data.[10] The data collected for the 2016 Campus Study includes parking inventory and occupancy counts at the existing on-site parking lots and garage, on-street parking counts, student and staff zip code data, and student and staff travel surveys. Data is inclusive of commuter-related trips (staff/faculty, students, and visitors), campus housing trips and deliveries.

The second is an adjustment to that 2015 trip generation to account for the later opening of the Capitol Hill Link Light Rail station. Opened in 2016, availability of light rail altered choice of travel mode for some SCC students and staff. Adjustments were made to the 2015 trip generation based on the *2019 Student Transportation Survey* conducted by SCC. Information from online-only students was not used. The resulting mode splits (choice of travel mode) for the campus formed the basis of existing conditions for the MIMP EIS Affected Environment.

There are currently approximately 950 employees and 6,750 full-time students. The student population includes residents using the 70 beds in existing campus housing. The applied trip generation methods account for absences for both students and staff. Not everyone is present on a given day. The adjusted daily population on site is approximately 830 total employees and 5,270 students (5,200 total commuting FTE students and 70 resident students). There would also be other visitors and deliveries on-campus that are captured in the trip generation. The details for commuter, residential and other trip generation are described below.

Commuter Trip Generation. The commuter weekday daily person trip generation is the combination of the commuting student and staff populations. Figure 7 shows trip percentages for different travel modes. These are shown separately for students and employees.

[10] Included in Appendix A.



a. The 2019 data is from the 2019 Student Transportation Survey conducted by Seattle Central College. The mode splits do not include online only students as the student enrollment numbers being used are for on-campus students only.

b. 2019 Seattle Central College Commute Trip Reduction Survey

Figure 7. Existing Commuter Mode Split

As shown on Figure 7, approximately two-thirds of student trips are via transit (inclusive of both bus, streetcar, and rail) with less than 20.0 percent of trips via auto. Employees trips by auto and transit are about equal.

The mode splits were used to determine commuter person trips by mode. Vehicle commuter person trips include all commuting trips that use campus parking such as student, staff/faculty, and visitors. It also includes those who use carpools and vanpools. The vehicular person trips are converted to vehicular trips assuming an average vehicle occupancy of 2.2.[11] The weekday AM and PM peak hour trips were estimated based on their percentage of daily trips from the 2016 Campus Study. The study showed 8.0 and 8.7 percent of the daily trips occurring during the weekday AM and PM peak hours, respectively.

Residential Trip Generation. Student housing for the campus currently includes 70 beds. The separate residential trip generation is estimated using rates identified in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 11th Edition (2021) for Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU #226). Residential trips are estimated based on a trip rate per bed. To capture the specific mode split characteristics anticipated for the students at SCC, the trip generation is estimated by first calculating the total person trips then applying the mode splits[12]. Once person trips by mode are determined then an average vehicle occupancy (AVO) specific to the students at SCC is applied to determine vehicle trips. The ITE person trip rate includes all trips associated with the campus housing inclusive of residents, visitors, and deliveries.

Others Trip Generation. In addition to the residential and commuter trips, trip generation for visitors and other deliveries to the campus is included to ensure all travel is captured. Note that this considers only other trips associated with the campus not associated with the student housing as all student housing related trips inclusive of visitors and deliveries are in the residential trip rate described above. The other trip generation was estimated to be 5 percent of the commuter trip generation.

The existing trip generation is summarized in Table 5. Detailed trip generation calculations are provided in Appendix C.

[11] This accounts for carpools and vanpools; that information came from the 2016 Campus Study.

[12] The mode splits for the residents were based on both the current commuter student's mode split data as well as the general residents within SCC's census tract with the vehicular mode split consistent with the commuters and the transit and non-motorized more similar to the census tract data. The resulting mode split assumptions include 19% auto, 28% transit, and 53% non-motorized. The detailed mode split assumptions are included in Appendix B.

Table 7. Existing Trip Generation Summary

Time Period	One-Way Person Trips				Vehicular Trip Rate[3]	Two-Way Vehicle Trips[4]		
	Vehicular[2]	Transit	Non-Motorized/ Other	Total		In	Out	Total
Commuter[1]								
Daily	1,343	3,796	889	**6,028**	*0.48 per commuter FTE student*	1,246	1,246	**2,492**
AM Peak Hour	107	303	71	**481**	*0.04 per commuter FTE student*	157	42	**199**
PM Peak Hour	117	330	77	**524**	*0.04 per commuter FTE student*	95	122	**217**
Residents								
Daily	19	28	53	**100**	*0.51 per bed*	18	18	**36**
AM Peak Hour	1	1	1	**3**	*0.02 per bed*	1	0	**1**
PM Peak Hour	1	3	5	**9**	*0.03 per bed*	2	0	**2**
Other[5]								
Daily	67	190	44	**301**	*0.024 per commuter FTE student*	62	62	**124**
AM Peak Hour	5	15	4	**24**	*0.002 per commuter FTE student*	8	2	**10**
PM Peak Hour	6	17	4	**27**	*0.002 per commuter FTE student*	5	6	**11**
Total								
Daily	1,429	4,014	986	**6,429**		1,326	1,326	**2,652**
AM Peak Hour	113	319	76	**508**		166	44	**210**
PM Peak Hour	124	350	86	**560**		102	128	**230**

Note: FTE = full-time equivalent.
1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy (AVO) of 2.2 is assumed for the carpool/vanpool to convert person trips to vehicular trips. An overall AVO rate of approximately 1.08 was estimated for the campus.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent. Note the existing analysis assumes a lower population level accounting for absences and not all staff working daily for a total of approximately 830 total employees and 5,270 students were assumed for the analysis with 5,200 total commuting FTE students and 70 residents.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus. Excludes residential visitors and deliveries that are captured in the residential trip rate.

As shown in the table, the campus currently generates 2,652 vehicles per day with 210 trips occurring during the weekday AM peak hour and 230 trips occurring during the weekday PM peak hour.

The residential trip rate is estimated to be greater than the commuter trip rate for daily and PM peak hours. Although there are fewer classes and campus activity during the PM peak hour, resident trips are slightly higher due to things like evening work trips and/or recreational activities off-campus. In addition, the residential trips include deliveries and associated service trips whereas the commuter trip rate does not.

Street System

SCC is in the Capitol Hill neighborhood of Seattle. The main part of the campus is bounded by E Denny Way, E Pike Street, Harvard Avenue, and Broadway. Some parts of campus fall directly outside of this, with the Student Union/Bookstore sitting directly across Broadway and the main parking garage across Harvard Avenue. Table 8 provides an inventory of the streets and their features which serve SCC. Broadway and E Pine Street (both minor arterials) serve as the primary routes to/from campus. Figure 4 on page 5 illustrates the campus site vicinity and shows that the existing street system is a well-connected, grid network providing access both locally and regionally.

Table 8. Roadway Network Existing Conditions Summary

Roadway	Roadway Classification	Speed Limit[1]	# Lanes	Pedestrian Facilities	Bicycle Facilities	Parking
Broadway	Minor Arterial/Major Transit Route	25	2	Yes	Protected Bike Lane/Sharrow	Yes[2]
E Denny Way	Minor Arterial	25	2	Yes	None	Yes[3]
E Howell Street	Local Street	25	2	Yes	None	No
E Olive Street	Local Street	25	2	Yes	None	Yes[2]
E Pine Street	Minor Arterial/Major Transit Route	25	2	Yes	Bike Lane	Yes[2]
E Pike Street	Minor Arterial/Minor Transit Route	25	2	Yes	Bike Lane	Yes
Harvard Avenue	Local Street	25	2	Yes	None	Yes[3]
Boylston Avenue	Local Street	25	2	Yes	None	Yes[3]

1. City of Seattle Speed Limit Map https://www.seattle.gov/transportation/projects-and-programs/safety-first/vision-zero/speedlimits (December 2020)
2. Parking is allowed on both sides in intermittent locations.
3. Parking is allowed on one side of the roadway.

Non-Motorized Transportation

The pedestrian and bicycle facilities surrounding SCC and connectivity to the neighborhood are described in this section. Note that, in recent years, the use of e-bikes and e-scooters has increased. These may replace some pedestrian or regular bike trips.

Pedestrian

Extensive pedestrian facilities are provided in the project vicinity of SCC. There is a large and connected sidewalk network and marked and/or signalized crossings at all intersections along E Pine Street, E Pike Street, and Broadway.

Pedestrian LOS was calculated to provide a basis for assessing current sidewalk adequacy during the weekday AM and PM peak hours. The capacity of the sidewalks is typically evaluated based on the average flow rates for pedestrians and the minimum sidewalk width along a given sidewalk segment. The pedestrian volumes and LOS analysis is shown in Table 9. The detailed pedestrian LOS calculations are provided in Appendix D. As shown in Table 9, the pedestrian flow rate is classified as free flow along each segment during the weekday peak hours. This means that pedestrians have ample space to walk at preferred speeds and along segments without experiencing inconveniences due to lack of capacity.

Additionally, an evaluation of mid-block pedestrian connectivity between the campus and adjacent Cal Anderson Park located east of Nagle Place south of E Howell Street was conducted as requested by SDOT staff. This was done to determine whether pedestrian signal warrants would be met. A review of the existing pedestrian volumes per the pedestrian crossing enhancement warrant in NCHRP Report 562 showed that the minimum pedestrian volumes are currently not met (less than 20 peak hour pedestrians). The detailed pedestrian crossing enhancement warrant is included in Appendix D.

Table 9. Existing Pedestrian Average Flow Rate Level of Service

Corridor	Segment	Side of Street	Effective Width[1] (feet)	Weekday AM Peak Hour				Weekday PM Peak Hour			
				Peak Hour Ped Volume[2]	Average Ped. Flow[3]	Ped. Flow LOS	Ped. Flow Class[4]	Peak Hour Ped Volume	Average Ped. Flow	Ped. Flow LOS	Ped. Flow Class
Broadway	E Denny Way to E Howell St	E	4.0	408	1.7	Free Flow	A	464	1.9	Free Flow	A
		W	3.5	408	1.9	Free Flow	A	728	3.5	Free Flow	A
	E Howell St to Mid-block Crosswalk (E Olive St)	E	4.0	146	0.6	Free Flow	A	406	1.7	Free Flow	A
		W	12.0	128	0.2	Free Flow	A	98	0.1	Free Flow	A
	Mid-block Crosswalk (E Olive St) to E Pine St	E	5.0	253	0.8	Free Flow	A	568	1.9	Free Flow	A
		W	15.0	331	0.4	Free Flow	A	668	0.7	Free Flow	A
	E Pine St to E Pike St	E	8.5	279	0.5	Free Flow	A	568	1.1	Free Flow	A
		W	6.0	486	1.4	Free Flow	A	668	1.9	Free Flow	A
E Pine St	Broadway to Harvard Ave	N	5.5	331	1.0	Free Flow	A	668	2.0	Free Flow	A
		S	3.0	331	1.8	Free Flow	A	668	3.7	Free Flow	A
	Harvard Ave to Boylston Ave	N	6.0	298	0.8	Free Flow	A	620	1.7	Free Flow	A
		S	2.0	188	1.6	Free Flow	A	452	3.8	Free Flow	A

Note: Ped. = Pedestrian
1. As defined in HCM 2010 (TRB), "Effective walkway width is the portion of the walkway that can be used effectively by pedestrians. This was calculated per Exhibits 23-10 and 23-11.
2. Reflecting an adjustment factor such that half of the hourly pedestrian volumes are assumed to occur during a single 15-minute period.
3. Average pedestrian flow measured in people per foot of sidewalk width per minute (p/ft/min).
4. Pedestrian flow classification based on average pedestrian flow rate.

Bicycle

The bicycle system surrounding the campus is well connected. Protected bicycle lanes and sharrows connect the campus with the surrounding neighborhood land uses as well as Downtown. There are north-south and east-west bicycle facilities within the study area, including:

- Broadway – Protected bicycles lanes are provided along the east side of Broadway, south of E Denny Street. North of E Denny Street, sharrows are provided.
- Pine Street – Bicycles lanes exist along both the north and south sides of the street.
- Pike Street – Protected bicycles lanes are provided along Pike Street west of Broadway, connecting to downtown Seattle.

Transit Service

Seattle Central College is well served by transit. King County Metro, SDOT, and Sound Transit all have service in the campus area. Table 10 summarizes the transit service including 8 bus routes (2, 8, 9, 10, 11, 43, 49, and 60), Link Light Rail, and the First Hill Streetcar serving campus. The nearest stops to campus are provided along E Pine Street, Broadway, and E John Street. Transit routes and stops are illustrated on Figure 8.

Table 10. Summary of Existing Transit Service

Transit Service	Agency	Approximate Hours of Operation[1]	Weekday Peak Hour Headway (Minutes)
Bus Routes			
2 (Seattle Pacific to Downtown Seattle to Madrona Park)	King County Metro	Mon – Fri: 5 a.m. to 12:50 a.m. Sat: 6:00 a.m. to 12:50 a.m.	10-15
8 (Seattle Center to Capitol Hill to Mt Baker TC)	King County Metro	Mon – Fri: 5:10 a.m. to 12:55 a.m. Sat/Sun: 6:00 p.m. to 1:00 a.m.	10-15
9 (Capitol Hill to Rainier Beach)	King County Metro	Mon – Fri: 7:45 to 9:45 a.m. (NB) 3:30 to 5:30 p.m. (SB)	30
10 (Capitol Hill to Downtown Seattle)	King County Metro	Mon – Fri: 5:10 a.m. to 1:15 a.m. Sat/Sun: 6:00 a.m. to 1:25 a.m.	10-15
11 (Madison Park to Capitol Hill to Downtown Seattle)	King County Metro	Mon – Fri: 4:45 a.m. to 1:15 a.m. Sat/Sun: 6:10 a.m. to 1:10 a.m.	15
43 (University District to Montlake to Capitol Hill to Downtown Seattle)	King County Metro	Mon – Fri: 5:10 a.m. to 7:00 p.m. Sat/Sun: 4:50 a.m. to 9:00 a.m. to University District Mon – Fri: 7:00 a.m. to 1:15 p.m. Sat/Sun: 7:00 p.m. to 1:30 a.m. to Downtown Seattle	20-40
49 (University District to Broadway to Downtown Seattle)	King County Metro	Mon – Fri: 4:30 a.m. to 4:30 a.m. Sat/Sun: 5:30 a.m. to 4:30 a.m.	10-15
60 (Westwood Village to Georgetown to Beacon Hill to Broadway)	King County Metro	Mon – Fri: 5:40 a.m. to 12:15 a.m. Sat/Sun: 6:10 a.m. to 12 a.m.	10-15
Link Light Rail (UW/Husky Stadium to Angle Lake)[2]	Sound Transit	Mon – Sat: 5 a.m. to 12:40 a.m. Sun: 6 a.m. to 11:40 p.m.	7-8
First Hill Streetcar Capitol Hill to First Hill to ID to Pioneer Square	SDOT	Mon – Sat: 5 a.m. to 1 a.m. Sunday: 10 a.m. to 8 p.m.	12

Note: NB = northbound, SB = southbound
1. Schedule based on King County Metro accessed December 2020, Sound Transit and SDOT accessed April 2021.
2. The end of the line is no longer UW/Husky Stadium, Northgate opened in October 2021.

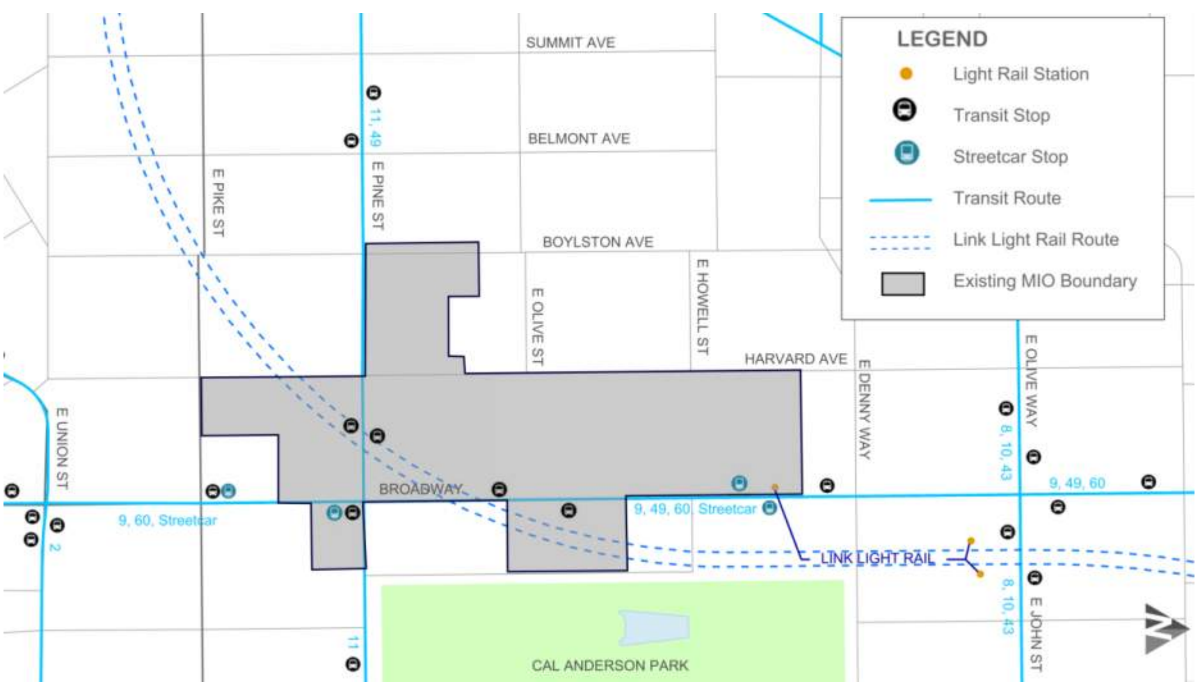


Figure 8. Existing Transit Routes and Stops

Transit Vehicle Capacity

The transit capacity for service to and from the campus is completed for the screenlines identified above (see Figure 6 on page 9). The total available capacity and ridership at the screenlines is summarized in Table 11 for the weekday peak periods. The detailed calculations are included in Appendix E.

Table 11. Existing Vehicle Capacity Analysis

				AM Peak Period			PM Peak Period		
	Screenline/Location	Weekday Routes	Direction of Travel	Capacity[1]	Ridership[1]	Utilization	Capacity[1]	Ridership[1]	Utilization
1	**E John Street** east of Broadway	8, 10, 43	EB	2,239	481	21%	2,622	1,386	53%
			WB	1,930	863	45%	2,232	656	29%
2	**Broadway** north of E Olive Way/E John Street	9, 49, 60	NB	1,748	192	11%	1,968	588	30%
			SB	1,443	396	27%	1,985	532	27%
3	**Broadway** south of E Pine Street	9, 43[2], 60	NB	1,087	98	9%	748	153	20%
			SB	528	132	25%	790	172	22%
4	**E Pine Street** west of Summit Avenue	11, 49	EB	1,531	348	23%	1,924	1,104	57%
			WB	1,575	630	40%	1,924	620	32%
5	**E Union Street** west of Broadway	2	EB	602	406	67%	774	306	40%
			WB	516	96	19%	860	520	60%
6	**First Hill Streetcar** at SCC	-	NB	2,660	399	15%	2,660	456	17%
			SB	2,520	162	6%	2,660	361	14%
7	**Link Light Rail** at Capitol Hill Station	-	NB / SB	15,000	4,860	32%	15,000	5,380	36%

1. Based on bus frequencies and ridership data provided by the respective agencies for Fall 2019 as well as the assumed capacity as shown in Table 3.
2. The Fall 2019 data included route 43 along Broadway and is assumed in the analysis. Route 43 continues to serve SCC but has been re-routed along E Olive Way and E John Street.

As shown in the table, the buses and streetcar operating around campus are used at 6 to 67 percent and the Link light rail has more than is used at about 40 percent of capacity. All the routes serving the campus have some level of remaining capacity to accommodate additional riders during the weekday peak periods.

Stop Capacity

The waiting area LOS at the nearby transit stops as defined above (see Figure 6 on page 9) is summarized in Table 12.

Table 12. Weekday Transit Stop Waiting Area LOS Analysis

Transit Stop	Stop Location	Routes Served	Trip Direction/ Side of Street	Stop Waiting Area (ft^2)	AM Peak Period: Peak Riders at Stop	AM Peak Period: Average Rider Area[1] (ft^2/p)	AM Peak Period: LOS[2]	PM Peak Period: Peak Rider at Stop	PM Peak Period: Average Rider Area (ft^2/p)	PM Peak Period: LOS
Bus Route Stops										
E John St	10th Ave E/ Broadway E	8, 10, 43	WB / N Side	335	14	23.9	A	20	16.8	A
			EB / S Side	630	24	26.3	A	50	12.6	B
Broadway	E Denny Way	9, 49, 60	NB / E Side	200	9	22.2	A	17	11.8	B
			SB / W Side	420	11	38.2	A	11	38.2	A
E Pine St	Broadway/ Harvard Ave	11, 49	WB / N Side	415	8	51.9	A	18	23.1	A
			EB / S Side	475	8	59.4	A	23	20.7	A
E Union St	Broadway	2	WB / N Side	155	2	77.5	A	8	19.4	A
			EB / S Side	125	4	31.3	A	8	15.6	A

1. Area (in square feet) per pedestrian.
2. LOS as defined in *Transit Cooperative Research Program (TCRP) Report 165: Transit Capacity and Quality of Service Manual* (3rd Edition, 2013). Exhibit 10-32.

As shown in Table 12, the transit stops surrounding the campus currently have pedestrian waiting areas with LOS A in the AM peak period and LOS B or better in the PM peak period such that riders have ample space while waiting at stops.

Traffic Volumes

The following describes traffic volumes at the off-site study intersections and at the campus parking accesses.

Off-Site Study Intersections

Existing traffic volumes were collected in December 2020 at all study intersections. However, due to the effects of COVID-19 on traffic volumes historical traffic counts are utilized at the study intersections where data was available. Table 13 summaries the available traffic counts at the study intersections.

Table 13. Traffic Count Availability

Intersection	AM Peak Hour	PM Peak Hour
1. Broadway/E Denny Way	2011	2018
2. Broadway/E Howell Street	2017	2018
3. Boylston Avenue/E Olive Street	2020	2020
4. Harvard Avenue/E Olive Street	2020	2020
5. Boylston Avenue/E Pine Street	2012	2012
6. Harvard Avenue/E Pine Street	2020	2012
7. Broadway/E Pine Street	2020	2018
8. Broadway/E Pike Street	2020	2012

Historical Counts to Existing Conditions

Based on a review of historical growth, an annual growth rate of 1 percent was applied to the counts collected prior to 2020 to forecast existing (2021) volumes. The historical review looked at intersections where data had been collected during 2 different years. Two sets of count data were available at the E Denny Way, E Howell Street, E Pine Street, and E John Street/E Olive Street intersections along Broadway. These were collected at various years between 2011 and 2019, during the weekday PM peak hour. The counts showed a negative growth in traffic for all intersections (i.e., a reduction in total entering vehicles in the more recent count relative to an earlier count date).

To be conservative, a 1 percent positive annual growth was assumed as a conservative estimate, despite no observed growth in historical counts and addition of specific traffic from one pipeline development[13]. Traffic volumes were balanced between study intersections to smooth out differences from one intersection to the next. That is usual, since traffic count data were collected in different years from intersection to intersection.

Calibrated 2020 Counts (No historical counts available)

At the intersections where historical traffic counts are unavailable, an adjustment factor is applied to the 2020 counts to calibrate the counts to non-COVID conditions. The calibration is done by comparing the change in volumes between intersections with both past count and 2020 count data. Balancing between intersections is performed to ensure the volumes are reasonable.

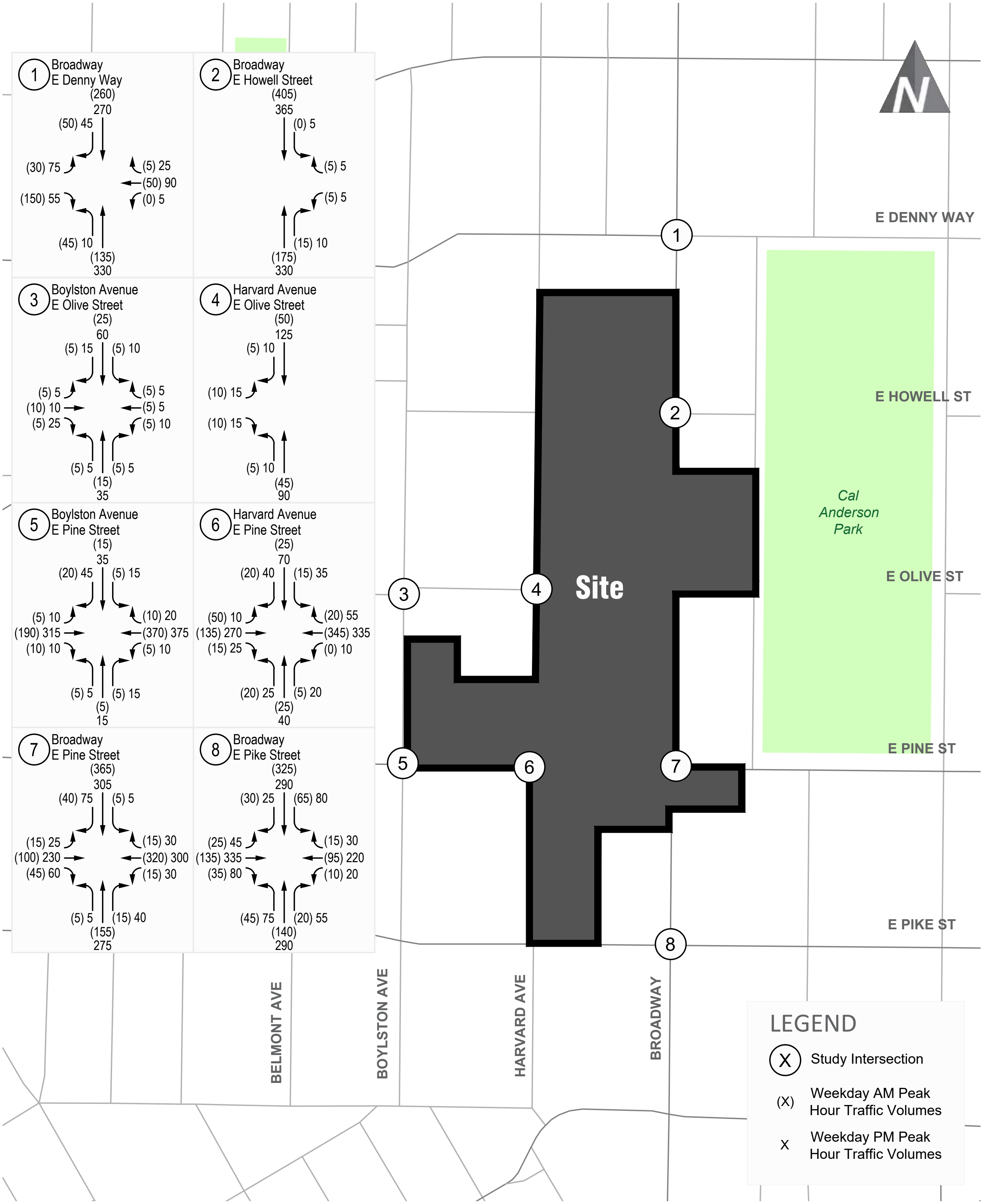
The estimated existing (2021) weekday AM and PM peak hour traffic volumes are shown on Figure 9. The traffic volumes are rounded to the nearest five vehicles to account for daily fluctuations. The detailed weekday peak period traffic counts are included in Appendix F.

Campus Parking Access

The traffic volumes at the parking access points were estimated based on the vehicle trip generation described at the beginning of this chapter[14]. The vehicle trips were proportionately assigned based on the locations of the on-site parking facilities and parking supply. The estimated peak hour traffic volumes at the driveways are shown on Figure 10.

[13] 1525 11th Avenue. Identified by the City to be completed; however, unoccupied at time of counts. See Appendix I.

[14] Normally, entering and exiting traffic volumes would have been directly counted. But because of the conditions and operations at SCC during COVID, this was not possible.

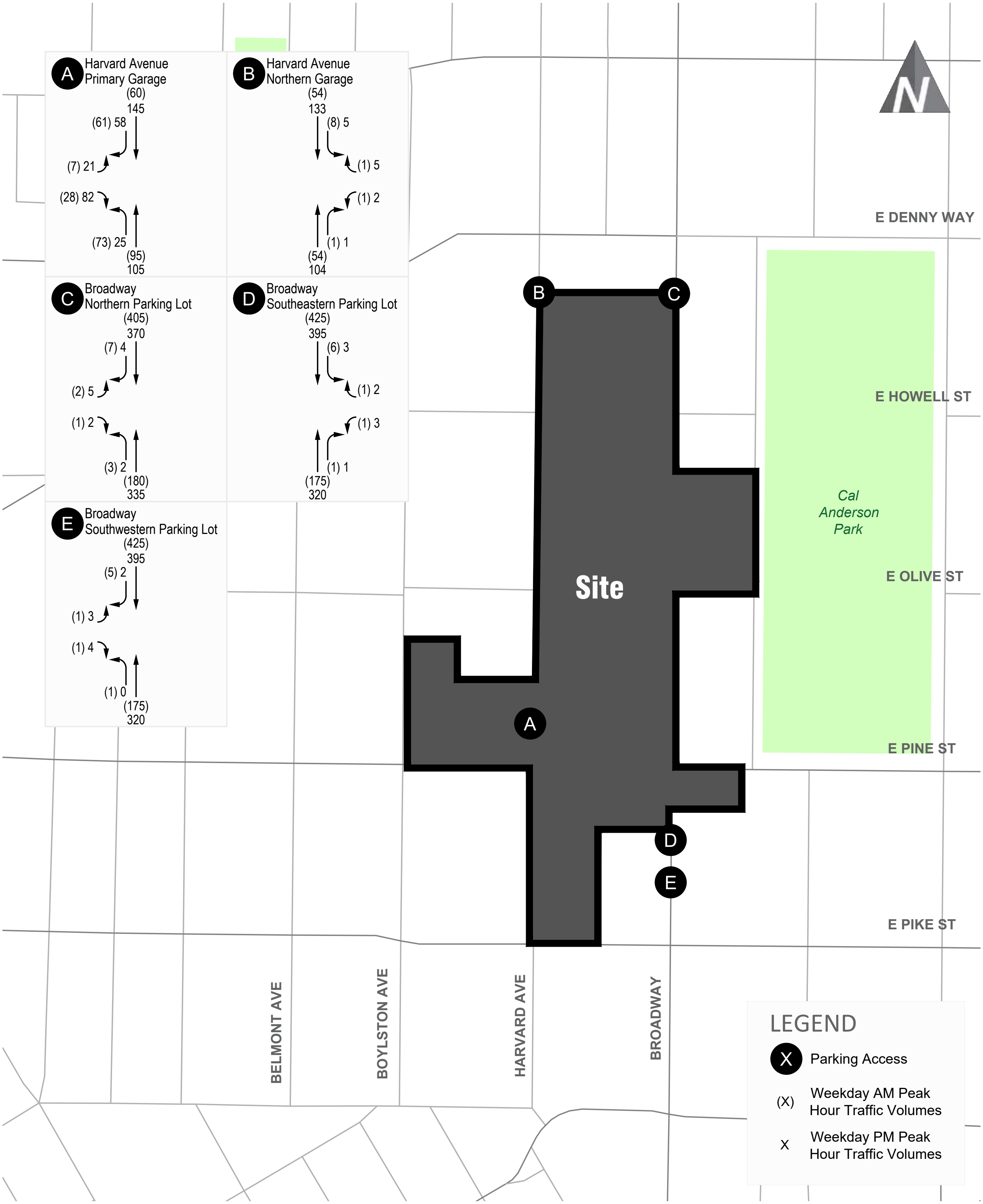


Existing Weekday Peak Hour Traffic Volumes at Off-Site Study Intersections

FIGURE 9

Seattle Central College MIMP

transpogroup



Existing Weekday Peak Hour Traffic Volumes at Parking Accesses

Seattle Central College MIMP

FIGURE **10**

transpogroup

Feb 14, 2024 - 2:00pm lilyh M:\19\1.19203.00 - Seattle Central College MIMP\Graphics\DWG\SCC_Graphics.dwg Layout: Existing Vol - Driveway

Traffic Operations

Weekday peak hour traffic operations for existing conditions were evaluated at the study intersections as well as the existing parking lot access points. Results for the existing operations analyses are summarized in Table 14. Detailed LOS worksheets for each intersection analysis are included in Appendix H. As noted in the Chapter 1 methods discussion, the city generally recognizes LOS E and F as poor operations for signalized locations and LOS F for unsignalized locations.

Table 14. Existing Peak Hour LOS Summary

Intersection	Traffic Control	Weekday AM Peak Hour			Weekday PM Peak Hour		
		LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM
1. Broadway/E Denny Way[4]	Signalized	B	15	-	B	19	-
2. Broadway/E Howell Street[4]	Signalized	A	7	-	B	15	-
3. Boylston Avenue/E Olive Street	TWSC	B	13	EB	C	20	WB
4. Harvard Avenue/E Olive Street	TWSC	B	12	EB	B	14	EB
5. Boylston Avenue/E Pine Street	TWSC	D	32	SB	**F**	**>120**	**SB**
6. Harvard Avenue/E Pine Street	Signalized	A	6	-	B	12	-
7. Broadway/E Pine Street[4]	Signalized	C	22	-	C	25	-
8. Broadway/E Pike Street[4]	Signalized	C	27	-	D	44	-
A. Harvard Avenue/Garage at Pine St	TWSC	B	11	EB	C	18	EB
B. Harvard Avenue/Garage at Howell St	TWSC	A	9	WB	A	9	WB
C. Broadway/Parking Lot at Howell St	TWSC	B	14	EB	**F**	**61**	**EB**
D. Broadway/Parking Lot SE of Pine St	TWSC	B	14	WB	D	25	WB
E. Broadway/Parking Lot SW of Pine St	TWSC	C	24	EB	D	27	EB

Note: TWSC = Two-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (HCM) 6th Edition (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to the streetcar phase.

Table 14 shows the off-site study intersections and parking access points currently operate acceptably at LOS D or better during the weekday AM peak hour. During the weekday PM peak hour, the off-site study intersections and parking accesses all operate acceptably at LOS D or better with two exceptions:

- **Boylston Avenue/E Pine Street** – The southbound approach of this two-way stop controlled (TWSC) intersection currently operates at LOS F. The southbound approach of this intersection is a two-lane roadway that currently allows for parking along the west side of the street. The poor operation is due to the southbound through and left-turn movements (50 total vehicles) conflicting with a considerable number of pedestrians (over 300 pedestrians) observed crossing the northern leg of the intersection during the weekday PM peak hour. Without the conflicting pedestrian movements all vehicular movements at the intersection would operate at LOS C or better.
- **Broadway/Parking Lot at Howell Street** – The eastbound approach of the parking access along Broadway currently operates at LOS F with approximately 61 seconds of delay and 95th percentile queueing of 1 vehicle. Few cars leave the parking during the PM peak hour (7 vehicles). The high number of pedestrians crossing the access driveway means drivers must wait, which results in longer delays.

Traffic Safety

Collision records within the study area were reviewed to identify traffic safety issues at the study intersections and roadways. The period reviewed reflects the pre-pandemic three-year (2017-2019) summary of collision data from the Washington Department of Transportation (WSDOT). This data is reflective of the most recent conditions at the time the existing conditions review was conducted. Collision data were evaluated for individual intersections, as well as for roadway segments along Broadway, Harvard Avenue, Boylston Avenue, E Olive Street and E Pine Street corridors. The collisions are summarized in Table 15.

Table 15. Collision Summary (2017-2019)

Location	Traffic Control	Collisions per Year			Total	Annual Average	Total Collisions Involving Pedestrian/ Bicyclist 2017-2019
		2017	2018	2019			
Intersection							
1. Broadway/E Denny Way	Signalized	2	2	1	5	1.7	1
2. Broadway/E Howell Street	Signalized	1	1	0	2	0.7	0
3. Boylston Avenue/E Olive Street	TWSC	0	0	1	1	0.3	0
4. Harvard Avenue/E Olive Street	TWSC	3	0	2	5	1.7	2
5. Boylston Avenue/E Pine Street	TWSC	1	1	3	5	1.7	2
6. Harvard Avenue/E Pine Street	Signalized	0	3	1	4	1.3	3
7. Broadway/E Pine Street	Signalized	4	6	2	12	4.0	6
8. Broadway/E Pike Street	Signalized	9	4	5	18	6.0	6
Roadway Segment							
Broadway (E Denny Way to E Howell Street)		*1*	*0*	*0*	*1*	*0.3*	*0*
Broadway (E Howell Street to E Pine Street)		*3*	*0*	*6*	*9*	*3.0*	*2*
Broadway (E Pine Street to E Pine Street)		*1*	*1*	*3*	*5*	*1.7*	*3*
Harvard Avenue (E Olive Street to E Pine Street)		*0*	*0*	*0*	*0*	*0.0*	*0*
Boylston Avenue (E Olive Street to E Pine Street)		*0*	*0*	*1*	*1*	*0.3*	*0*
E Olive Street (Boylston Avenue to Harvard Avenue)		*0*	*0*	*1*	*1*	*0.3*	*0*
E Pine Street (Boylston Avenue to Harvard Avenue)		*1*	*2*	*1*	*4*	*1.3*	*1*
E Pine Street (Harvard Avenue to Broadway)		*1*	*0*	*0*	*1*	*0.3*	*0*

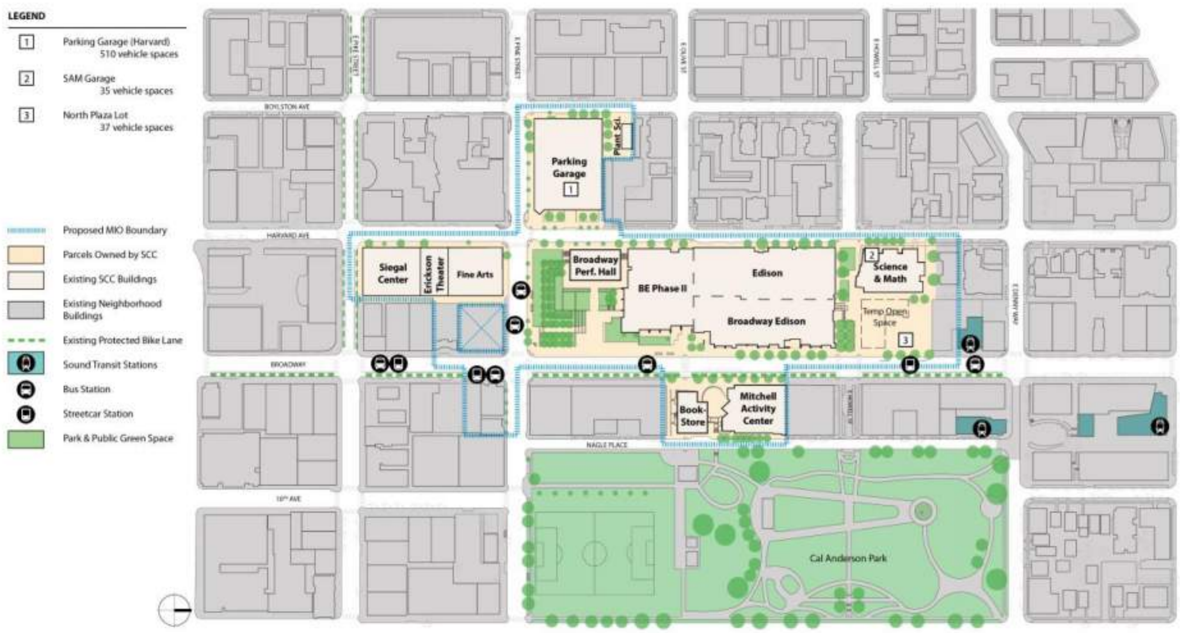
Source: WSDOT 2020
Note: Shading indicates intersection meets SDOT's High Collision Locations (HCL) criteria.
2020 is not included as it did not represent typical traffic conditions.

The City of Seattle/SDOT defines location with 6 or more collisions involving pedestrians or bicyclists as a High Collision Location (HCL). There were no roadway segments that meet the pedestrian/bicycle HCL. However, two intersections do: Broadway/E Pine Street and Broadway/E Pike Street. The City is aware of the issue. The *Pike Street Mobility Improvements* Project (2019) addressed pedestrian and bicycle safety on Pike. This improvement project reconfigured Pike Street with a general travel lane in each direction, in-street protected bike lanes, removal of parking, and reconfigured load zones.

Most other collisions in the study area resulted in property damage (approximately 73 percent) with the most common collision types being related to vehicles turning.

Parking

The SCC campus has 608 spaces, located in 2 parking garages (accessed via Harvard Avenue) and one surface lot (accessed via Broadway). The locations are shown on Figure 11. The on-campus supply accommodates both short- and long-term parking.



Source: Starling Whitehead & Lux Architects, March 2024

Figure 11. Existing Campus Parking Facilities Location

Loading

Loading activities associated with service, deliveries and garbage are centralized for the existing campus operations at the Edison Building near the intersection of Harvard Avenue and E Olive Street. There are four off-street loading berths at the Edison Building. In addition, there are commercial load zones along Harvard Avenue. Short-term visitor/deliveries parking is also accommodated within the on-campus parking supply.

Transportation Management Program

SCC implements a Transportation Management Program (TMP) to reduce overall reliance on single occupancy vehicles (SOV) for students and staff. The current MIMP specifies no greater than 50 percent SOV for all students, staff, and faculty. SCC is also subject to the city Commute Trip Reduction (CTR) requirements. The city also sets drive alone (DAR) targets. [15]

The current DAR targets were established with the *2019-2023 CTR Strategic Plan*, which was adopted by the City Council on July 30, 2019. The CTR/DAR targets for the future are set to achieve Seattle's overall mode split goal of 25.0 percent. That goal was established in the *Seattle 2035 Comprehensive Plan*. In the *Strategic Plan,* the city is divided into geographic areas. Each area of the city is assigned a target for all CTR-affected employers to achieve. SCC is in the Capitol Hill, Pike/Pine, and First Hill area, which has established DAR targets of 41.6 percent by 2023/2024 and 38.9 percent by 2035/2036.

[15] The DAR targets apply to CTR affected employees (those arriving between 6:00 and 9:00 a.m.), but not to students or non-CTR affected employees.

Based on the most recent 2019 surveys (pre-COVID), the SOV for SCC is 34.0 percent for employees and 17.0 percent for students. The total campus SOV is 19.0 percent considering both the employee and student population together. The current SCC campus SOV is less than the MIMP goal of 50.0 percent, as well as the CTR target of 25.0 percent. Table 16 provides a summary of the current TMP program for SCC including programs applicable to the student and employee populations.

Table 16. Existing SCC Transportation Management Program

	Applicable Campus Population Group	
TMP Element[1]	**Students**	**Employees**
Transportation Coordinator	Transportation coordinator (TC) will be appointed to implement the TMP. The TC will be available to employees and students during regular business hours to promote the TMP and stock the Commuter Information Centers.	
Periodic Promotional Events	TC coordinates promotional events in conjunction with other transportation agencies.	
Commuter Information Centers	A commuter information center (CIC), including ridesharing and transit information, will be in a convenient location for students and employees. Bicycle and pedestrian information also will be included in the CICs.	
On-Line Program Information	TMP program information for students, staff/employees, and visitors including transit service and subsidy information, parking rates and rideshare discounts, ride match assistance program information, guaranteed ride home information and information on other TMP program elements will be available on the SCC internet website.	
Transit & Ferry Pass Subsidy	An ORCA card is available to eligible students and employees at a subsidized rate. The ORCA card can be used for transit and ferry.	
Other Ferry Incentive	Not applicable	Employees who ride the Washington State ferries as a walk-on passenger, bike rider, or a passenger in either a carpool or vanpool and do not receive a subsidized OCRA card are eligible to receive up to $58 per month of subsidy on their ferry pass. The public transit subsidy benefit is available to permanent employees only who participate in the TMP program
Walkers & Bike Riders Benefit	Not applicable.	All permanent employee walkers and bike riders are eligible to participate in the TMP program ($10 quarterly fee). The College may provide bike lockers to permanent employee bike riders participating in the TMP ($10 fee). The college offers shower facilities in the Student Activity Center for employee bike riders, during operating hours.
Carpool Benefits	A minimum of two currently enrolled Seattle Central students are required to qualify for discount carpool parking permits.	Discounted parking permit. Each carpool requires a minimum of two people, commuting together for at least 50 percent of the carpool's longest individual commute distance. Members of the carpool must be carpooling to Seattle Central campus or the surrounding vicinity at least four (4) days per week.
Vanpools	Not applicable.	If a Central permanent employee is the driver of the vanpool, that employee may receive the discounted parking rate for "Carpool" driver. All campus carpool rules and regulations will apply for vanpool parking. Permanent employees who participate in the TMP program, who are not the Vanpool driver, are eligible to receive up to $58 of subsidy per month for vanpool fare.
Parking Permits	Parking permits are available for all-day or nighttime use for a fee.	Parking permits are available for a quarterly fee.
Reserved Paid Parking	Not applicable.	Reserved parking is limited and charged at a higher fee for non-carpool.

TMP Element[1]	Applicable Campus Population Group: Students	Applicable Campus Population Group: Employees
Bicycle Parking and Amenities	Bicycle Parking is located throughout campus including: • Harvard Parking Garage: (3rd level main entrance southeast corner) • Science & Math Building Garage: (Harvard side) • Broadway Edison Building: (south and east entrances) • Mitchell Activities Center: (near entrance on Broadway side) Bicycle Fixit Station: Located at Mitchell Activity Center. Bicycle Lockers: Secure bike lockers are provided on a space available basis to employees who join the TMP Program.	
Motorcycle Parking	There is no charge for motorcycle parking in the Harvard garage; no public or overnight parking of motorcycles is permitted.	
Home Free Guarantee	Not applicable.	Seattle Central will pay for taxicab home (or to a daycare address), for up to 60 miles one-way trip. Home Free Guarantee is provided up to two (2) times per quarter. The Home Free Guarantee benefit is only available to permanent employees participating in the TMP program.
Car-Share Programs	Not applicable.	Permanent employees, participating in the TMP program as non-driving employees, are eligible for the Zipcar benefit. Seattle Central College pays for the cost of membership and the use of the Zipcar. Zipcar is available between 7:30 AM and 5:30 PM, Monday through Friday, for up to six (6) hours per day.
Flextime / Compressed Work Week	Not applicable.	During the summer months, employees work a compressed schedule of 4 nine-hour shifts and 1 four-hour shift on Fridays. Individual departments may decide to put specific staff on compressed schedules throughout the academic year. Individual departments may also offer Flex-time schedules.
Telecommute and Distance Learning	Not applicable.	A telecommuting arrangement can be initiated upon the employee's request. Telecommuting is limited to a maximum of three days per week.
Monitoring	Conduct surveys every year to understand student travel.	Conduct CTR surveys every two years

1. Current elements included in the Seattle Central College TMP by population group.

Chapter 3. Impacts of the No Action Alternative

This chapter describes the future transportation conditions for the 2035 horizon year considering the No Action Alternative. The No Action Alternative is the metric against which the Action Alternatives impacts are measured.

The No Action Alternative reflects the same infrastructure relative to existing including the location and quantity of parking. However, the campus population is anticipated to increase. Typically, community college student population numbers are driven by the surrounding communities and not related to specific school programs. In Washington, the State Board of Community and Technical Colleges forecasts future student and employee populations for each school under its jurisdiction.

The campus population would increase to a total of 7,500 FTE students on campus and 1,000 employees. In the No Action Alternative, on-campus student housing would be limited to the current 70 beds.

Trip Generation

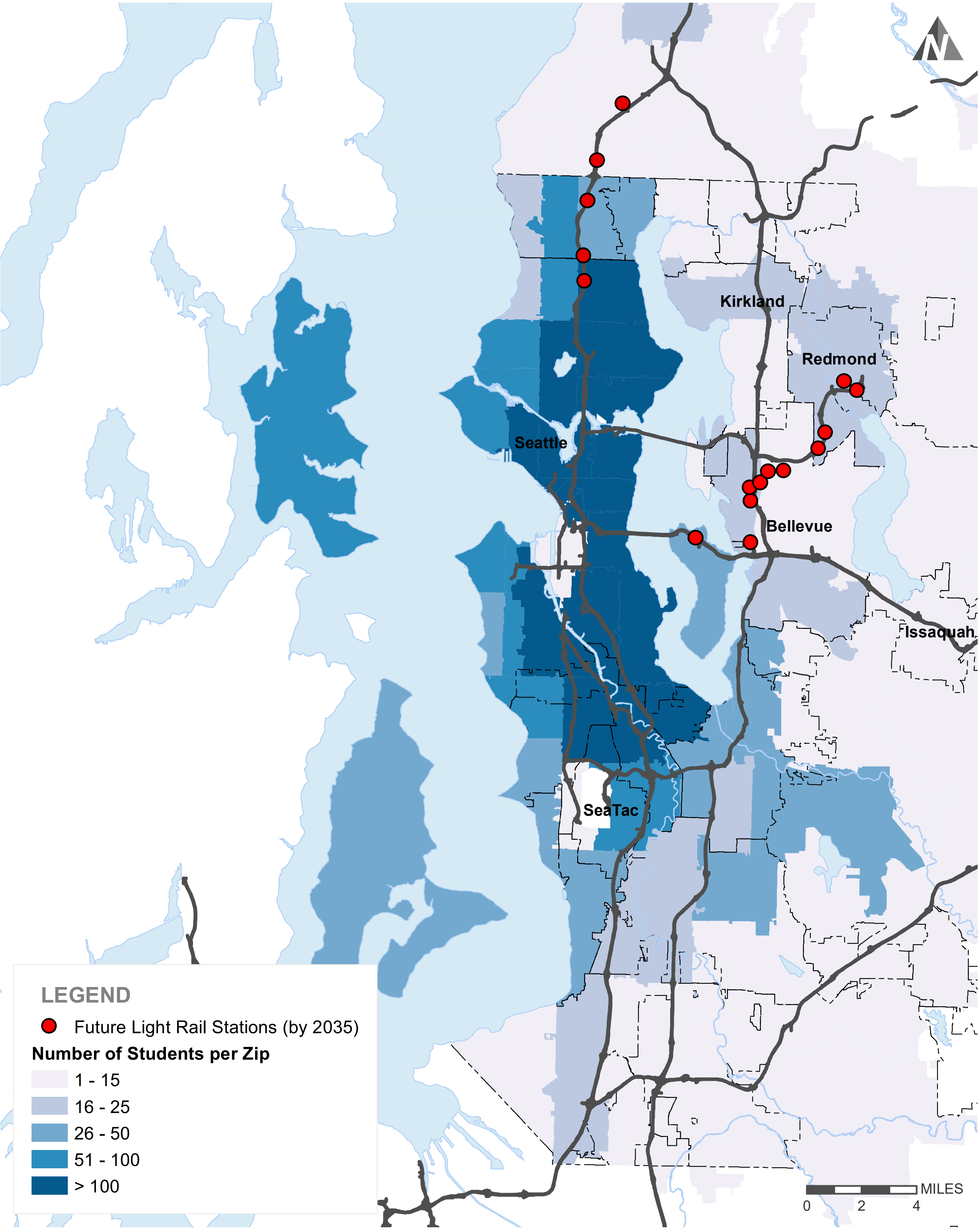
The methodology used to estimate the SCC trip generation for the No Action trip generation forecasts were done consistent with the existing conditions methodology. The two changes are with the campus population and mode split. The campus population would increase to a total of 7,500 FTE students on campus and 1,000 employees. The on-campus student housing would include 70 beds consistent with existing conditions.

Figure 7 illustrated the existing 2019 mode splits for commuting employees and students. For the No Action Alternative, the existing mode splits were adjusted to account for key transit expansion projects planned in the vicinity and expected to be operational by 2035. This is discussed in greater detail in a following section and shown in Table 20. Several planned Link Light Rail extensions are anticipated to be operational by 2035 and are likely to impact travel to SCC. These improvements then affect mode split (more students and staff likely to use the new extensions).

- Northgate (2021) – This project is complete, and the station is open as of this writing.
- East Link (2025) – Sound Transit is evaluating the timeline of this project. with potential phasing of the opening, however, the full opening is currently expected in 2025.
- Lynnwood Link (2024) – Sound Transit is evaluating the timeline of this project, which is currently expected to open in the summer or fall of 2024.
- Federal Way Link (2026) – This project is under construction and is currently expected to open in 2025/2026.
- Tacoma Dome Link (2035) – Service is currently expected in 2035 but the project is still in the planning phase.
- West Seattle Link (2032)

Links that were not included are the Kirkland/Issaquah, Ballard, and Everett Links as these would be opened after 2035. Additionally, the planned Bus Rapid Transit (BRT) lines planned along SR 522 and I-405 were not included in the analysis as few campus students or staff live in these areas.

Maps showing zip code data of the campus population relative to the planned Link Light Rail expansion are included on Figure 12 and Figure 13.



SEATTLE CENTRAL COLLEGE
One of the Seattle Colleges

Commuter Student Residence by Zip Code Relative to Future (2035) Link Light Rail Stations

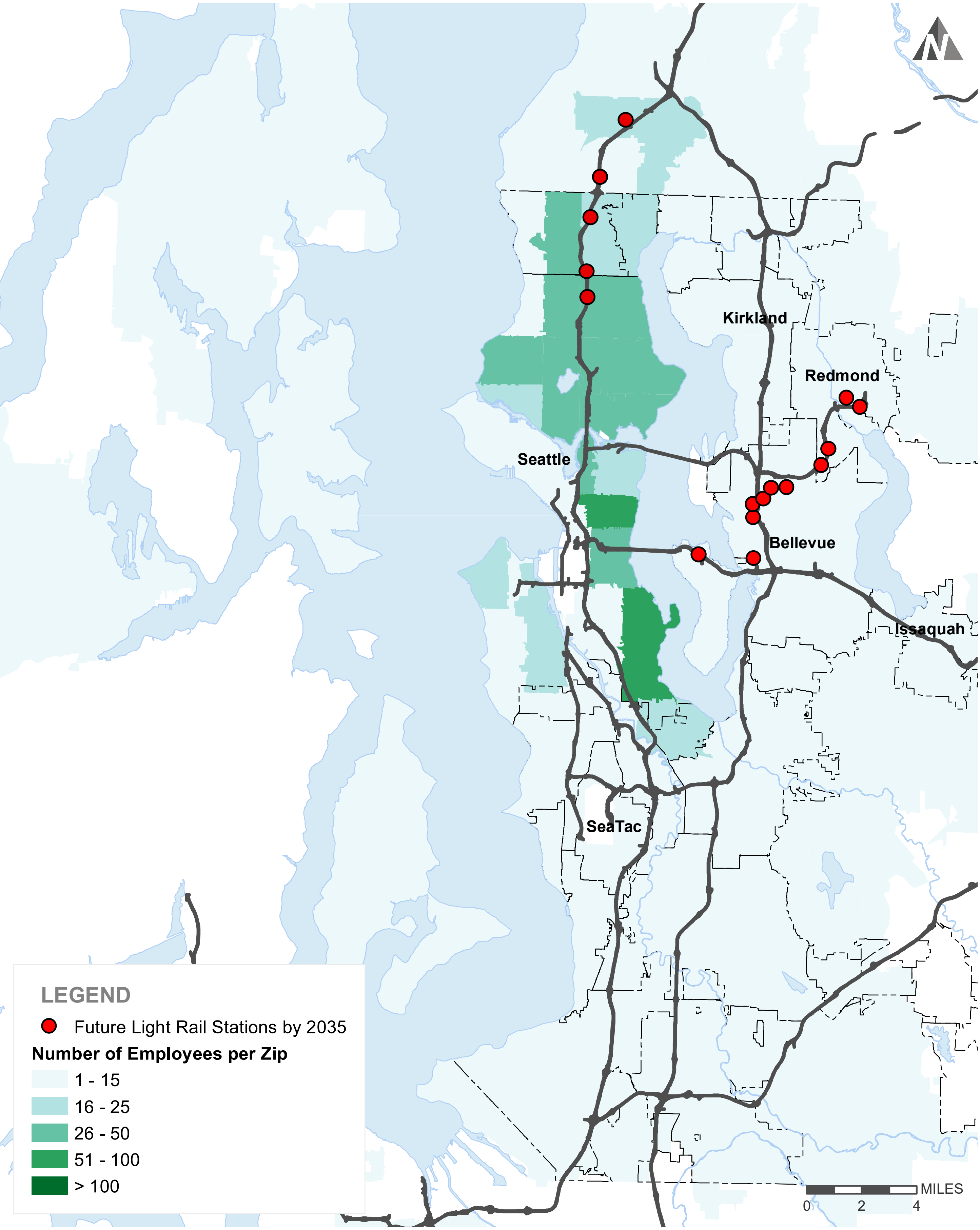
Seattle Central College MIMP

transpogroup

FIGURE

12

M:\19\1.19203.00 - Seattle Central College MIMP\GIS\Maps\MXD\Fig X - Students by Zip Code.mxd



Staff Residence by Zip Code Relative to Future (2035) Link Light Rail Stations

Seattle Central College MIMP

DRAFT

FIGURE

13

Given the substantial expansion of Link Light Rail, a shift in the mode split to reflect increased light rail use is anticipated. To determine the change in mode split, it is assumed that 20 to 25[16] percent of students or employees living within a zip code that includes a future Link station would switch from either drive alone or bus to light rail. The resulting future (2035) mode splits are shown in Table 17 for commuter students and staff and are compared to existing mode splits.

Table 17. SCC Mode Splits for Commuting Employees and Students

	Commuters				Residents	
	Staff/Other[1]		Students[2]			
Mode of Travel	**Existing**	**No Action Alternative[3]**	**Existing**	**No Action Alternative[3]**	**Existing**	**No Action Alternative[3]**
Drive Alone/Motorcycle	34%	28%	17%	13%	-	-
Carpool/Vanpool	9%	9%	2%	2%	-	-
Total Auto	**43%**	**37%**	**19%**	**15%**	**19%**	**15%**
Transit (Bus and Rail)	44%	50%	66%	70%	28%	30%
Non-Motorized/Other	13%	13%	15%	15%	53%	55%
Total Non-Auto	**57%**	**63%**	**81%**	**85%**	**81%**	**85%**

Notes: Values presented in the table were rounded to the nearest whole number.
1. *2019 Seattle Central College Commute Trip Reduction Survey*
2. The 2019 data is from the *2019 Student Transportation Survey* conducted by Seattle Central College. Student mode splits do not include online only students.
3. Reflects shift in mode split with expansion of Link Light Rail based on zip code data for where employees and students live relative to new stations. The shifts in modes relative to existing are shaded.

As shown in the table, under the No Action Alternative, with the expansion of the Link Light Rail system, a 6 percent decrease in drive alone behavior is expected for staff. A 4 percent decrease is projected for students. These campus users would instead use light rail. Another 6 percent of both staff and students are expected to shift from bus to rail use with the Link Light Rail improvements.

Based on the change in campus populations and changes in mode splits, the resulting No Action trip generation is summarized in Table 18.

[16] The 20-25 percent was assumed in all zip codes and the variation in percentage was due to the location of the station within the overall zip code. The only exception was the Tacoma zip codes in which only 5 percent was assumed. The reduced percentage was assumed due to the further distance to the SCC campus and associated longer travel time using light rail.

Table 18. No Action Trip Generation Summary

Time Period	One-Way Person Trips: Vehicular[2]	One-Way Person Trips: Transit	One-Way Person Trips: Non-Motorized/ Other	One-Way Person Trips: Total	Vehicular Trip Rate[3]	Two-way Vehicle Trips[4]: In	Two-way Vehicle Trips[4]: Out	Two-way Vehicle Trips[4]: Total
Daily								
Future only								
Commuter[1]	1,484	5,700	1,244	8,428	*0.37 per commuter FTE student*	1,354	1,354	2,708
Residents	15	30	55	100	*0.40 per bed*	14	14	28
Other[5]	74	285	62	421	*0.018 per commuter FTE student*	68	68	136
Subtotal	*1,573*	*6,015*	*1,361*	*8,949*		*1,436*	*1,436*	*2,872*
Less Existing Trips	1,429	4,014	986	6,429		1,326	1,326	2,652
Net New Trips	**144**	**2,001**	**375**	**2,520**		**110**	**110**	**220**
AM Peak Hour								
Future only								
Commuter	119	455	99	673	*0.03 per commuter FTE student*	170	46	216
Residents	1	1	1	3	*0.02 per bed*	1	0	1
Other	6	23	5	34	*0.001 per commuter FTE student*	9	2	11
Subtotal	*126*	*479*	*105*	*710*		*180*	*48*	*228*
Less Existing Trips	113	319	76	508		166	44	210
Net New Trips	**13**	**160**	**29**	**202**		**14**	**4**	**18**
PM Peak Hour								
Future only								
Commuter	129	496	108	733	*0.03 per commuter FTE student*	104	132	236
Residents	1	3	5	9	*0.03 per bed*	2	0	2
Other	6	25	5	36	*0.002 per commuter FTE student*	5	7	12
Subtotal	*136*	*524*	*118*	*778*		*111*	*139*	*250*
Less Existing Trips	124	350	86	560		102	128	230
Net New Trips	**12**	**174**	**32**	**218**		**9**	**11**	**20**

Note: FTE = full-time equivalent.
1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.2 is assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent. The total campus commuter student FTE is 7,430. There are 70 beds.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus. Excludes residential visitors and deliveries that are captured in the residential trip rate.

As shown in the table, the No Action Alternative would generate approximately 220 net new daily vehicular trips, with 18 occurring during the weekday AM peak hour and 20 occurring during the weekday PM peak hour. Transit trips would increase the most with the No Action Alternative, including approximately 2,000 additional daily transit trips with 160 occurring during the weekday AM peak hour and 174 occurring during the weekday PM peak hour. These increases are all related to the increase in campus population by 2035 and increase in light rail use for the population.

Street System

The No Action Alternative assumes no change in campus vehicle access and circulation. A review of local and regional capital improvement programs and long-range transportation plans was conducted to determine planned funded and unfunded transportation projects that would impact the off-site study roadways and intersections. The review included, but was not limited to, the City of Seattle 2021 – 2026 *Proposed Capital Improvement Program* (CIP) and *Seattle 2035 Comprehensive Plan*. No changes in the study area were identified.

Non-Motorized Transportation

No changes to the existing non-motorized system are assumed with the No Action condition as no improvements were identified in the review of the CIP.

Pedestrian

Pedestrian volumes would increase based on growth in campus population and background growth related to changes in the surrounding land use.

- **SCC Population Growth** – Under the No Action condition, the population is anticipated to be 7,500 FTE students and 1,000 FTE employees. All campus population would be a pedestrian on the network at some point. Therefore, the full population was assumed to influence the number of pedestrians. No matter the travel mode for arrival or departure, an increase in campus population would result in increased pedestrian trips around campus.
- **Background Growth** – An annual background growth rate of 1 percent is applied to existing off-campus pedestrian volumes consistent with the forecast annual background growth for the vehicle traffic volumes.

The resulting future pedestrian flow rates along E Pine Street and Broadway are summarized in Table 19. Appendix D contains the detailed pedestrian analysis.

Table 19. No Action Pedestrian Average Flow Rate Level of Service

				Weekday AM Peak Hour				Weekday PM Peak Hour			
Corridor	**Segment**	**Side of Street**	**Effective Width (feet)**	**Peak Hour Ped Volume[1]**	**Average Ped Flow[2]**	**Ped. Flow LOS**	**Ped. Flow Class[3]**	**Peak Hour Ped Volume**	**Average Ped Flow**	**Ped. Flow LOS**	**Ped Flow Class**
Broadway	E Denny Way to E Howell St	E	4.0	650	2.7	Free Flow	A	740	3.1	Free Flow	A
		W	3.5	650	3.1	Free Flow	A	1,150	5.5	Free Flow	B
	E Howell St to Mid-block Crosswalk (E Olive St)	E	4.0	230	1.0	Free Flow	A	640	2.7	Free Flow	A
		W	12.0	210	0.3	Free Flow	A	150	0.2	Free Flow	A
	Mid-block Crosswalk (E Olive St) to E Pine St	E	5.0	400	1.3	Free Flow	A	890	3.0	Free Flow	A
		W	15.0	530	0.6	Free Flow	A	1,060	1.2	Free Flow	A
	E Pine St to E Pike St	E	8.5	440	0.9	Free Flow	A	890	1.7	Free Flow	A
		W	6.0	770	2.1	Free Flow	A	1,060	2.9	Free Flow	A
E Pine St	Broadway to Harvard Ave	N	5.5	530	1.6	Free Flow	A	1,060	3.2	Free Flow	A
		S	3.0	530	2.9	Free Flow	A	1,060	5.9	Free Flow	B
	Harvard Ave to Boylston Ave	N	6.0	470	1.3	Free Flow	A	980	2.7	Free Flow	A
		S	2.0	300	2.5	Free Flow	A	720	6.0	Free Flow	B

Note: Ped. = Pedestrian
1. Reflecting an adjustment factor such that half of the pedestrian volumes in an hour are assumed to occur during a single 15-minute period.
2. Average pedestrian flow measure in people per foot of sidewalk space per minute (p/ft/min).
3. Pedestrian flow classification based on average pedestrian flow rate.

As shown in Table 19, the pedestrian flow rate would continue to be classified as free flow along each segment during the weekday peak hours under the No Action condition. Pedestrians would have ample space to walk at preferred speeds and along segments without inconvenience due to lack of capacity.

Additionally, the evaluation of midblock pedestrian connectivity between the campus and adjacent Cal Anderson Park was conducted under future No Action conditions. The midblock pedestrian growth assumptions were consistent as noted below for the flow rate analysis including an annual growth rate of 1 percent as well as SCC population growth. The forecast future midblock pedestrians were reviewed per the crosswalk enhancement warrants in NCHRP Report 562 which showed that the minimum pedestrian volumes are not forecast to meet warrants under No Action conditions. The detailed No Action pedestrian crossing enhancement warrant is included in Appendix D.

Bicycle

The existing bicycle network in the study area is well connected including both east/west and north/south routes connecting to the surrounding neighborhoods and downtown. No planned bicycle improvements were identified in the review of the CIP.

Transit Service

Transit facilities on-campus are not anticipated to change with the No Action Alternative. The transit agencies have plans to increase service and frequency to campus. The Seattle *2021-2026 Adopted Capital Improvement Program*, Sound Transit plans, and King County Metro Transit plans were reviewed to determine potential transit improvements that may impact the Campus by 2035. Table 20 highlights the key transit improvements affecting the area surrounding campus.

Table 20. Key Transit Expansion Projects

Project Description	Responsible Agency	Expected Completion Date	Funded?[1]
Madison Bus Rapid Transit (BRT). The proposed King County Metro RapidRide G Line is expected to be in service by 2024 along Madison Street, south of campus.	King County Metro	2024	Yes
Seattle Culture Connector[17]. The Center City Connector is a 1.27-mile segment of the Seattle Streetcar that will link the South Lake Union and First Hill Streetcar lines, creating a system that will connect over a dozen Seattle neighborhoods in Seattle's Central downtown area. The project includes procurement of up to ten additional streetcars; design and construction of track and guideway; station shelters and platforms; overhead contact system; traction power substation; storage facility expansion; roadway and drainage; ADA curb ramps; curb space management; and urban streetscape. The project was recently restarted after a pause due to loss of revenue during COVID-19.	SDOT	2026	Partial
Link Light Rail: The expansion of Sound Transit's existing Link Light Rail is planned to include the following additional links to be operational as noted: Northgate Link (2021), East Link (2025), Lynnwood Link (2024), Federal Way/Tacoma Link (2026/2035), and West Seattle Link (2032).	Sound Transit	2035	Yes

1. "Yes" means the project is fully funded for construction, "partial" means the project has some, but not complete, funding for construction.

Table 20 shows planned service expansions surrounding the campus. The No Action Alternative analysis assumes the current transit rider access patterns would continue since the planned improvements are not anticipated to change the patterns at the transit stops being reviewed.

[17] Formerly the Seattle Center City Connector.

The vehicle capacity and stop waiting area capacity analysis is provided below for the No Action condition. The analyses assume background transit rider growth unrelated to SCC MIMP as well as SCC-specific growth.

- **SCC Population Growth** – Specific transit trip growth associated with SCC is based on the net new transit trips as reflected in Table 18. This increase in transit trips is related to the growth in population and shift in mode splits. Person transit trips in Table 18 are one-way for the weekday AM and PM peak hour. The analysis accounts for the two-way transit trips by doubling the one-way trips.
- **Background Growth** – An annual background growth rate of 1 percent was applied to existing ridership consistent with Seattle 2035 City Comprehensive Plan transit growth. The one-way person trips were doubled to reflect both an inbound and outbound trip. The weekday AM and PM peak period data provided by the agencies reflects a 4-hour period. For the forecast peak hour transit trips, it is assumed that hourly transit trips are consistent over the 4-hour period. The total trips were distributed to the transit stops surrounding campus shown on Figure 8.

Vehicle Capacity

Planned service expansions in the study area will allow for additional destinations for riders. However, no changes to transit frequency or capacity were assumed at the screenlines. Based on the transit forecasts, the resulting No Action vehicle capacity analysis is summarized in Table 21 relative to the existing utilization. The detailed transit capacity analysis is included in Appendix E.

Table 21. No Action Vehicle Capacity Analysis

	Screenline/Location	Weekday Routes	Direction of Travel	AM Peak Period Utilization[1]			PM Peak Period Utilization		
				Existing	No Action	Change	Existing	No Action	Change
1	**E John Street** east of Broadway	8, 10, 43	EB	21%	25%	+ 4%	53%	63%	+ 10%
			WB	45%	55%	+ 10%	29%	36%	+ 7%
2	**Broadway** north of E Olive Way/E John Street	9, 49, 60	NB	11%	14%	+ 3%	30%	36%	+ 6%
			SB	27%	36%	+ 9%	27%	33%	+ 6%
3	**Broadway** south of E Pine Street	9, 43[2], 60	NB	9%	16%	+ 7%	20%	28%	+ 8%
			SB	25%	32%	+ 7%	22%	30%	+ 8%
4	**E Pine Street** west of Summit Avenue	11, 49	EB	23%	29%	+ 6%	57%	68%	+ 11%
			WB	40%	47%	+ 7%	32%	39%	+ 7%
5	**E Union Street** west of Broadway	2	EB	67%	82%	+ 15%	40%	48%	+ 8%
			WB	19%	23%	+ 4%	60%	72%	+ 12%
6	**First Hill Streetcar** at SCC	-	NB	15%	18%	+ 3%	17%	20%	+ 3%
			SB	6%	8%	+ 2%	14%	17%	+ 3%
7	**Link Light Rail** at Capitol Hill Station	-	NB / SB	32%	43%	+ 11%	36%	47%	+ 11%

1. Capacity for each screenline assumed for the utilization calculation unchanged for No Action relative to existing conditions.
2. The basis of the analysis is Fall 2019 data, which included Route 43 along Broadway. King County Metro has made some routing changes since 2019 and Route 43 continues to serve the campus but no longer travels along Broadway. Route 43 is included in the analysis since the ridership data provided by King County Metro includes the Route 43 passengers along this screenline.

Transit vehicle utilization at the measured screenlines is forecast at approximately 80 percent or lower under the No Action condition, with estimated increases in utilization of 15 percent or less relative to existing conditions. There would continue to be available capacity to accommodate additional riders during the weekday peak periods under the No Action Alternative.

Stop Capacity

Transit stop waiting areas are assumed to remain the same in the No Action condition. Stop capacity (waiting area) LOS is summarized in Table 22 for the No Action condition. The detailed transit capacity analysis is included in Appendix E.

Table 22. No Action Alternative Transit Stop Analysis

				AM Peak Period				PM Peak Period			
				Existing		No Action		Existing		No Action	
Transit Stop	Stop Location	Routes Served	Trip Direction/ Side of Street	Average Ped Area (ft^2/p)	LOS at Stop	Average Ped Area (ft^2/p)	LOS at Stop	Average Ped Area (ft^2/p)	LOS at Stop	Average Ped Area (ft^2/p)	LOS at Stop
E John St	10th Ave E/ Broadway	8, 10, 43	WB / N Side	23.9	A	18.6	A	16.8	A	11.6	B
			EB / S Side	26.3	A	21.0	A	12.6	B	10.3	B
Broadway	E Denny Way	9, 49, 60	NB / E Side	22.2	A	18.2	A	11.8	B	9.5	C
			SB / W Side	38.2	A	28.0	A	38.2	A	24.7	A
E Pine St	Broadway/ Harvard Ave	11, 49	WB / N Side	51.9	A	41.5	A	23.1	A	18.0	A
			EB / S Side	59.4	A	47.5	A	20.7	A	17.0	A
E Union St	Broadway	2	WB / N Side	77.5	A	38.8	A	19.4	A	14.1	A
			EB / S Side	31.3	A	25.0	A	15.6	A	10.4	B

As shown in Table 22, the transit stops surrounding the campus are forecast to continue to have ample pedestrian waiting areas with LOS A conditions during the AM peak period and LOS B or better during the PM peak period.

Traffic Volumes

The future (2035) traffic volumes were projected based on growth in background traffic and the campus population.

Background

Background traffic growth is determined based on an annual growth rate and traffic generated from planned “pipeline” developments. A 1 percent per year growth rate was applied to study intersection existing (2021) traffic volumes to estimate the future 2035 background traffic growth. The annual growth rate is consistent with other traffic analyses in the vicinity. The pipelines projects considered in the forecasts are listed in Appendix I; the list was developed in coordination with SDCI. Pipeline development traffic is added to the 2035 background traffic volumes to forecast study intersection volumes for the No Action Alternative.

Campus

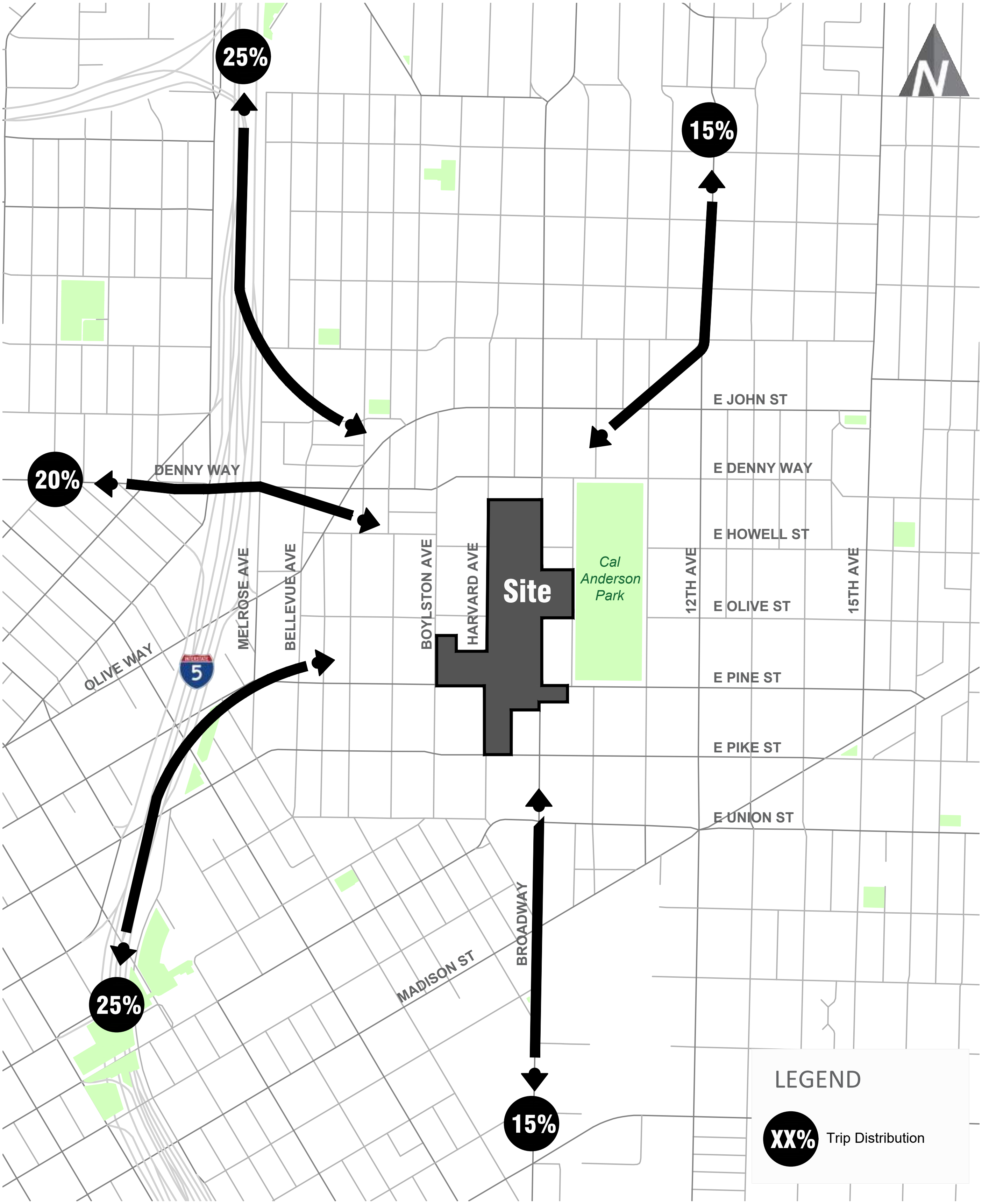
Campus-related vehicle trip generation is summarized at the beginning of this chapter in Table 18. The No Action Alternative would generate approximately 220 net new daily vehicle trips with 17 occurring during the weekday AM peak hour and 20 during the weekday PM peak hour.

The No Action Alternative campus trip distribution was determined for residents and commuters as follows:

- **Commuter/Other Trips** – The distribution for the commuters (student, staff/faculty and visitors) is based on existing travel patterns and zip code data for the campus population and is shown on Figure 14.
- **Residential Trips** – The residential trip distribution is based on *OnTheMap*, a web-based mapping and reporting application, showing where people work that live within a quarter-mile radius of the proposed site. The zip codes were evaluated to determine if a person would be

more likely to travel to the zip code via vehicle or by other means. Trips to zip codes closer to the proposed project site or in more transit-oriented locations are more likely to occur via transit, walk, bike, or other non-SOV modes. Trips related to zip codes outside the Seattle City limits and/or further from the site are more likely to be by private vehicle. The residential distribution is shown on Figure 15.

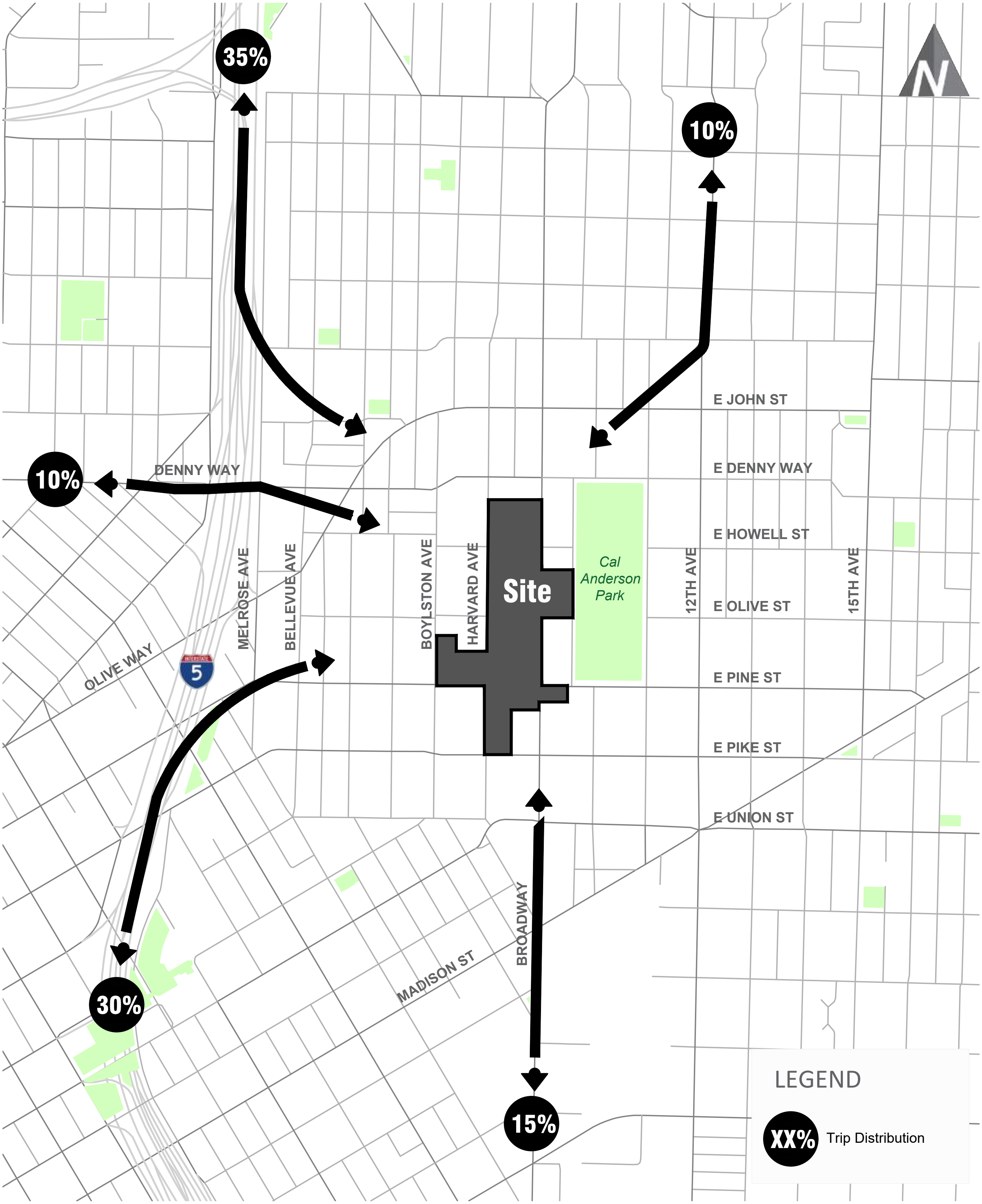
The trips to and from campus are assigned proportionately to the locations of on-site parking based on the amount of parking supply. The No Action study intersection traffic volumes were determined by adding the net new No Action project trips to the background forecasts. The resulting No Action peak hour traffic volumes are summarized on Figure 16 and Figure 17 for the off-site study intersections and parking lot accesses, respectively.



Commuter Trip Distribution

Seattle Central College MIMP

FIGURE
14

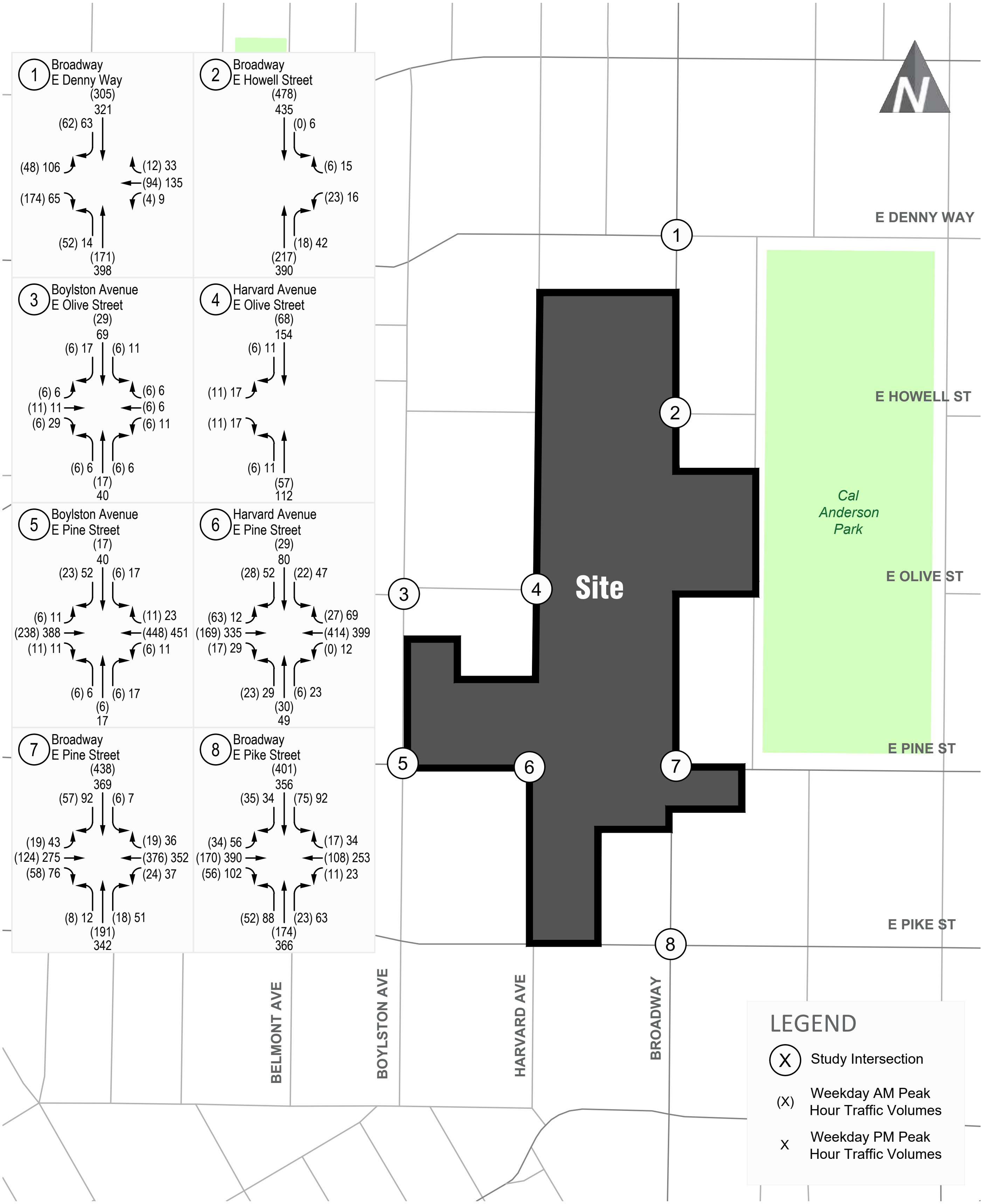


Residential Student Trip Distribution

Seattle Central College MIMP

FIGURE 15

transpogroup

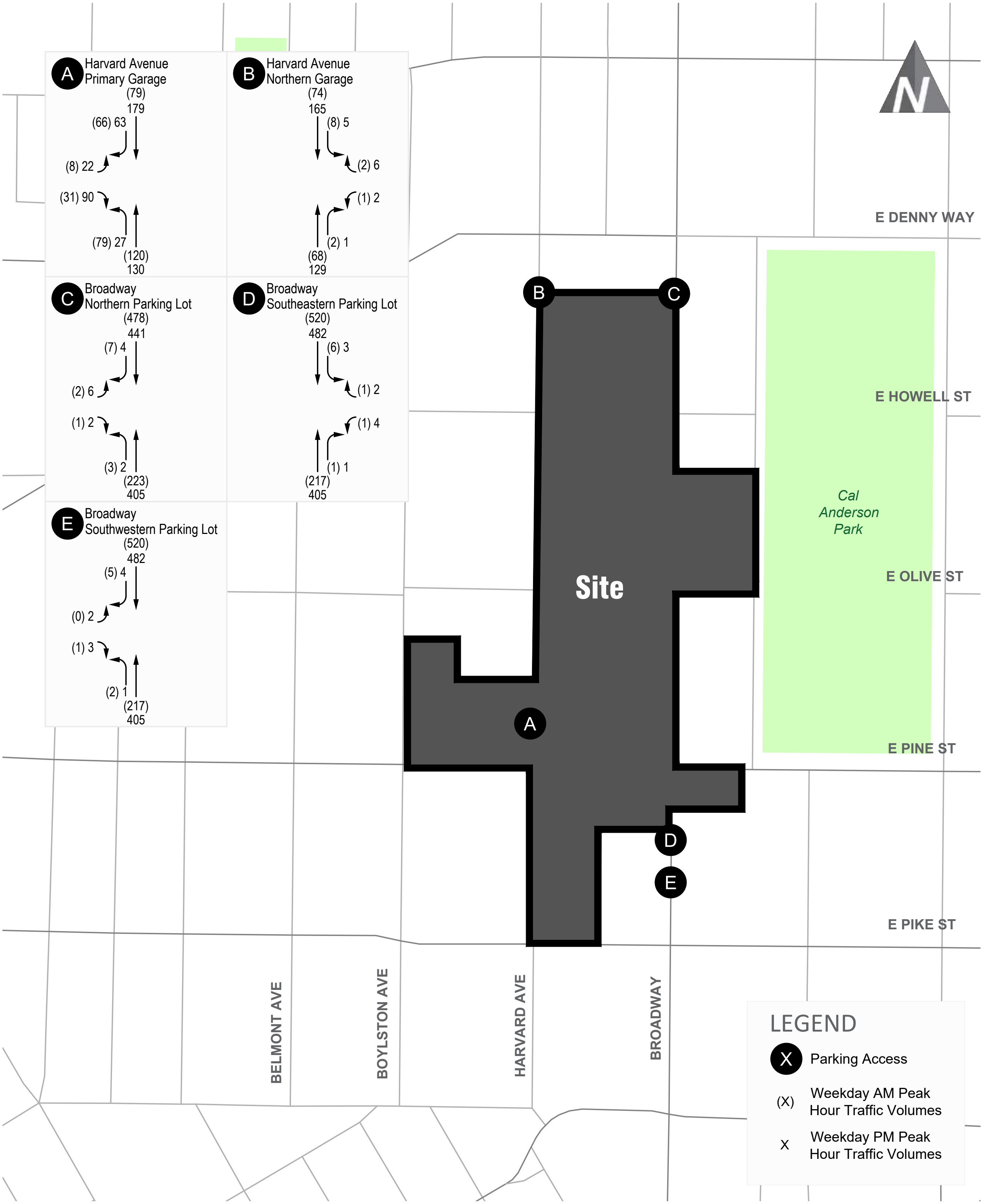


No Action Alternative (2035) Weekday Peak Hour Traffic Volumes at Off-Site Study Intersections

Seattle Central College MIMP

transpogroup

FIGURE 16



No Action Alternative (2035) Weekday Peak Hour Traffic at Parking Accesses

Seattle Central College MIMP

FIGURE 17

transpogroup

Traffic Operations

The future No Action LOS analysis was conducted using the same methodology and intersection parameters (such as channelization and intersection control) as existing conditions. The No Action weekday peak hour intersection operations are shown in Table 23.

Table 23. Existing (2021) and No Action (2035) Weekday Peak Hour LOS Summary

		AM Peak Hour						PM Peak Hour					
		Existing			No Action			Existing			No Action		
Intersection	Traffic Control	LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. Broadway/E Denny Way[4]	Signalized	B	15	-	B	17	-	B	19	-	C	25	-
2. Broadway/E Howell Street[4]	Signalized	A	7	-	A	8	-	B	15	-	B	16	-
3. Boylston Avenue/E Olive Street	TWSC	B	13	EB	C	16	EB	C	20	WB	D	28	WB
4. Harvard Avenue/E Olive Street	TWSC	B	12	EB	B	14	EB	B	14	EB	C	18	EB
5. Boylston Avenue/E Pine Street	TWSC	D	32	SB	**F**	**86**	**SB**	**F**	**>120**	**SB**	**F**	**>120**	**SB**
6. Harvard Avenue/E Pine Street	Signalized	A	6	-	A	7	-	B	12	-	B	13	-
7. Broadway/E Pine Street[4]	Signalized	C	22	-	C	25	-	C	25	-	C	30	-
8. Broadway/E Pike Street[4]	Signalized	C	27	-	C	30	-	D	44	-	**E**	**78**	**-**
A. Harvard Avenue/Primary Garage	TWSC	B	11	EB	B	13	EB	C	18	EB	D	30	EB
B. Harvard Avenue/Northern Garage	TWSC	A	9	WB	A	9	WB	A	9	WB	A	10	WB
C. Broadway/Northern Parking Lot	TWSC	B	14	EB	C	16	EB	**F**	**61**	**EB**	**F**	**>120**	**EB**
D. Broadway/ Southeastern Parking Lot	TWSC	B	14	WB	C	18	WB	D	25	WB	E	48	WB
E. Broadway/ Southwestern Parking Lot	TWSC	C	24	EB	D	34	EB	D	27	EB	**F**	**50**	**EB**

Note: TWSC = Two-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. Evaluated using HCM 2000 because the configuration is not supported with the HCM 6th Edition method due to the streetcar phase.

As shown in Table 23, the off-site study intersections and parking lot access points would continue to operate acceptably at LOS D or better during the weekday AM peak hour, with the exception of the southbound approach of the Boylston Avenue/E Pine Street two-way stop-controlled intersection. That intersection would degrade to LOS F in 2035, with the average delay increasing by 54 seconds. This change results from the addition of both vehicle and pedestrian activity.

During the weekday PM peak hour, four total intersections (2 off-site and 2 parking lot accesses) are forecast to operate below LOS E or F for signalized locations.

- **Boylston Avenue/E Pine Street** – The southbound approach of this two-way stop-controlled intersection currently operates at LOS F during the PM peak hour and would continue to operate at LOS F in 2035. Although southbound through and left turn movements are low (less than 60 vehicles), these conflict with a considerable number of pedestrians crossing, forecast to be nearly 600 in that hour. Given the gridded network surrounding the site, drivers may choose to re-route to an alternate street to reduce their experienced delay such as the adjacent signalized Harvard Avenue/E Pine Street intersection.
- **Broadway/E Pike Street** – This signalized intersection is forecast to degrade from LOS D under existing conditions to LOS E under the No Action due to the forecast increase in volumes (both vehicles and pedestrians).
- **Broadway/Northern Parking Lot at Howell Street** – The eastbound approach of the parking lot access along Broadway is forecast to continue to operate at LOS F due to the high pedestrian volumes crossing this access driveway.

- **Broadway/Southwestern Parking Lot at E Pike Street** – The eastbound approach of the parking lot access along Broadway is forecast to degrade from LOS D under existing conditions to LOS F under the No Action condition with 22 additional seconds of delay, This is related to an increase in vehicle and pedestrian volumes along Broadway.

The remaining study intersections are forecast to continue to operate at LOS D or better.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As described previously, existing collision data was primarily collected prior to the completion of the Pike Street Mobility Improvements project in September 2019. The intention of this project was to reduce collisions. Therefore, collisions with pedestrians and bicyclists along this corridor are expected to level off or decrease.

Parking

No change to the existing parking supply of 608 stalls is proposed with the No Action Alternative (see Figure 11).

Chapter 4. Impacts of the Action Alternatives

This chapter describes the impacts of the Proposed MIMP Alternative and No Boundary Expansion Alternative, which are considered the Action Alternatives. The impacts of the Action Alternatives are identified through a comparison to the No Action Alternative.

Trip Generation

The campus population would increase to a total of 7,500 FTE students on campus and 1,000 employees with the No Action and Action Alternatives. Under the Action Alternatives, campus student housing would increase, providing up to 580 beds. The resulting commuting student FTE population with the additional beds would be 6,920 commuter student FTEs. Table 24 summarizes the trip generation for the Action Alternatives.

The campus population is the same for both the Proposed MIMP and No Boundary Expansion Alternatives; therefore, overall trip generation would be the same for both Alternatives. The Action Alternatives for the Proposed MIMP Alternative could provide college housing near the campus, which could reduce vehicle and transit trips for students. The reduction in vehicle trips with the Proposed MIMP Alternative could result in vehicle and transit impacts that are less than described herein.

Table 24. Action Alternatives Trip Generation Summary

Time Period	One-Way Person Trips: Vehicular[2]	Transit	Non-Motorized/ Other	Total	Vehicular Trip Rate[3]	Two-Way Vehicle Trips[4]: In	Out	Total
Daily								
Future								
Commuter[1]	1,419	5,393	1,178	7,990	*0.37 per commuter FTE student*	1,294	1,294	2,588
Residents	124	248	455	827	*0.39 per bed*	114	114	228
Other[5]	71	270	59	400	*0.018 per commuter FTE student*	65	65	130
Subtotal	*1,614*	*5,911*	*1,692*	*9,217*		*1,473*	*1,473*	*2,946*
No Action Trips	1,573	6,015	1,361	8,949		1,436	1,436	2,872
Net New Trips	**41**	**-104**	**331**	**268**		**37**	**37**	**74**
AM Peak Hour								
Future								
Commuter	113	431	94	638	*0.03 per commuter FTE student*	163	44	207
Residents	4	7	12	23	*0.01 per bed*	3	3	6
Other	6	22	5	33	*0.001 per commuter FTE student*	8	2	10
Subtotal	*123*	*460*	*111*	*694*		*174*	*49*	*223*
No Action Trips	126	479	105	710		180	48	228
Net New Trips	**-3**	**-19**	**6**	**-16**		**-6**	**1**	**-5**
PM Peak Hour								
Future								
Commuter	124	469	103	696	*0.03 per commuter FTE student*	99	126	225
Residents	10	21	38	69	*0.04 per bed*	9	9	18
Other	6	23	5	34	*0.002 per commuter FTE student*	5	6	11
Subtotal	*140*	*513*	*146*	*799*		*113*	*141*	*254*
No Action Trips	136	524	118	778		111	139	250
Net New Trips	**4**	**-11**	**28**	**21**		**2**	**2**	**4**

Note: FTE = full-time equivalent.
1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.2 is assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent. It is assumed the total campus commuter student FTE is 6,920 with up to 580 beds.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus. Excludes residential visitors and deliveries that are captured in the residential trip rate.

As shown in the table, the total daily person trips are forecast to increase with the Action Alternative compared to the No Action condition. The increase in daily person trips is related to additional on-campus student housing. This would result in more activity around campus, compared to if those students lived away from campus (trips to work, athletics, store, etc.). This translates to a slight increase in vehicular trips. Most trips would be non-vehicular. With more students living on-campus, the overall transit trips would be little less with the Action Alternatives compared to the No Action condition. Students would no longer commute to campus via transit but use walking and other non-vehicular modes to move around.

The Action Alternative would generate approximately 74 net new daily vehicle trips with 4 new trips occurring during the weekday PM peak hour and 5 fewer trips during the weekday AM peak hour.

Street System

The street system within the study area would be consistent with the No Action Alternative. The Action Alternatives would not change the street system connectivity and no significant impacts are anticipated.

Non-Motorized Transportation

No changes to the existing off-campus non-motorized system are assumed with Action Alternatives. Impacts to the pedestrian and bicycle environment are described below.

Pedestrian

The Action Alternatives would improve on-campus pedestrian/bike connections and provide required frontage improvements where new buildings are constructed.

The No Action Alternative pedestrian analysis evaluated the impacts of 7,500 FTE on-campus. Changes to campus with the Action Alternatives include moving the concentration of campus parking supply for the Pine/Harvard area to spreading parking between this area and further north on campus. However, additional student housing is being proposed in place of the Harvard garage so there is limited change in overall pedestrian volumes anticipated with this shift. The campus population is planned to be the same under No Action and Action Alternatives; therefore, the pedestrian impacts would be similar.[18] Table 19 shows the pedestrian analysis with a finding of free-flow conditions, which would be anticipated for the Action Alternative.

Additionally, the evaluation of midblock pedestrian connectivity between the campus and adjacent Cal Anderson Park was conducted under future Action Alternatives. The Action Alternatives midblock pedestrian volumes are consistent with the No Action forecast. However, the Action Alternatives include constructing a Student Union Building in place of the existing bookstore (see Site Plans above). With this planned change in use, it is anticipated that a portion of the pedestrians that currently use the north crossing at the Nagle Place/E Howell Street intersection would shift to use the southern mid-block connection adjacent to the Student Union building. With this shift in pedestrian travel patterns, the forecast number of future midblock pedestrians would meet pedestrian treatment warrants in NCHRP Report 562. Therefore, a crosswalk is warranted at this location. The detailed Action Alternatives pedestrian crossing enhancement warrant is included in Appendix D.

Bicycle

There are existing bicycle amenities such as showers, lockers, and bicycle storage/racks on-campus. The Action Alternatives would continue to provide bicycle amenities on-campus and make improvements and/or additions as the MIMP develops. A bicycle plan is being prepared as part of the MIMP to help prioritize bicycle parking and amenities on-campus. Improvements would include replacing older amenities and adding shower and locker facilities to new or redeveloped buildings. SCC will also provide secure bicycle storage and e-bike charging in new buildings, including future parking facilities. The location of bicycle parking will be determined as the MIMP is implemented and will consider the entry and egress points of users with parking located both outside and inside. The design of bicycle storage will consider micromobility and larger forms of bike technology like cargo bikes or e-trikes in designing and designating parking. Cumulatively, across campus, SCC plans to provide 182 short-term spaces (15 less than required by LEED v4.1), 456 long-term spaces (361 more than required), and 12 shower/changing rooms (9 more than required). Signage will be included to direct users to bike parking, avoiding routes with stairs and or multiple level changes and doors.

The off-campus bicycle network would not change with the Action Alternatives. The existing external bicycle network would support any increases in bicycling to campus.

[18] Table 24 shows a small increase in non-motorized trips with the Action Alternatives. However, this volume is small and would be spread across many pedestrian facilities, so no impacts are expected compared to the No Action case.

Transit Service

Transit activity with the Action Alternatives would decrease slightly (i.e., a decrease of 14 to 20 person trips during the weekday peak hours) compared to the No Action condition (see Table 24). The decrease in transit activity is due to students living in new, on-campus student housing. The results of the transit analysis with the Action Alternative would be similar to that of the No Action Alternative. The analysis shows there is vehicle and stop waiting area capacity to accommodate the Alternatives. The detailed calculations for the Action Alternative are included in Appendix E. The Action Alternatives would have no significant transit impacts.

Traffic Volumes

The future (2035) traffic volumes were projected based on growth in background traffic and campus population. The background growth is the same for the Action Alternatives. The total campus *population* is also the same for both the No Action and Action Alternatives. However, more students would live on-campus in the Action Alternatives. This alters trip patterns and travel modes. Also, consolidating parking into 4 locations affects the distribution of vehicle traffic around campus.

Campus

Campus-related vehicle trip generation was summarized at the beginning of this chapter in Table 24 on page 46. The Action Alternatives would generate approximately 74 net new daily vehicle trips with no new trips occurring during the weekday AM peak hour and 4 trips during the weekday PM peak hour relative to the No Action Alternative.

The overall Action Alternatives campus trip distribution to and from off-campus destinations are the same as the No Action condition. The distribution for commuters was shown on Figure 14 and the residential distribution was shown on Figure 15. The assignment of trips to campus for the Action Alternatives is different from the No Action Alternative due to the changes in the location of parking.

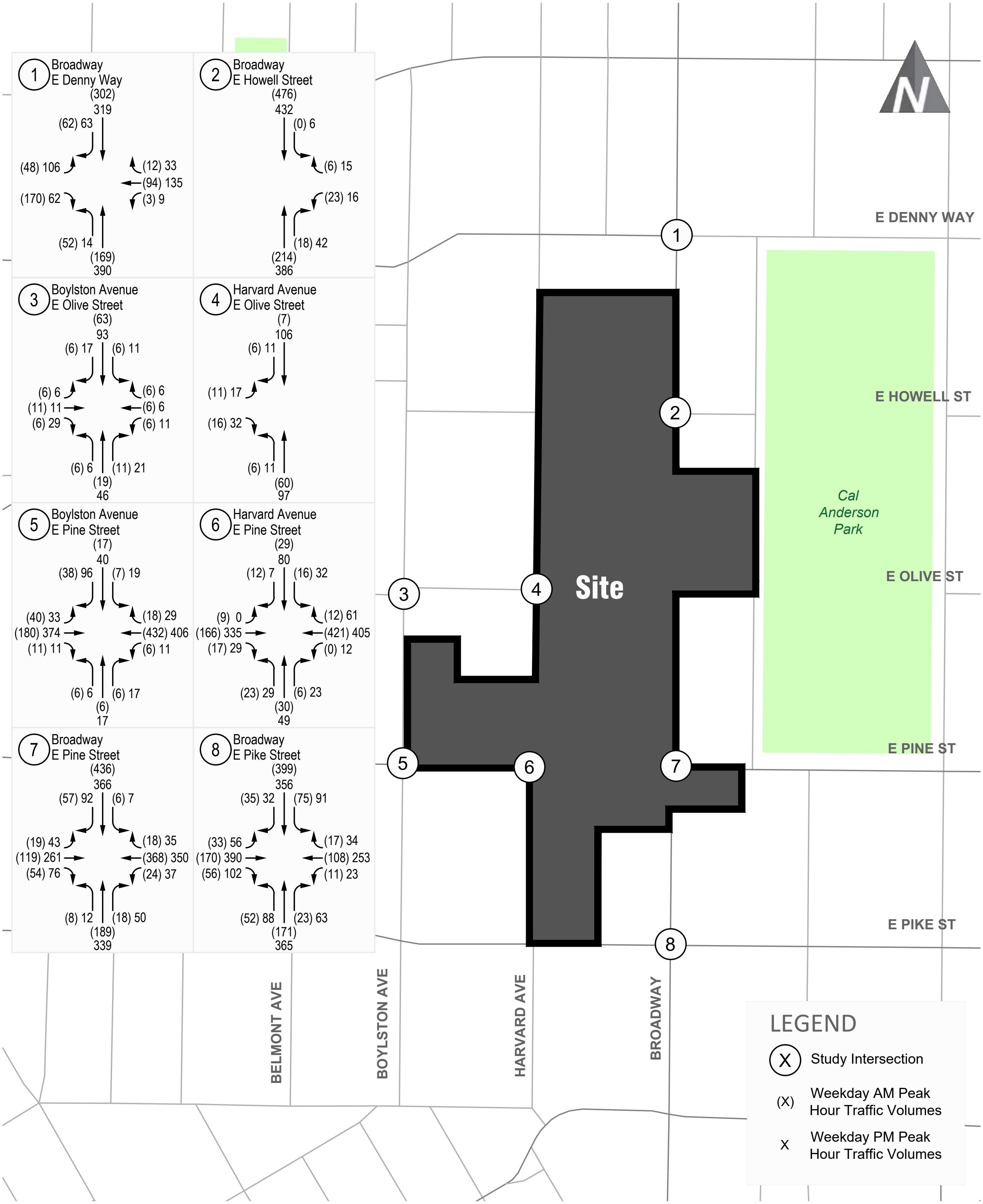
The Action Alternatives trips were assigned proportionately to the locations of proposed parking on-campus. The Action Alternatives study intersection traffic volumes are determined by adding the net new Action Alternative project trips to the background forecasts; adjustments were made to the No Action trips to account for the location of parking. The resulting Action Alternative peak hour traffic volumes are summarized on Figure 18 and Figure 19 for the off-site study intersections and parking lot accesses, respectively. It is noted that the street system surrounding the campus is a gridded network and drivers have alternative routes available in many cases. This trip assignment and analysis reflects the primary travel routes. Table 25 summarizes the percent change in traffic volumes with the Action Alternative relative to the No Action Alternative during the peak hours.

Table 25. Peak Hour Traffic Volume Impacts at Study Intersections

Intersection	AM Peak Hour				PM Peak Hour			
	No Action TEV	Net New Trips	Action TEV	Percent Change	No Action TEV	Net New Trips	Action TEV	Percent Change
1. Broadway/E Denny Way[4]	922	-10	912	-1.1%	1,144	-13	1,131	-1.1%
2. Broadway/E Howell Street[4]	742	-5	737	-0.7%	904	-7	897	-0.8%
3. Boylston Avenue/E Olive Street	111	41	152	36.9%	218	45	263	20.6%
4. Harvard Avenue/E Olive Street	159	-53	106	-33.3%	322	-48	274	-14.9%
5. Boylston Avenue/E Pine Street[5]	784	-17	767	-2.2%	1,044	15	1,059	1.4%
6. Harvard Avenue/E Pine Street[5]	828	-87	741	-10.5%	1,136	-74	1,062	-6.5%
7. Broadway/E Pine Street[4]	1,338	-22	1,316	-1.6%	1,692	-24	1,668	-1.4%
8. Broadway/E Pike Street[4]	1,156	-6	1,150	-0.5%	1,857	-4	1,853	-0.2%
A. Harvard Avenue/Primary Garage	383	-168	215	-43.9%	511	-180	331	-35.2%
B. Harvard Avenue/Northern Garage	155	25	180	16.1%	308	22	330	7.1%
C. Broadway/Northern Parking Lot	714	-16	698	-2.2%	860	-20	840	-2.3%
D. Broadway/Southeastern Parking Garage	746	-22	724	-2.9%	897	-17	880	-1.9%
E. Broadway/Southwestern Parking Lot	745	-7	738	-0.9%	897	-5	892	-0.6%
F. Boylston Avenue/ Future Garage 1 Access	69	99	168	143.5%	160	120	280	75.0%

Note: TEV = Total Entering Vehicles.

As shown in Table 25, at many of the intersections, a reduction in trips is forecast. This is due to the shift in garage access locations. The greatest increase in forecast traffic volumes is at the Boylston Avenue/E Olive Street study intersection and at the proposed parking garage access via Boylston Avenue. The Boylston Avenue parking garage currently exists; however, there is limited use of the Boylston as Harvard Avenue is currently the parking garage main access. The proposal has the main access via Boylston Avenue and no access via Harvard Avenue.

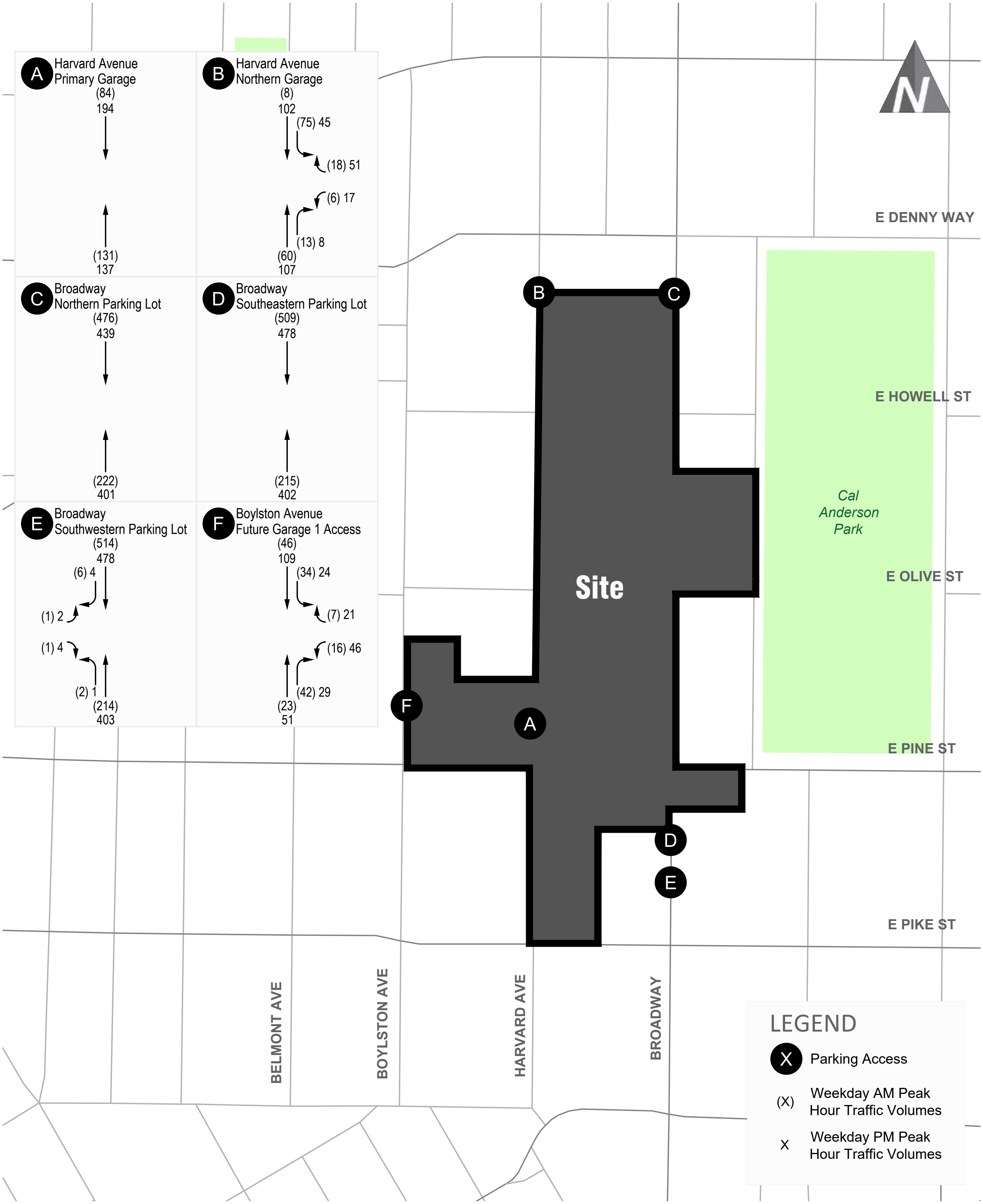


Action Alternative (2035) Weekday Peak Hour Traffic Volumes at Off-Site Study Intersections

FIGURE 18

Seattle Central College MIMP

transpogroup



Action Alternative (2035) Weekday Peak Hour Traffic Volumes at Parking Accesses

Seattle Central College MIMP

FIGURE 19

transpogroup

Feb 14, 2024 - 2:50pm lilyh M:\19\1.19203.00 - Seattle Central College MIMP\Graphics\DWG\SCC_Graphics.dwg Layout: Action Vol - Driveway

Traffic Operations

The Action Alternatives LOS analysis assumes the same methods and intersection parameters as the Existing Conditions analysis. A comparison of the No Action and Action Alternatives weekday peak hour operations are shown in Table 26.

Table 26. No Action and Action Alternatives Weekday Peak Hour LOS Summary

		AM Peak Hour						PM Peak Hour					
		No Action			Action			No Action			Action		
Intersection	Traffic Control	LOS[1]	Delay[2]	WM[3]	LOS	Delay	WM	LOS	Delay	WM	LOS	Delay	WM
1. Broadway/E Denny Way[4]	Signalized	B	17	-	B	17	-	C	25	-	C	24	-
2. Broadway/E Howell Street[4]	Signalized	A	8	-	A	8	-	B	16	-	B	16	-
3. Boylston Avenue/E Olive Street	TWSC	C	16	EB	C	17	EB	D	28	WB	D	30	WB
4. Harvard Avenue/E Olive Street	TWSC	B	14	EB	B	13	EB	C	18	EB	C	17	EB
5. Boylston Avenue/E Pine Street[5]	TWSC	**F**	**86**	**SB**	**F**	**114**	**SB**	**F**	**>120**	**SB**	**F**	**>120**	**SB**
6. Harvard Avenue/E Pine Street[5]	Signalized	A	7	-	A	6	-	B	13	-	A	10	-
7. Broadway/E Pine Street[4]	Signalized	C	25	-	C	25	-	C	30	-	C	29	-
8. Broadway/E Pike Street[4]	Signalized	C	30	-	C	30	-	**E**	**78**	**-**	**E**	**78**	**-**
A. Harvard Avenue/Existing Primary Garage	TWSC	B	13	EB		NA		D	30	EB		NA	
B. Harvard Avenue/Northern Garage	TWSC	A	9	WB	A	9	WB	A	10	WB	A	10	WB
C. Broadway/Northern Parking Lot	TWSC	C	16	EB		NA		**F**	**>120**	**EB**		NA	
D. Broadway/ Southeastern Parking Lot	TWSC	C	18	WB		NA		E	48	WB		NA	
E. Broadway/ Southwestern Parking Lot	TWSC	D	34	EB	E	41	EB	**F**	**50**	**EB**	**E**	**48**	**EB**
F. Boylston Avenue/ Future Garage 1 Access	TWSC		-		A	9	WB		-		B	10	WB

Note: TWSC = Two-Way Stop Controlled. **Bold** text indicates operating at LOS E or F if signalized or LOS F for TWSC.
NA = Not applicable, this access would not exist with buildout of the MIMP Alternative.
1. Level of Service (A – F) as defined by the *Highway Capacity Manual* (TRB, 2016)
2. Average delay per vehicle in seconds
3. Worst movement reported for TWSC intersections.
4. Evaluated using HCM 2000.
5. Due to the poor operations of the southbound movement at the Boylston Avenue/E Pine Street intersection, it is anticipated that some drivers headed southeast from the new garage under the Action Alternative would utilize the Harvard Avenue signal for a signalized southbound left-turn movement rather than experience the greater delay at the Boylston Avenue/E Pine Street stop-controlled movement. This is reflected in the operations for the Action Alternative.

As shown in Table 26, during the weekday AM peak hour, the intersections would continue to operate at LOS D or better except for the southbound approach to the Boylston Avenue/E Pine Street intersection. Additional discussion of the Boylston Avenue/E Pine Street intersection is provided below. That intersection operates at LOS F for both the No Action and Action Alternatives.

During the weekday PM peak hour, most study intersections (both off-site and campus parking accesses) are forecast to operate LOS D or better. Three intersections operate below LOS D: Boylston Avenue/E Pine Street, Broadway/E Pike Street, and Broadway/Southwestern Parking Garage. These operate at LOS E or F for both the No Action and Action Alternatives.

The causes of the poorer LOS operations are discussed below.

Broadway/E Pike Street Intersection – The Broadway/E Pike Street signalized intersection is forecast to operate at LOS E during the weekday PM peak hour under the No Action and Action Alternatives. The forecast delay with the Action Alternative would be approximately 1 second less than the No Action conditions. This is due to the shift in travel patterns associated with changes in parking locations and access. The Action Alternatives impact at the Broadway/E Pike Street intersection is not considered significant since overall delay does not increase by more than 5 seconds.

Broadway/Southwestern Parking Lot – The eastbound approach of this driveway is forecast to operate at LOS F with the Action Alternatives during the weekday AM and PM peak hours, consistent with the No Action Alternative. There is an additional 2 seconds of delay. Additionally, the eastbound approach of the driveway is forecast to degrade to operate at LOS E during the weekday AM peak hour with the Action Alternative relative to LOS D under No Action conditions. The forecast delay is associated with minimal eastbound vehicles (7 or fewer during both the AM and PM peak hours) conflicting with a high number of forecast pedestrians. Given the low vehicular volumes of the stop-controlled approach, this is not considered a significant operational impact.

Boylston Avenue/E Pine Street Intersection – The southbound approach of this two-way stop-controlled intersection is forecast to operate at LOS F with the Action Alternatives during both the weekday AM and PM peak hours, consistent with the No Action Alternative. The southbound approach is one shared lane with parking provided along the west side of Boylston Avenue; these restrict total southbound capacity. The poor operations are for the southbound left and through movements. However, there are fewer than 30 AM peak hour vehicles and 60 PM peak hour vehicles. But these conflict with the high volume of pedestrians crossing this leg (i.e., approximately 300 pedestrians in the AM peak hour and 600 pedestrians in PM peak hours). Given the significant delay for the southbound approach, the Action Alternative traffic operations assume some driver’s outbound from the proposed Boylston garage access turn right out, go around the block and then choose to use the Harvard Avenue/E Pine Street signal rather than wait at the stop-controlled approach at Boylston. This travel pattern for outbound from the Boylston garage access is reflected in the operational analysis described above.

The Manual on Uniform Traffic Control (MUTCD) signal warrants were reviewed for the Boylston Avenue/E Pine Street intersection. The four- and eight-hour vehicular volume signal warrants were evaluated based on the HCS7 Software. The pedestrian volume warrant was also evaluated. Hourly traffic and pedestrian volumes are developed using the weekday PM peak hour traffic volumes and applying the hourly distribution from the National Cooperative Highway Research Program (NCHRP) Report 365 Travel Estimation Techniques for Urban Planning. A traffic signal should not be installed unless one or more of the signal warrants are met. The satisfaction of a traffic signal warrant or warrants does not itself require the installation of traffic control signal; however, locations that would meet a warrant or warrants and would benefit with operational and safety improvements are candidates for installation of a traffic signal. The signal warrant analysis reflects volumes without the diversion of traffic to the Harvard Avenue/Pine Street signalized intersection, as with a signal it is unlikely that drivers would take a longer travel route.

The signal warrants are included in Appendix J and show the four- and eight-hour volume and pedestrian warrants are not met.

A signal is not warranted at the Boylston Avenue/E Pine Street intersection. Alternative improvements at the intersection are recommended to reduce the impacts of the Action Alternatives. Chapter 5 describes potential mitigation measures.

Review of Potential Harvard Garage Access. The current proposal would relocate Site 1 (Harvard garage) access from Harvard Avenue to Boylston Avenue. An additional evaluation was completed to understand the impacts if Harvard Avenue was used to access the redeveloped parking garage north of E Pine Street between Boylston Avenue and Harvard Avenue instead of Boylston Avenue.

The additional analysis reviewed traffic operations associated with maintaining the access via Harvard Avenue. Under this scenario, the majority of campus parking would be accessed via Harvard Avenue (261 stalls within the redeveloped parking garage and the ITEC 198 stalls accessed further north along Harvard Avenue). The level of parking proposed is similar to the No Action condition with the existing 510 stalls accessed via Harvard Avenue. Given the similar parking density, it is anticipated that if access were provided via Harvard Avenue rather than Boylston Street, then the off-site intersection operations would be similar to No Action. The signalized Harvard Avenue/Pine Street intersection would operate at LOS B or better during the peak hours. The Boylston Avenue/E Pine Street intersection would continue to operate at LOS F during the peak hours.

Traffic Safety

As traffic volumes increase, traffic safety issues could increase proportionally. As shown in the trip generation table above (see Table 24), the total person trips are forecast to increase with the Action Alternative relative to the No Action condition due to more student housing on campus. There would be an increase in non-motorized activity surrounding campus.

It should be noted that the existing collision data was primarily collected prior to the completion of the Pike Street Mobility Improvements project in September 2019. That project reduced the vehicle travel lanes to one in each direction, added a protected bike lane in each direction, removed parking, and reconfigured load zones between Capitol Hill to Downtown. Providing a protected bike lane and removing parking reduces conflicts between motor vehicles and bikes. The intention of this project was to reduce collisions. Therefore, collisions with pedestrians and bicyclists along this corridor are expected to level off or decrease.

Parking

The Action Alternatives removes the parking accessed via Broadway. All new parking facilities will prioritize electric vehicles, carpooling, and other sustainable modes such as bike and scooter parking. Up to 494 vehicle parking stalls are planned with both Action Alternatives including:

- **Redeveloped Parking Garage** (Site 1 on Figure 20) – The existing Harvard parking garage located north of E Pine Street between Boylston Avenue and Harvard Avenue would be redeveloped with student housing and 261 parking stalls. Access to the new parking garage is planned via Boylston Avenue instead of the current Harvard Avenue access. There is an existing access/curb cut to the Harvard parking garage along Boylston Avenue, which is not currently used.
- **New Parking Garage** (Site 3 on Figure 20) – The existing surface parking lot located at the northwest corner of the Broadway/E Howell Street intersection (1843 Broadway) would be removed and a new parking garage would be constructed under the planned ITEC building. The garage is planned to include 198 stalls. Access would be provided via Harvard Avenue via a connection through the Science and Math (SAM) garage. No access would be provided via Broadway given the conflicts with the existing streetcar and protected bike lanes.
- **SAM Garage** (Site 2 on Figure 20) – This existing garage in the Science and Math building would remain with 35 parking stalls. Access would be provided on Harvard, connecting to the new ITEC building parking.

Source: Starling Whitehead & Lux Architects, March 2024

Figure 20. Action Alternative Proposed Parking

Construction

Construction of the MIMP would occur over a 10- to 15-year period. The construction schedule of any one of the individual Action Alternatives projects would generally be 2 years. Activity related to construction would vary with low activity during the early portion, higher activity in the middle timeframe and then tapering off to lower activity as the construction closes out. Construction impacts for the Action Alternatives would include:

- Arrival, departure, and parking of construction worker vehicles.
- Delivery of construction materials.
- Removal of debris associated with demolition activity.
- Delivery of construction vehicles and machinery.
- Delivery or removal of material associated with fill or excavation of activity.
- Potential impacts to adjacent bicycle, pedestrian, transit, streetcar, and vehicle traffic.

At this time, the specific number of deliveries, workers and other construction activity are unknown. However, the analysis of non-motorized, transit and vehicle operations in this study shows there is capacity to accommodate additional trips at most locations. Construction impacts on the surrounding transportation system are expected to be similar to those disclosed for buildout of the alternatives.

Construction workers driving to the site could also result in additional parking demand for the campus. Parking demand would be managed for each project through a combination of on-site parking accommodation as available and provision for off-site parking for construction employees.

Construction impacts would be temporary. A construction management plan would be developed prior to beginning construction to mitigate impacts. The construction management plan would work to minimize related-off-site transportation impacts.

Loading

Loading activities associated with service, and deliveries and garbage will continue to be centralized at the Edison Building near the intersection of Harvard Avenue and E Olive Street. Campus garbage would also continue to be centralized. There are four off-street loading berths at the Edison Building. In addition, there are commercial load zones along Harvard Avenue that would remain. Short-term visitor/deliveries parking is also accommodated within the on-campus parking supply. No changes are proposed to the loading and delivery facilities with the MIMP. Centralized campus operations will continue to be provided at the Edison Building. The No Action and Action Alternatives would have the same campus population; therefore, delivery/loading activity is anticipated to be similar. Existing and proposed short-term parking, loading zones and berths are anticipated to be sufficient to accommodate the Action Alternative needs.

The proposed student housing is anticipated to accommodate move-in/move-out activity for students within the proposed parking associated that is planned as part of the student housing project. There will likely be a concentration of loading for the student housing at the beginning and end of the school year and without management there could be impacts to the surrounding street network. SCC would develop a plan for managing the student housing activity with consideration of closing a portion of the garage for move-in/move-out, temporary traffic control at the Boylston Avenue/E Pine Street and Harvard Avenue/E Pine Street intersections and assigning arrival and departure times.

Chapter 5. Mitigation

This chapter presents mitigation measures that would offset or reduce potential impacts of the Action Alternatives. The impacts of the Action Alternatives (Proposed MIMP and No Boundary Expansion) are similar, which would result in similar mitigation measures.

Intersection Improvements

The Action Alternatives would impact the Boylston Avenue/E Pine Street intersection. However, traffic volume signal warrants are not met, so a signal is not proposed. The southbound approach of the intersection would operate at LOS F during the weekday AM and PM peak hours due to the high volume of pedestrians with all the Alternatives. Impacts of the Action Alternatives could be mitigated at this intersection by:

- **Installing Pedestrian Improvements** – Curb bulbs exist along the east side of the intersection. Similar curb bulbs could be installed on the west corners of the intersection to reduce the pedestrian crossing distance. Pedestrian improvements would not change the LOS at this intersection; however, they would improve pedestrian safety.
- **Restrict Movements During the Peak Periods** – Restricting the southbound left and through movements during the peak periods would significantly reduce delay and pedestrian conflicts. Restricting these movements would result in additional local circulation to access the adjacent signalized intersections along E Pine Street. As noted in the evaluation of traffic operations, some drivers may choose to divert to signalized intersections regardless of restriction rather than experience the long delays at unsignalized intersections.
- **Removing parking** – By removing the existing parking along the west side of Boylston Avenue, a separate southbound right and southbound left/through lane could be provided to reduce delays to right-turning vehicles at the intersection.

Pedestrian Crossing

The Action Alternatives would increase the number of pedestrians to and from the campus. Specifically, activity in this area of campus would increase with the expansion of the Student Union. The analysis of pedestrian volumes between the campus and Cal Anderson Park showed a crosswalk would be warranted under the Action Alternatives. It is recommended that the midblock crosswalk be installed on Nagle Place between the campus and Cal Anderson Park with the Student Union project.

Loading Management

The Action Alternative would provide student housing. This would result a in concentration of move-in/move-out activity at the beginning and end of the school year. SCC would develop a plan for managing the student housing activity, considering elements such as:

- Closing a portion of the garage for move-in/move-out.
- Temporary traffic control at the Boylston Avenue/E Pine Street and Harvard Avenue/E Pine Street intersections
- Assigning arrival and departure times.

SCC would monitor loading needs for both student housing and other campus activities and allocate additional on-campus parking for loading or short-term parking, if needed.

Transportation Management Plan

In addition to the proposed intersection improvements and loading management, the MIMP includes a proposed TMP. The TMP defines programs included in the Transportation and Parking Element of the Master Plan per SMC 23.69.030.F. The SCC TMP is outlined in Chapter 6 of the MIMP. The SCC TMP includes programs and strategies for resident and commuter students and staff that are designed to reduce parking and traffic demands associated with projected growth at SCC. The programs and strategies address bicycle and pedestrian amenities, parking management, transit programs and incentives, carpool/vanpool programs and incentives, shared mobility amenities, and telecommuting benefits.

The TMP also set a SOV goal for SCC. As described previously, the current TMP is achieving a SOV of 19 percent for the campus population. A 15 percent SOV goal is proposed for the MIMP TMP. The goal applies to the daytime campus population (students and employees).

Construction

A construction management plan describing procedures for construction activity, including such items as truck routes, hours of operation, and construction parking, would be developed for approval by the City. The following measures would be included in the construction management plan to mitigate potential traffic and parking impacts of construction activity during each build phase of the MIMP.

- Contractors would be required to direct that all construction worker vehicles be parked in either a remote off-site parking lot, designated on-campus available parking, or in a temporary on-site parking area.
- Construction activities would be scheduled so that the most intensive activities in terms of construction traffic are spread out over time and occur outside of the peak periods.
- Safe pedestrian and vehicular circulation would be provided adjacent to the construction site using temporary walkways, signs, and manual traffic control (flaggers).
- Construction material delivery vehicles would be prohibited from leaving or entering the area during AM and PM peak periods (7-9 a.m. and 4-6 p.m.), including hauling of excavation and fill materials.
- A construction staging plan to minimize or consolidate potential shutdowns or disruption of streetcar service on Broadway would be developed.

Chapter 6. Secondary and Cumulative Impacts

Secondary and cumulative impacts on area transportation system are included in the analysis of direct impacts. In addition, there is a potential for cumulative impacts due to the combined effects of traffic being generated by development of the Campus Master Plan and construction activities on campus and in the surrounding vicinity. This potential impact could be mitigated by scheduling construction activities such that arrival and departure of construction traffic occurs outside the peak periods.

Chapter 7. Significant and Unavoidable Adverse Impacts

Development of the MIMP and an increase in on-campus population to up to 7,500 student FTE by the year 2035 would result in increases in all travel modes – vehicles, transit, pedestrians, and bicycles. It is anticipated that with the proposed mitigation there would be no significant and unavoidable impacts related solely to campus growth.

The Boylston Avenue/E Pine Street intersection would operate at LOS F under the No Action and Action Alternatives and potential improvements at this location are limited. This is considered a cumulative significant and unavoidable adverse impact that would likely occur with or without the proposed MIMP. On-going TMP measures implemented by the SCC would reduce overall campus vehicle trip generation and reduce related impacts at this intersection.

Appendix A Seattle Central College Site D and Campus Trip Generation and Parking memorandum

MEMORANDUM

Date:	November 10, 2020	**TG:**	1.19203.00
To:	John Shaw – Seattle Department of Construction and Inspections Jackson Koch and Jonathan Williams – Seattle Department of Transportation		
From:	Stefanie Herzstein and Kassi Leingang – Transpo Group		
cc:	Lincoln Ferris – Seattle Central College Stephen Sterling – Schreiber Starling & Whitehead Michele Sarlitto – EA Engineering, Science and Technology Terry McCann – EA Engineering, Science and Technology		
Subject:	Seattle Central College MIMP Transportation Analysis Scoping		

This memorandum provides information regarding master plan alternatives and key assumptions to confirm the scope of the transportation analysis for the Seattle Central College (SCC) Major Institution Master Plan (MIMP) Environmental Impact Statement (EIS). The alternatives, trip generation assumptions, forecasting method, and study area are described.

We appreciate your review and feedback on the assumptions and scoping elements as outlined in this document.

COVID-19 Considerations

The COVID-19 pandemic has significantly changed how College education is administered and travel patterns. Classes for SCC are primarily online and travel to campus is limited. It is uncertain how SCC's educational programs and travel patterns will change as a result of COVID-19. Based on coordination with SCC, more programming could remain online than pre-COVID conditions. Given the uncertainty of post-COVID conditions, this analysis assumes that transportation conditions will return back to pre-COVID levels with most classes on-campus. This approach of assuming traffic and parking levels are consistent with pre-COVID conditions as a foundation of the analysis is likely a conservative estimate of transportation impacts since there may be more classes administered online.

Alternatives

The proposed SCC Campus Master Plan has a 10 to 15-year planning horizon. The transportation analysis would evaluate a horizon year of 2035 consistent with the City of Seattle's Comprehensive Plan. The projected number of full time equivalent (FTE) students for SCC is based on the State of Washington forecasts and is unrelated to the EIS Alternatives and MIMP. Campus population growth is anticipated to occur with or without the MIMP. The MIMP's main intent is to expand the boundary, improve existing facilities and provide on-campus student housing. There is one new academic building. Since the MIMP does not enable campus population growth, the campus population is anticipated to be the same for all Alternatives including No Action.

The MIMP includes proposed and potential projects with the potential projects being outside the current MIMP boundary on parcels not currently owned by SCC. The proposed MIMP projects are new student housing and reconstruction of the parking garage, new Information Technology Education Center (ITEC) building, renovation of Broadway Achievement Center and renovation and expansion of the Student Union. The potential MIMP projects include two buildings approximately 50,000 square-feet for either academic or employee housing needs. Potential projects are on property that is currently not own by SCC; therefore, these projects may or may not occur within the timeframe of the MIMP.

SCC is currently developing the specific EIS Alternatives; however, from the transportation perspective the only differences between the Alternatives are related to the number of commuter versus residential students (since the total campus population is the same for all Alternatives) and the location(s) of parking on-campus. The description of the EIS Alternatives from a transportation perspective is provided below.

- **No Action Alternative**: The campus population would include 7,500 FTE students on campus and 1,000 employees. The on-campus student housing would include 70 beds consistent with existing conditions. The location of parking and the number of spaces (633 spaces) would remain the same as current conditions.
- **Proposed MIMP Alternative**: The campus population would include 7,500 FTE students on campus and 1,000 employees. The on-campus student housing would include 570 beds. The existing surface lots would be removed and all parking would be provided within 3 garages with up to 500 spaces. These garages would shift the concentration of parking and access to parking; therefore, the MIMP changes the local trip distribution of traffic to and from campus. There would be a boundary expansion to the MIMP (see Attachment A).
- **No Boundary Expansion Alternative**: The campus population, on-campus student housing and parking supply would be the same as the Proposed MIMP Alternative. The MIMP boundary would not be expanded, which would mean that the potential MIMP projects (two buildings approximately 50,000 square-feet for either academic or employee housing needs) would not occur or could occur on-campus. *This alternative is being further defined by the project team relative to the potential projects; however, the campus population numbers will not change.*

Attachment A includes a site plan for the existing/No Action condition as well as the Proposed MIMP Alternative. The potential projects include consideration for employee housing near campus, which could reduce parking demands and employee trips to campus. As part of the evaluation of transportation impacts in the EIS, Transpo will describe the trip and parking generation characteristics associated with the potential projects considering employee housing near campus and how impacts compare to the Alternatives.

Trip Generation

The methodology used to estimate the SCC trip generation is consistent for existing conditions and the Alternatives. Trip generation for the campus is related to students, staff/faculty and visitors. Campus trip generation is estimated based on three components: (1) commuter-related trips (inclusive of staff/faculty, students, and visitors), (2) campus housing trips and (3) other trips related to deliveries or visitors not using campus parking. Commuters and residents have different trip generating characteristics since on-campus residents typically drive less given that the campus is within walking distance.

Trip generation for use in transportation impact analyses are typically estimated based on students or beds for University/College uses. Based on previous work with similar University projects in Seattle, forecasted total on-site student FTE provides the basis for estimating commuter trip generation and total beds is the basis for estimating residential trip generation. Commuter trips captures both student and employee trips to campus. While the Institute of Transportation Engineers' *Trip Generation Manual*, 10th Edition contains information on University/College uses, trip generation estimates based on local model splits and travel characteristics is recommended. The trip generation assumptions and details are on the method for the existing, No Action, and Action Alternatives are described below. The populations for each scenario are summarized in Table 1.

Table 1. SCC Campus Population Assumptions

	FTE Students			
Alternative	**Commuting**	**Resident**	**Total**	**Employees/Staff**
Existing	6,680	70	6,750	950
No Action	7,430	70	7,500	1,000
Action	6,930	570	7,500	1,000

Notes: FTE = full-time equivalent

As shown in Table 1, the campus population will increase by 750 students and 50 employees with the No Action and Action Alternatives. With current COVID conditions, it is not possible to collect existing trip generation data for the campus because programming is being conducted online and does not reflect typical on-campus behavior. Existing campus trip generation data was collected in 2015 prior to the opening of the Capital Hill Link Light Rail station. In order to reflect the existing post-COVID conditions for the EIS Affected Environment, the existing 2015 trip generation is adjusted based on 2019 student and employee mode splits. The existing campus population is the same in both 2015 and 2019.

Table 2 summaries the existing 2019 mode splits for commuting employees and students as well as the forecasted 2035 modes splits for the Alternatives considering the expansion of Link Light Rail. The estimated shift to light rail was based on evaluating Fall 2018 zip code data for staff and students relative to the planned Link Light Rail station expansions. Planned Link light rail extensions that would are anticipated to be operational by 2035 and are likely to impact travel to SCC and thus were included in the analysis include:

- Northgate (2021)
- East Link (2023/2024)
- Lynnwood Link (2024)
- Federal Way/Tacoma Link (2024/2030)
- West Seattle Link (2030)
- Ballard Link (2035)

Links that were not included are the Kirkland/Issaquah and Everett Links as these would be opened after 2035. Additionally, the planned Bus Rapid Transit (BRT) lines planned along SR 522 and I-405 were not included in the analysis as little student or staff populations are located in these areas.

The zip code maps are included in Attachment B. The maps show that the extension of Light Rail will provide increased access for many employees and students. To estimate the change in mode split, it was assumed that approximately 20 to 25[1] percent of students or employees living within a zip code that includes a future Link station would switch their mode of previously either drive alone or bus to Light Rail

[1] 20-25 percent was assumed in all zip codes and the variation in percentage was due to the location of the station within the overall zip code. The only exception was the Tacoma zip codes in which only 5 percent was assumed. The reduced percentage was assumed due to the further distance (and associated longer travel time) to the SCC campus.

Table 2. SCC Mode Splits for Commuting Employees and Students

	Existing		Alternatives[3]	
Mode of Travel	**Employees[1]**	**Students[2]**	**Employees**	**Students**
Drive Alone/Motorcycle	34%	17%	28%	13%
Carpool/Vanpool	9%	2%	9%	2%
Total Auto	**43%**	**19%**	**37%**	**15%**
Transit (Bus and Transit)	44%	66%	50%	70%
Non-Motorized/Other	13%	15%	13%	15%
Total Non-Auto	**57%**	**81%**	**63%**	**85%**

Notes: Values presented in the table were rounded to the nearest whole number.
1. *2019 Seattle Central College Commute Trip Reduction Survey*
2. The 2019 data is from the *2019 Student Transportation Survey* conducted by Seattle Central College. Student mode splits do not include online only students as the student enrollment numbers being used are for on-campus students only.
3. Reflects shift in mode split with expansion of Link Light Rail based on zip code data for where employees and students live relative to new stations. The shifts in modes relative to existing are shaded.

As shown in the table, under the Alternative conditions with the expansion of the Link Light Rail system, a 6 percent and 4 percent decrease in drive alone is projected for the staff and students, respectively, resulting in increases in rail use. In addition, although not reflected in the table, within the overall transit use, there is anticipated to be a 6 percent shift from bus to rail use with the Link Light Rail extension for both staff and students.

Existing

The foundation of the existing trip generation is the *Seattle Central College Site D and Campus Trip Generation and Parking* memorandum dated April 28, 2016 (herein referred to 2016 Campus Study), which used 2015 trip and parking data.[2] The data collected for the 2016 Campus Study includes parking inventory and occupancy counts at the existing on-site parking lots and garage, on-street parking counts, student and staff zip code data, and student and staff travel surveys. Data is inclusive of commuter-related trips (inclusive of staff/faculty, students, and visitors), campus housing trips as well as deliveries.

Since the 2015 trip generation was before the Capitol Hill Link Light Rail station opened, adjustments were made to the 2015 trip generation based on the 2019 mode splits for the campus to form the basis of existing conditions for the MIMP EIS Affected Environment. Existing trip generation was estimated for both commuters and residents based on a commuter trip rate of trips per student FTE and the residential trip rate of trips per bed. As described previously, there are approximately 950 employees and 6,750 full time students (inclusive of residents using the 70 beds in campus housing). Based on the 2016 Campus Study, the trip generation method accounts for absences and full-time equivalents for staff with not everyone working on-campus daily. The estimated daily population on site is approximately 830 total employees and 5,270 students with 5,200 total commuting FTE students and 70 residents. There would also be other visitors and deliveries on-campus that are captured in the trip generation. The details for commuter, residential and other trip generation are described below.

Commuter Trip Generation. The commuter weekday daily person trip generation was estimated based on the commuting student and staff populations as well as on the mode splits shown in Table 2. Commuter population includes all commuting trips that use campus parking such as student, staff/faculty and visitors. The vehicular person trips are converted to vehicular trips assuming an average vehicle occupancy of 2.2 for the carpool/vanpool mode based on 2016 Campus Study. The weekday AM and PM peak hour trips were estimated based on their

[2] Included in Attachment C.

percentage of daily trips from the 2016 Campus Study. The previous study showed 8 and 8.7 percent of the daily trips occurring during the weekday AM and PM peak hours, respectively.

Residential Trip Generation. Student housing for the campus currently includes 70 beds. The separate residential trip generation was estimated using rates identified in the Institute of Transportation Engineers (ITE) *Trip Generation Manual*, 10th Edition (2017) for Off-Campus Student Apartment - Adjacent to Campus (LU #225). In order to capture the specific mode split characteristics anticipated for the students at SCC, the vehicular trip generation was estimated by first calculating the total person trips, then applying the mode splits[3] and average vehicle occupancies (AVO) specific to the students at SCC. This rate is based on ITE and includes all trips associated with the campus housing inclusive of residents, visitors, and deliveries.

Others Trip Generation. In addition to the residential and commuter trips, trip generation for visitors and other deliveries to the campus was included. Note that this considers only other trips associated with the campus not associated with the student housing as all student housing related trips are included in the residential trip rate above.

The existing trip generation is summarized in Table 3. Detailed trip generation calculations are provided in Attachment D.

[3] The mode splits for the residents were assumed to be consistent with the commuter students. Note that consideration of the general residents within SCC's census tract was given; however, the commuter students mode split was more applicable for the specific use of students compared with general residential users in the vicinity.

Table 3. Existing Trip Generation Summary

Time Period	One-Way Person Trips				Vehicular Trip Rate[3]	Vehicle Trips[4]		
	Vehicular[2]	Transit	Non-Motorized/ Other	Total		In	Out	Total
Commuter[1]								
Daily	1,343	3,796	889	**6,028**	*0.48 per commuter FTE student*	1,246	1,246	**2,493**
AM Peak Hour	107	303	71	**481**	*0.04 per commuter FTE student*	157	42	**199**
PM Peak Hour	117	330	77	**525**	*0.04 per commuter FTE student*	95	122	**217**
Residents								
Daily	27	94	22	**142**	*0.71 per bed*	25	25	**50**
AM Peak Hour	1	4	1	**6**	*0.02 per bed*	0	1	**1**
PM Peak Hour	2	7	2	**11**	*0.06 per bed*	2	2	**4**
Other[5]								
Daily	67	190	44	**301**	*0.024 per commuter FTE student*	62	62	**124**
AM Peak Hour	5	15	4	**24**	*0.002 per commuter FTE student*	8	2	**10**
PM Peak Hour	6	17	4	**26**	*0.002 per commuter FTE student*	5	6	**11**
Total								
Daily	1,437	4,079	955	**6,471**		1,334	1,334	**2,668**
AM Peak Hour	114	322	76	**511**		164	46	**210**
PM Peak Hour	125	354	83	**562**		102	130	**232**

Note: FTE = full-time equivalent.
1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.2 was assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Trip rate shown per FTE for commuters and per bed for residents. FTE = full-time equivalent. The existing total campus commuter student FTE is 6,680. There are 70 existing beds.
4. Reflect two-way trips (both inbound and outbound).
5. Inclusive of visitors and other services for campus. Excludes residential visitors and deliveries that are captured in the residential trip rate.

As shown in the table, the campus currently generates approximately 2,668 vehicles per day with 210 trips occurring during the weekday AM peak hour and 232 trips occurring during the weekday PM peak hour.

The residential trip rate is estimated to be greater than the commuter trip rate during the weekday daily and PM peak hours. The higher residential PM trip rate is associated with operations of the school where there are less evening classes; however, resident trips are slightly higher associated potential evening work trips and/or recreational activities off-campus.

MIMP Alternatives

The trip generation for the No Action and Action Alternatives (Proposed MIMP and No Boundary Expansion) were estimated using the same method as the existing trip generation and considered the future population and mode splits shown in Tables 1 and 2. Both the No Action and Action Alternatives anticipate an increase in the population to 7,500 student FTE and 1,000 employees; however, the Action Alternative would shift some of the commuting FTE student population to campus student housing as summarized in Table 1. A comparison of the existing, No Action, and Action Alternative trip generation is summarized on Figure 1 for the weekday daily and peak hours.

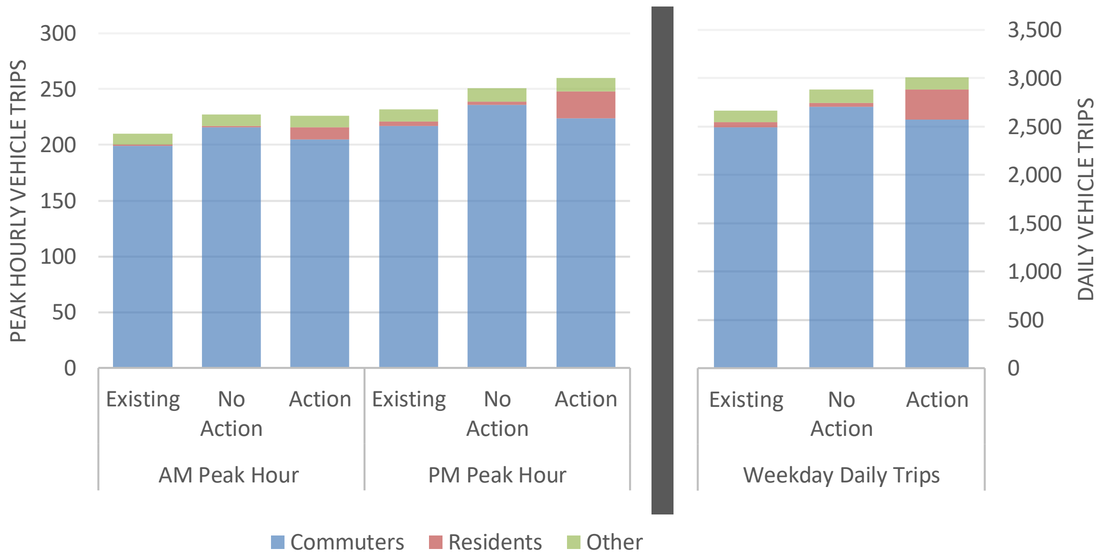


Figure 1. SCC Weekday Trip Generation Comparison

The net new trip generation for the Action Alternatives relative to the No Action Alternative is summarized in Table 4. The detailed trip generation is provided in Attachment D. As shown in Table 4 and on Figure 1, 130 additional daily trips, 9 additional weekday PM peak hour trips, and no additional overall weekday AM peak hour trips would be generated with the Action Alternative(s) relative to the No Action Alternative. Although the overall population totals are the same for the No Action and Action Alternatives, the change in trip generation is due to the proposed student housing with the Action Alternatives resulting in a reduction in commuter-related trips and an increase in resident-related trips.

Table 4. Action Alternative Net New Trip Generation Summary

Time Period	One-Way Person Trips: Vehicular[2]	Transit	Non-Motorized/ Other	Total	Alternative Vehicular Trip Rate[4]	Vehicle Trips[3]: In	Out	Total
Commuter[1]								
Daily	-74	-349	-75	-498	*0.37 per commuter FTE student*	-69	-69	-138
AM Peak Hour	-6	-28	-4	-38	*0.03 per commuter FTE student*	-9	-2	-11
PM Peak Hour	-6	-30	-7	-43	*0.03 per commuter FTE student*	-5	-7	-12
Residents								
Daily	152	709	152	1,013	*0.55 per bed*	138	138	276
AM Peak Hour	5	26	5	36	*0.02 per bed*	5	5	10
PM Peak Hour	11	55	12	78	*0.05 per bed*	11	10	21
Other[5]								
Daily	-4	-17	-4	-25	*0.018 per commuter FTE student*	-5	-5	-10
AM Peak Hour	0	-1	0	-2	*0.001 per commuter FTE student*	0	0	0
PM Peak Hour	0	-2	0	-2	*0.002 per commuter FTE student*	0	0	0
Total								
Daily	74	342	72	490		65	65	130
AM Peak Hour	-1	-4	1	-4		-4	3	-1
PM Peak Hour	5	23	5	32		6	3	9

Note: FTE = full-time equivalent.
1. Person trips are 1-way trips and include both students and employees.
2. Vehicular person trips include both single occupancy vehicles and carpools/vanpool. An average vehicle occupancy of 2.2 persons per vehicles was assumed for the carpool/vanpool to convert person trips to vehicular trips.
3. Reflect two-way trips (both inbound and outbound).
4. Reflects adjustment for future mode splits.
5. Inclusive of visitors, service for campus. Exclusive of residents as the residential rate is based on the ITE trip rates which includes all associated trips.

Transit

As shown in the Table 4 trip generation summary, transit accounts for the largest percentage of net new person trips with the MIMP Action Alternatives during the weekday daily and PM peak hour conditions. The increase in transit is related to the shift in commuter trips to residential related trips and due to the residential trip rates being greater than the commuter trip rate during the weekday daily and PM peak hour conditions. The MIMP will provide an analysis of future weekday ridership compared to anticipated capacity. The transit analysis will review transit service as a whole to the SCC campus and evaluate whether the additional ridership with the Alternatives can be accommodated. Consideration will be given to planned improvements and changes in transit services based on Sound Transit Link Light Rail latest planning, King County Metro Connects and Seattle's Capital Improvement Program.

The transit capacity analysis will evaluate the level of transit to the campus as a whole and its ability to accommodate new ridership as a result of the MIMP. A load factor of 1.5 to account for standing capacity will be assumed with the analysis. Table 5 provides a summary of the transit capacity assumptions.

Table 5. Transit Capacity

Type	Seated Capacity (per bus or rail car)	Load Factor[1]	Assumed Capacity (passengers per bus or rail car)[2]
40-foot standard bus	40	1.5	60
60-foot articulated	60	1.5	90
Link light rail car	74	NA	200

Source: King County Metro and Sound Transit
Note: NA = Not Applicable
1. Based on coordination with King County Metro and Sound Transit, buses and light rail typically accommodate additional standing passengers above what is seated. Metro provided a load factor and Sound Transit provided a car capacity.
2. Assumes a portion of passengers will be accommodated through standing. Light rail has a larger standing capacity than bus. The light rail load factor considers a maximum capacity after a sporting event and is not "crush" load.

Background transit growth unrelated to SCC MIMP for the transit analysis will be forecasted by applying a 1 percent per year growth rate to existing ridership consistent with Seattle 2035 City Comprehensive Plan transit growth. The SCC transit trips will be added to the background transit trips to form the basis of the analysis.

Non-Motorized Access/Circulation

A review of the non-motorized access and circulation will be conducted. This analysis will focus on the proposed MIMP facilities on campus and existing and future facilities adjacent to the campus. Consideration will be given to how the proposed access points for new buildings would connect to the adjacent sidewalks and paths. The Pine Street crossings at Harvard Avenue and Broadway will be reviewed for connectivity to the campus and considering increased pedestrian activity in the vicinity of the proposed student housing.

Parking

The method for determining parking rates for the campus is similar to the trip generation analysis and considers existing and future travel characteristics.

Supply

The existing on-campus parking supply is 633 spaces located within 2 parking garages and 3 surface lots as shown on Figure 2. Access to the parking garage is provided via Harvard Avenue. The parking would remain unchanged for the No Action Alternative.

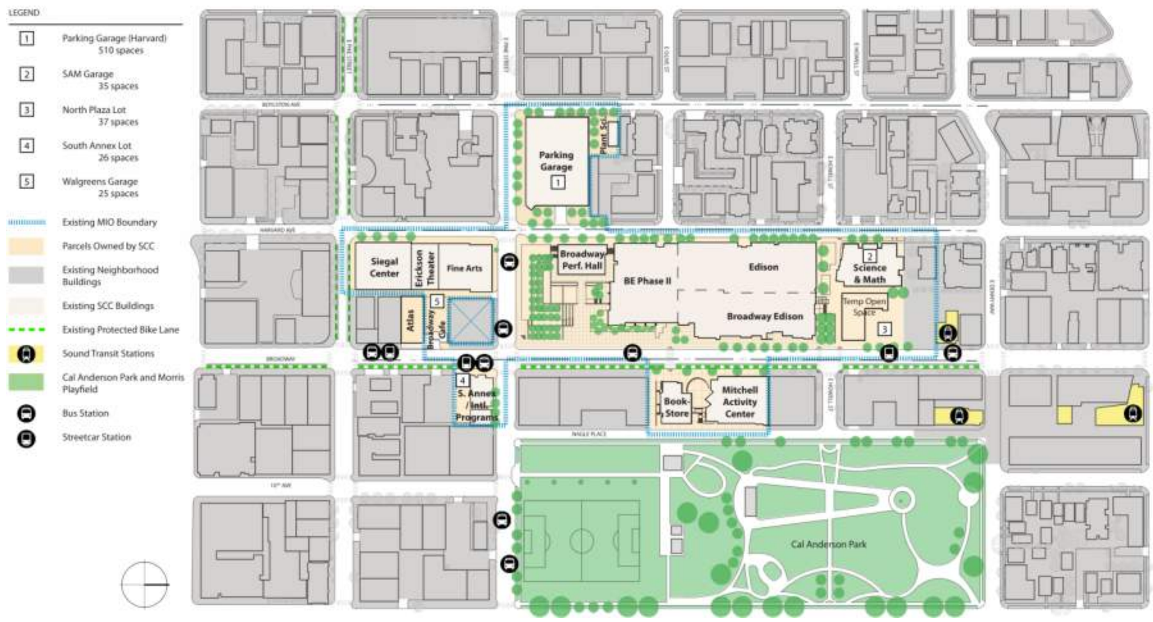


Figure 2. Existing Parking

Under the Action Alternative, the existing surface parking would be removed. Approximately 500 parking stalls are planned which would be located as follows:

- Redeveloped Parking Garage (Site 1 on Figure 2) – The existing parking garage located at the Northeastern corner of the Boylston Avenue/E Pine Street intersection would be redeveloped with the planned student housing and could include up to 265 parking stalls. Access to the garage is planned via Boylston Avenue.
- New Parking Garage (Site 3 on Figure 2) – The existing surface parking lot located at the northwestern corner of the Broadway/E Howell Street intersection would be removed and a new parking garage would be constructed under the planned ITEC building. The garage could include up to 200 stalls. Access would be provided via Harvard Avenue in the vicinity of the existing Science and Math building. No access would be provided via Broadway given the conflicts with the existing streetcar and protected bike lane.
- SAM Garage (Site 2 on Figure 2) – This existing garage in the Science and Math building would remain which includes 35 stalls.

The EIS will discuss how changes to the garage access and operations will reduce potential impacts related to garage queuing onto the adjacent street.

Demand

The foundation of the existing parking demand is the 2016 Campus Study, which used 2015 parking data. Parking considers commuters (students, staff/faculty and visitors) and on-campus residents. A component of the trip generation is other trips, which are short-term visitors and deliveries that are not anticipated to park on-campus.

Commuter Parking Rate. Vehicle trip ends at SCC over a 24-hour period were calculated based on the number of employees and students for the SCC (see Table 1). Vehicle trip ends were applied to the arrival and departure patterns as found during the most recent parking demand counts collected in 2015 and documented in the 2016 Campus Study.[4] It should be noted that the parking counts also include demand associated with off-site uses since the SCC parking is open to the public. Incorporating the future mode split adjustments as shown in Table 2, the rate decreases with the Alternatives with the anticipated increase in light rail use.

Residential Parking Rate. The residential demand was based on parking data collected and documented in the *Hub at Seattle II* memorandum dated February 2019. This study collected parking demand counts at the University of Washington Hub, an existing student housing development located in the U District at the northeast corner of the University Way NE/NE 50th Street intersection. Demand counts were collected over two typical midweek evenings in November 2019 after 9 PM when residential uses typically peak. Table 6 provides a summary of the observed parking demand.

Table 6. Parking Demand Rate Study

Location	Number of Residents	Day 1 Demand	Day 2 Demand	Average Demand	Average Parking Demand Rate
Hub I	248	29	25	27	0.11

Source: Transpo Group, 2018

As shown in Table 6, the average demand was 27 resulting in a parking demand rate of 0.11 vehicles per resident. Consistent with the *Hub at Seattle II* study, the parking demand time of day was assumed to be based on ITE's *Parking Generation* for multifamily (Land Use 221) such that the residential peak parking demand occurs overnight and the 10 a.m. parking demand (the peak parking demand of the commuters and the campus as a whole) is estimated to be 54 percent. The peak parking demand rate as determined in the *Hub at Seattle II* study was assumed for both the existing and Alternative conditions as despite the forecast reduction in vehicle mode split for the Alternatives, no data is available on how this may impact auto ownership. This could be a conservative estimate of future residential parking demand with the Alternatives since consideration is being given to potential restricting residential parking permits.

Table 7 provides a summary of the parking demand both during the commuter peak (10 a.m. as shown during the 2015 parking demand counts) as well as the residential peak (overnight). The peak parking demand rates are also shown in the table for both the commuters and residents. The detailed parking calculations are included in Attachment E.

[4] Updated data was not available for arrival and departure patterns for this analysis and could not be collected due to the current COVID-19 conditions. Arrival and departure patterns are assumed to be the similar to the counts conducted in 2015.

Table 7. Existing Weekday Peak Campus Parking Demand

				Parking Demand[4] (vehicles)			
Type	Size	Unit	Peak Parking Demand Rate[2]	School Peak (10:00 a.m.)	Overnight[3]	Supply	Estimated Peak Utilization
Existing							
Commuter[1]	5,200	Student FTE	0.10	509	56		
Residential	70	Beds	0.11	4	8		
Total	**5,270**			**513**	**64**	**633**	**81%**
No Action							
Commuter	7,430	Student FTE	0.08	553	61		
Residential	70	Beds	0.11	4	8		
Total	**7,500**			**557**	**69**	**633**	**88%**
Action							
Commuter	6,930	Student FTE	0.08	525	58		
Residential	570	Beds	0.11	34	63		
Total	**7,500**			**559**	**121**	**500**	**112%**

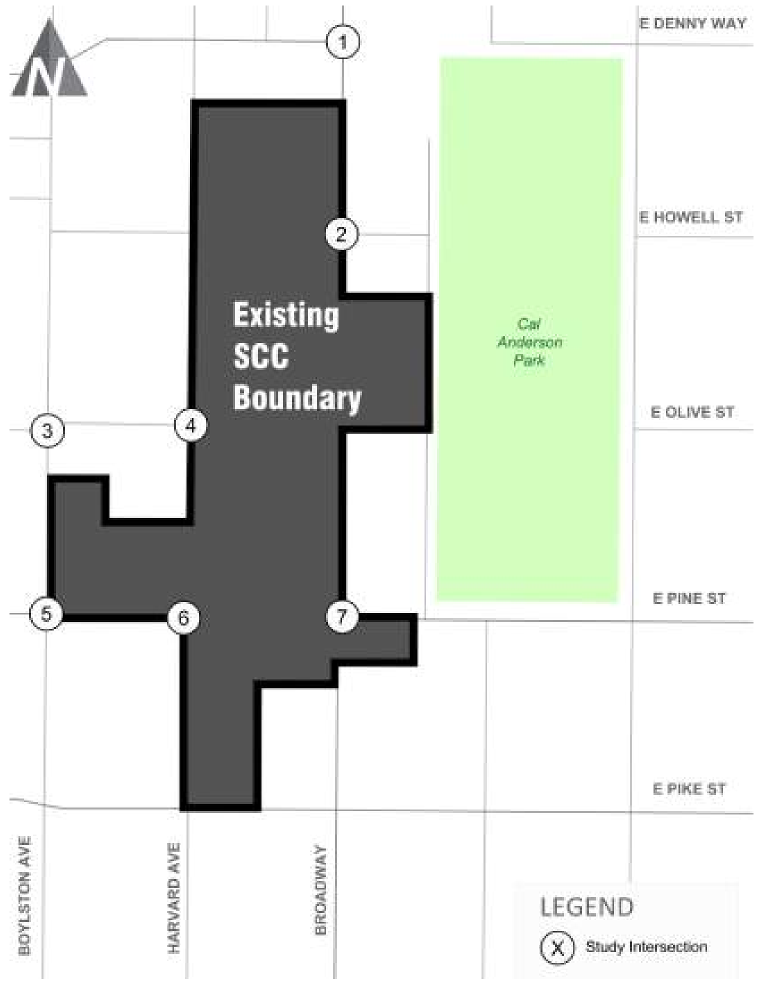
1. The existing analysis assumes a lower level accounting for absences and not all staff working daily for a total of approximately 830 total employees and 5,270 students were assumed for the analysis with 5,200 total commuting FTE students and 70 residents.
2. Peak parking demand rate of residential occurs overnight whereas the commuter peak hour occurs at 10:00 a.m.
3. Commuter overnight parking demand unknown. Assumed to be consistent with 7:00 a.m. demand (prior to school beginning).
4. The peak demand for both the commuters and residents are shaded.

As shown in the table, the existing and No Action peak parking demand is forecast to be accommodated within the existing 633 parking stalls. Under the Action Alternative, there is a potential for parking spillover assuming 500 parking stalls. The EIS will explore potential parking mitigation measures.

Transpo will also review on-street parking surrounding the campus within 800-feet and potential impacts to on-street parking as a result of the MIMP. The existing on-street parking utilization will be based on available data collected by Seattle Department of Transportation (SDOT) and supplemented by data collected by Transpo in 2015. Transpo will compare historical data from 2015 and available data after the opening of the Link Light Rail to make any adjustment in existing on-street parking utilization, if applicable.

Analysis Periods and Traffic Volumes

The MIMP would be developed over the next 10 to 15 years; therefore, an analysis assuming a 2035 horizon year has been identified, consistent with the Seattle Comprehensive Plan. New trips generated by the Action Alternative is anticipated to be limited; however, there would be changes in travel patterns in the immediate vicinity of the campus based on the location of parking. Based on the location of parking and changes in travel patterns, 7 study intersections were identified for weekday AM and PM peak hour analysis. The available data for each intersection is summarized below in Figure 3.



Intersection	Available Data AM	PM
1. Broadway/ E Denny Way	2017	2018
2. Broadway/ E Howell St	-	2018
3. Boylston Ave/ E Olive St	-	-
4. Harvard Ave/ E Olive St	-	-
5. Boylston Ave/ E Pine St	-	-
6. Harvard Ave/ E Pine St	-	2012
7. Broadway/ E Pine St	2015	2018

Figure 3. Study Intersections and Available Data

Due to the current COVID conditions, current traffic counts will be collected and calibrated based on historical count data. The counts will be factored by determining an approximate reduction in volumes under COVID conditions relative to typica conditions. This approach is consistent with other Seattle transportation studies conducted during COVID conditions. An annual growth rate of 1 percent is proposed to be used to grow past counts to existing conditions. The 1 percent annual growth rate would also be applied for the future (2035) No Action Alternative forecasts as well. In addition to the annual background growth rate, 13 pipeline projects were identified in the study area (shown in Attachment F) based on a review of planned developments on the SDCI website and through coordination with SDCI staff. These "pipeline projects" account for the cumulative impacts without the project and have been approved or are in the approval process but have yet to be constructed.

The annual growth for the overall study area between 2020 and 2035 (capturing both the applied 1 percent annual back ground growth rate and trips associated with pipeline developments) is proposed to be limited to 2 percent based on previous review of historical traffic volumes in Downtown and the goals of both providing a reasonable traffic volume forecast and a conservative traffic analysis.[5] Limiting the annual growth is proposed given the 15-year traffic volume forecast further extended due to the need to use past counts for the COVID conditions. This approach is consistent with previous analyses coordinated with SDCI staff which include extended horizon years and the need to forecast traffic volumes during COVID conditions.

Vehicular Trip Distribution and Assignment

The project trip distribution was estimated for residents and commuters as follows:

- **Commuters** – The distribution for the commuters was based on existing travel patterns and zip code data for the campus population and is shown in Attachment G.
- **Residential** – The residential trip distribution is based on *OnTheMap*, a web-based mapping and reporting application, showing where people work that live within a quarter-mile radius of the proposed site. The zip codes were evaluated to determine if a person would be more likely to travel to the zip code via vehicle or by other means. Trips to zip codes closer to the proposed project site or in more transit-oriented locations are more likely to use transit, walk, bike, or other non-SOV modes. Zip codes outside the Seattle City limits and/or further from the site are more likely to drive. The anticipated residential distribution is shown in Attachment G.

Travel patterns in the immediate vicinity of the campus will be assigned proportionately to the locations of on-site parking both under the existing and No Action Alternatives as well as the future Action Alternative. The Alternative traffic volumes will be determined by adding the project trips to the background forecasts.

Additional Analysis Elements

Based on the initial EIS scoping meeting with City staff, the transportation analysis will also consider:

- **Traffic Safety** – Most recent 3-year collision records will be summarized in the study area and the potential traffic safety impacts of the EIS Alternatives will be reviewed**.**
- **Transportation Management Program (TMP)** – The existing transportation management program and SOV goal will be documented. Transpo will provide an understanding as to whether or not the existing SOV goal is being met. Based on the analysis, Transpo will help evaluate the implications of any changes to the SOV goal and potential TMP elements that could be consider for further reduction in the campus SOV.
- **Loading Dock** – Transpo will identify the location of existing loading dock(s) and garbage collection areas. Consideration will be given to how the new building loading and garbage needs will be served including reviewing a campus-wide approach to managing deliveries.
- **Construction Impacts** – Transpo will evaluate the potential transportation impacts and mitigation measures related to construction of the MIMP projects including increased traffic and impacts to adjacent facilities.

[5] The 2 percent annual limit will be confirmed by comparing of the forecast (2035) baseline traffic volumes to the (2035) traffic volumes forecast in the Seattle Comprehensive Plan to ensure the forecast volumes are reasonable.

Attachment A:

Site Plan

SEATTLE CENTRAL COLLEGE
One of the Seattle Colleges

CITY OF SEATTLE - MIMP CONCEPT PLAN OCTOBER 2020

FIGURE 1 - EXISTING PARKING AND TRANSPORTATION

LEGEND

1 Parking Garage (Harvard) 510 spaces

2 SAM Garage 35 spaces

3 North Plaza Lot 37 spaces

4 South Annex Lot 26 spaces

5 Walgreens Garage 25 spaces

Existing MIO Boundary

Parcels Owned by SCC

Existing Neighborhood Buildings

Existing SCC Buildings

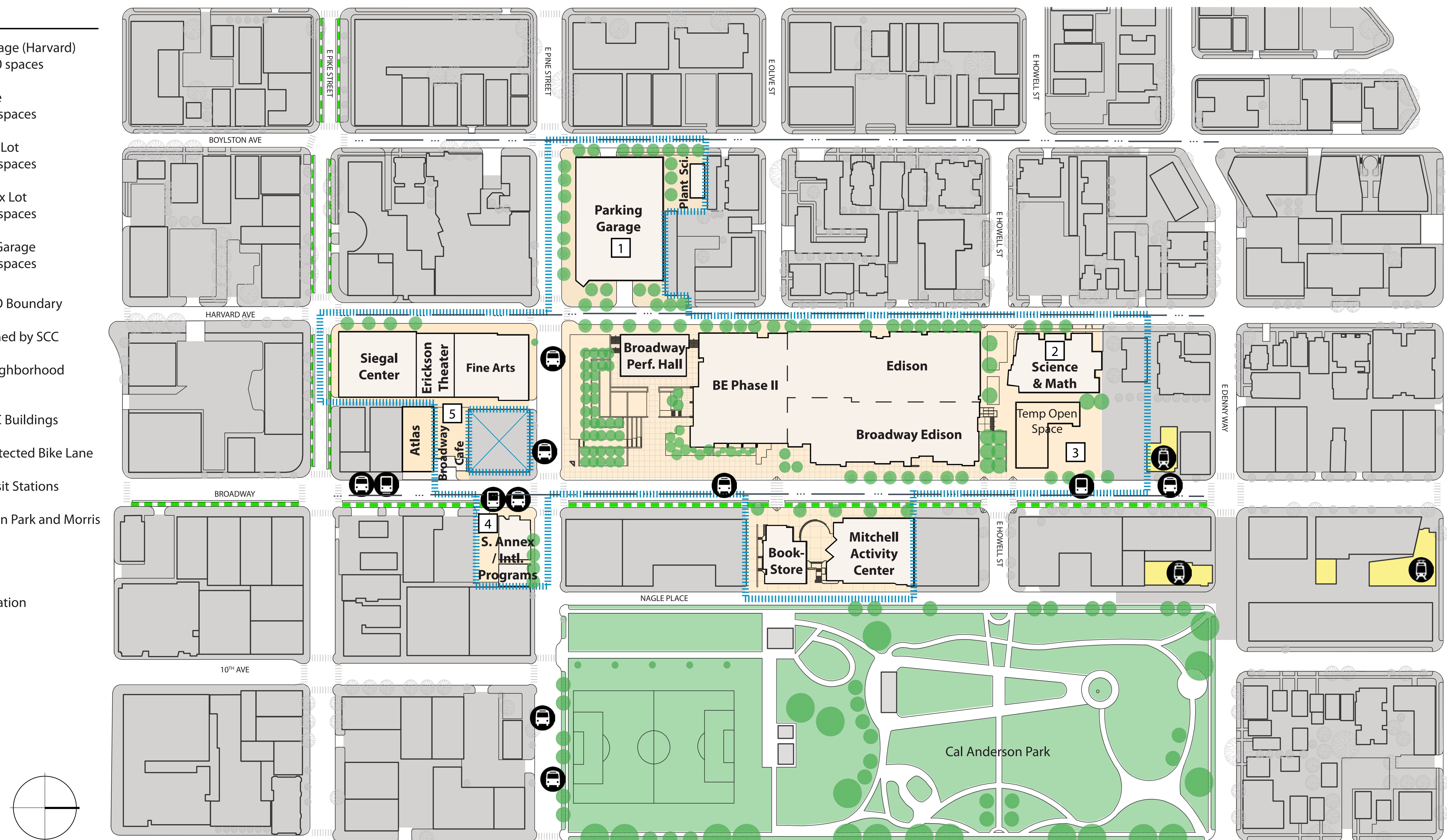
Existing Protected Bike Lane

Sound Transit Stations

Cal Anderson Park and Morris Playfield

Bus Station

Streetcar Station



LEGEND

1. **Information Technology Educaton Center - ITEC**
   New construction for Student Services and Academic programs. Expected to included space for industry partners.

2. **Student Housing**
   New construction of student housing (500 beds +/-) above a renovated Parking Garage.

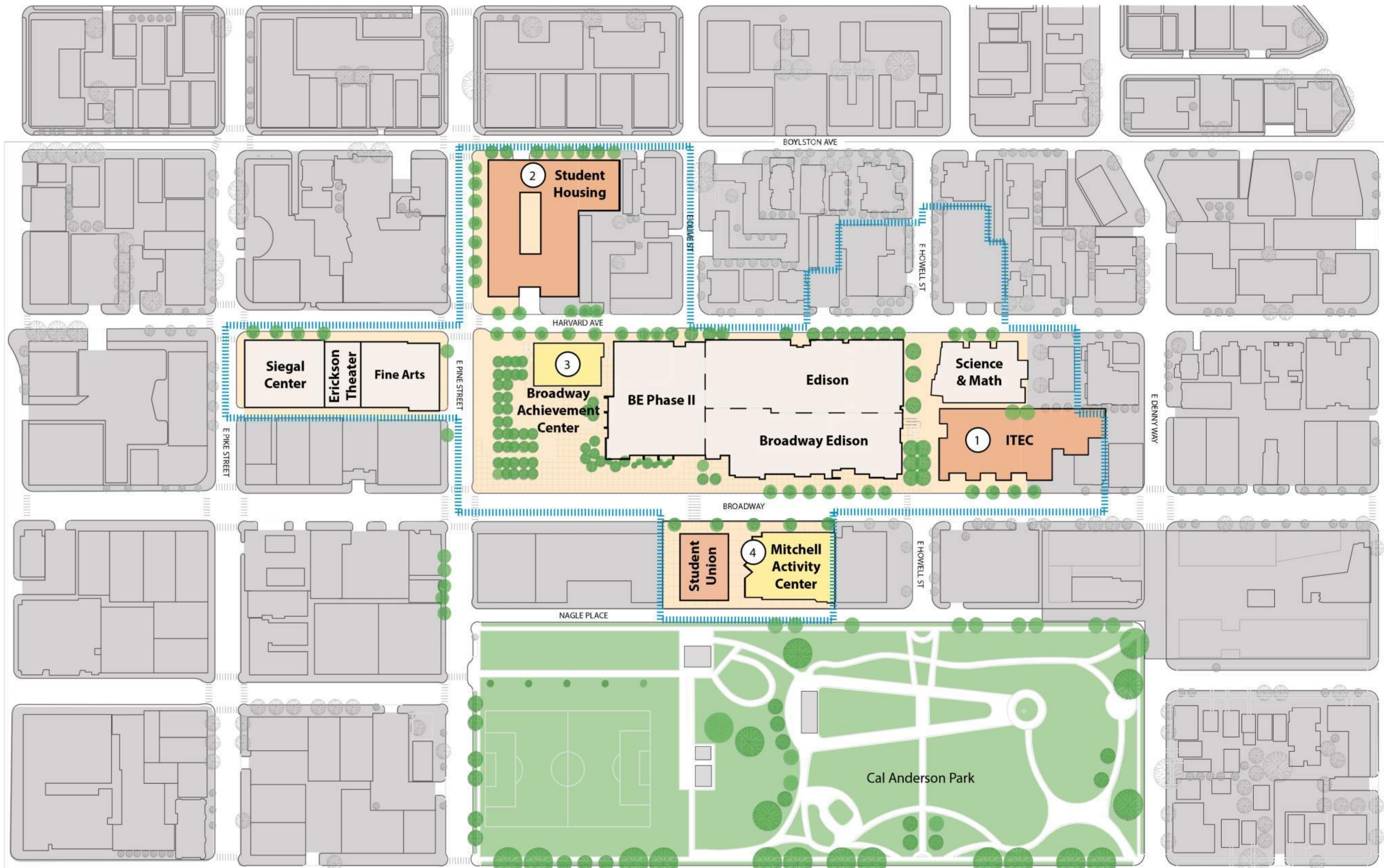
3. **Broadway Achievement Center**
   Renovation of the existing Broadway Performance Hall for expansion of Library, Student Support, and Gathering Spaces.

4. **Student Union**
   Renovation and expansion of the existing MAC/Bookstore for creation of a new combined Student Union.

Existing Building

New Construction/Expansion

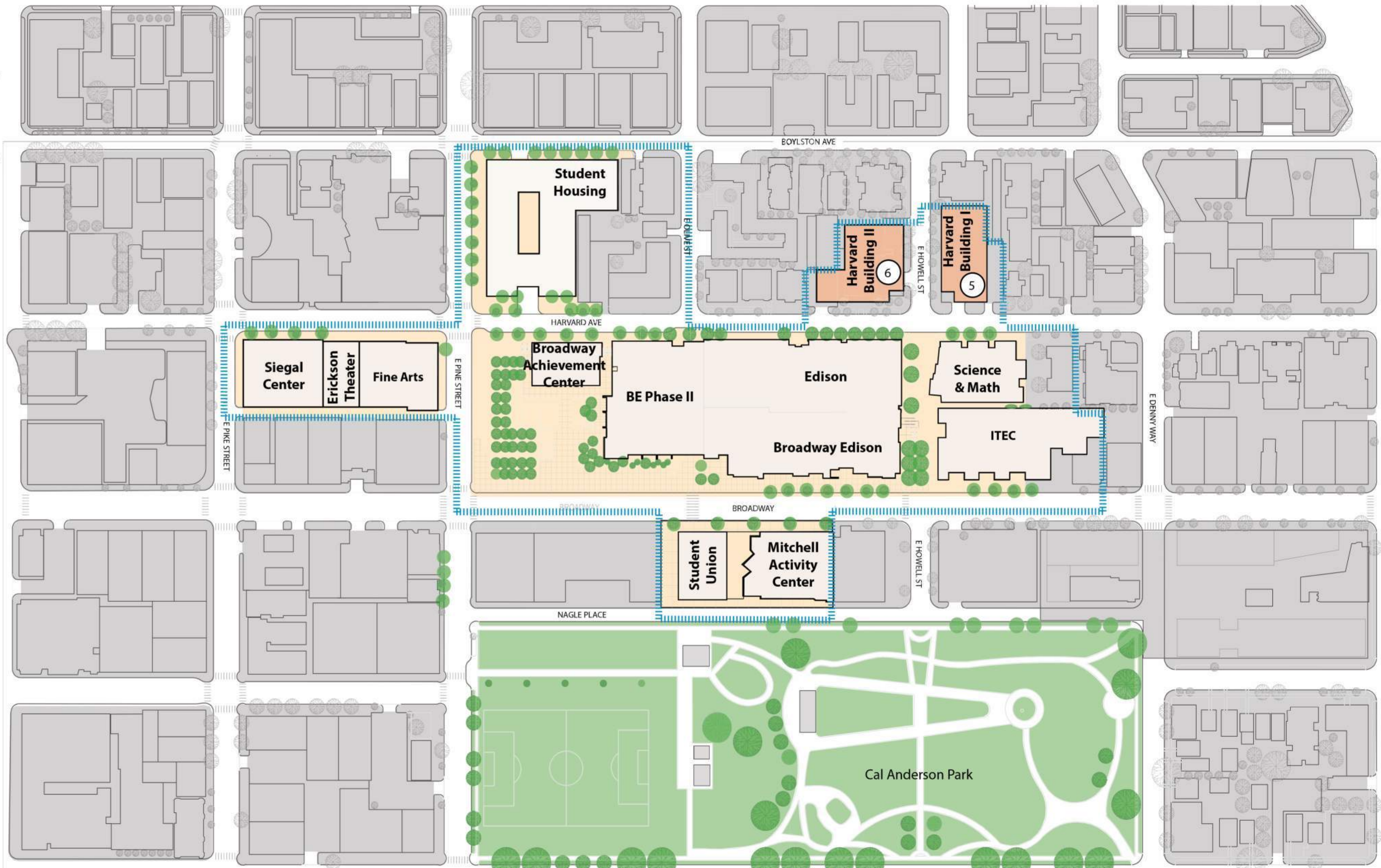
Renovation



LEGEND

(5) **Harvard Building I**
New construction for academic spaces and college administrative functions.

(6) **Harvard Building II**
New construction for academic spaces and college administrative functions.



Existing Building

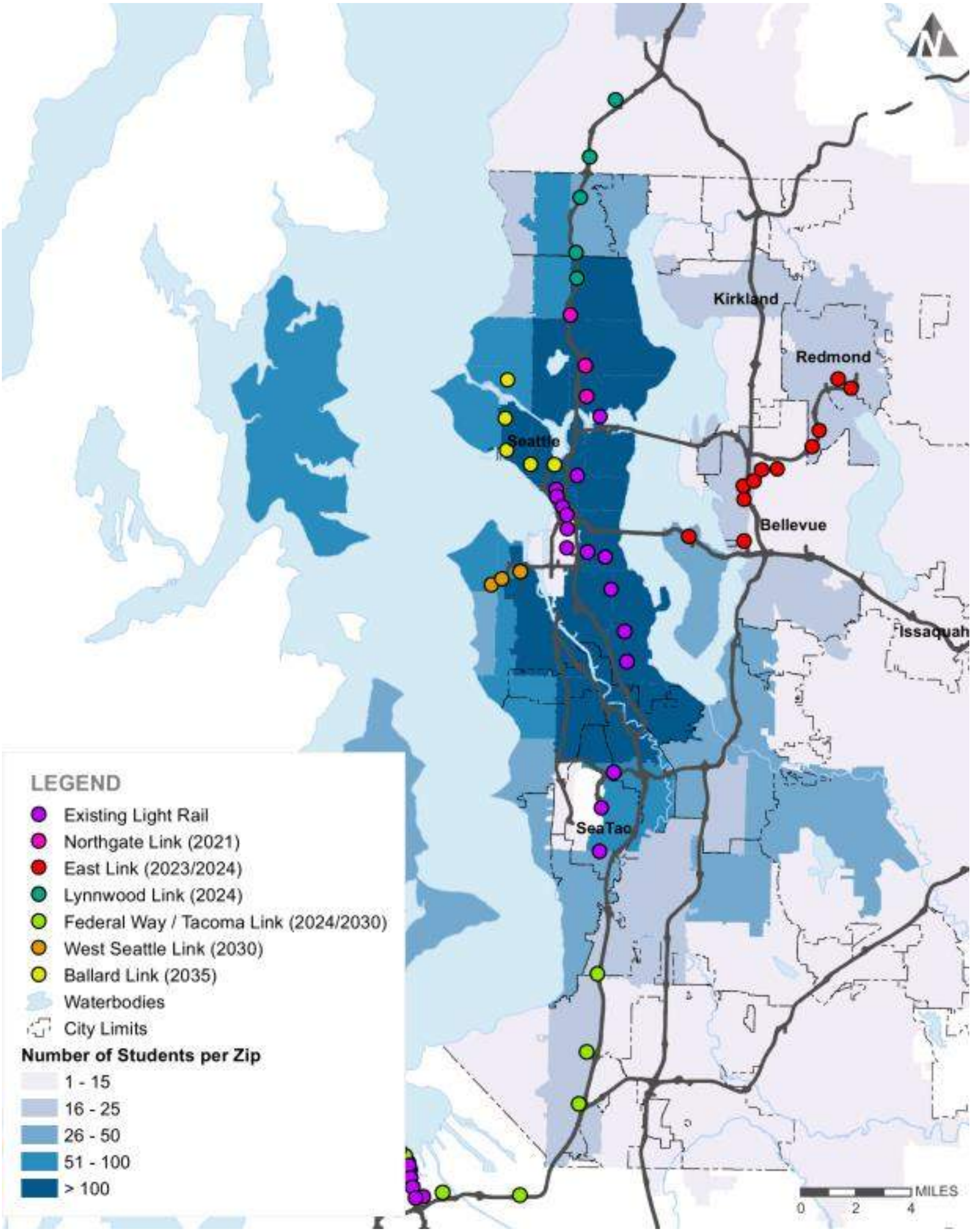
New Construction/Expansion

Renovation

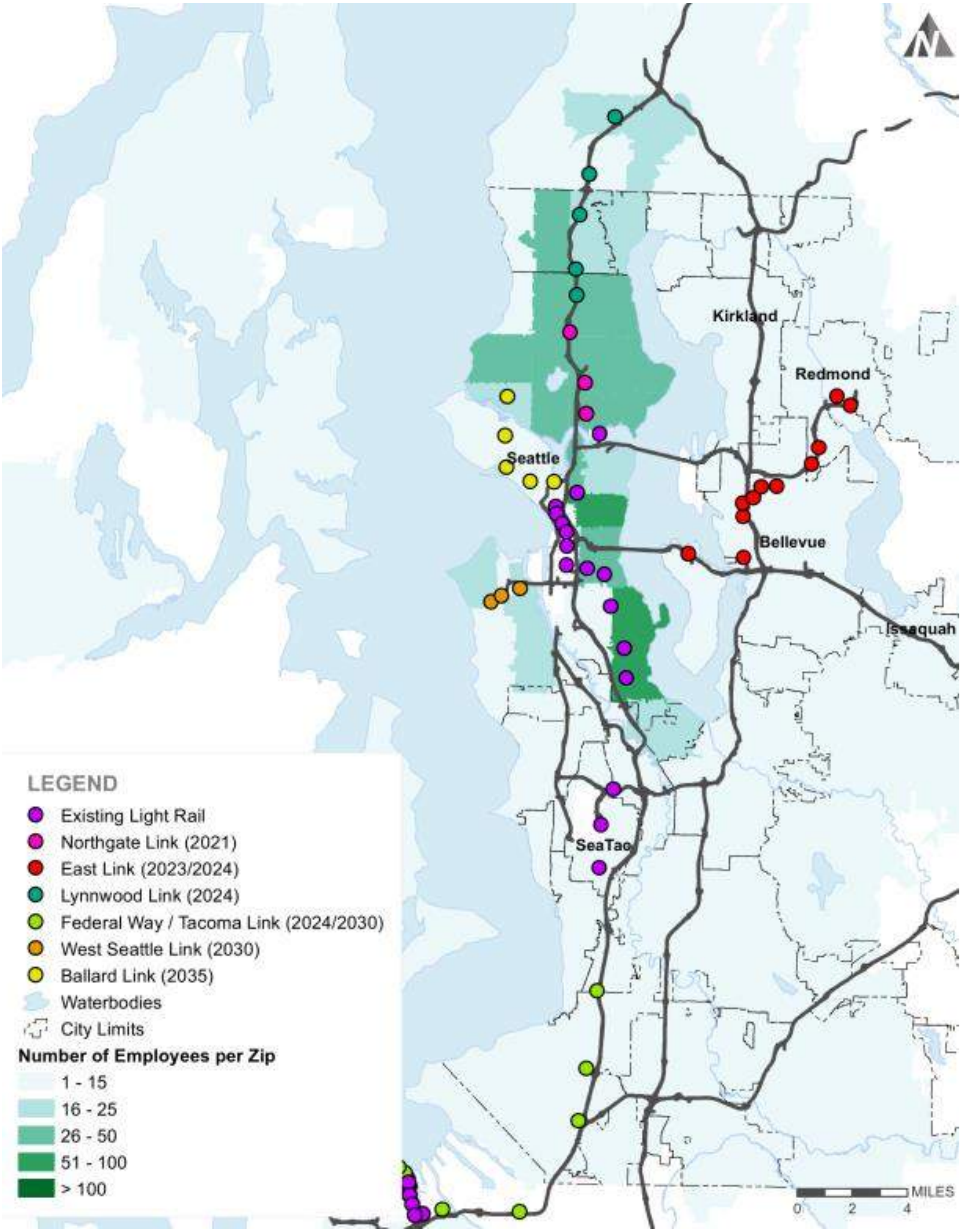
Attachment B:

Expansion of Sound Transit's Link Light Rail System Relative to Student and Employee Densities

Attachment B-1: Student Residence by Zip Code



Attachment B-2: Employee Residence by Zip Code



Attachment C:

Seattle Central College Site D and Campus Trip Generation and Parking

transpogroup WHAT TRANSPORTATION CAN BE.

MEMORANDUM

Date:	April 28, 2016	**TG:**	16106.00
To:	Stephen Starling – Schreiber Starling & Lane Architects		
From:	Stefanie Herzstein & Kurt Gahnberg – Transpo Group		
cc:	Steve Crosley and Kevin Shively – Nelson Nygaard		
Subject:	Seattle Central College Site D and Campus Trip Generation and Parking		

Nelson Nyggard has prepared the attached detailed documentation on the Seattle Central College (SCC) and Site D trip and parking generation. The following provides a brief summary of relevant findings that will inform decisions on development strategy for Site D as well as a potential update of the MIMP.

Existing Campus Transportation Demands Post-Link

- Existing SCC daily and peak hour vehicle trips are expected to decrease by approximately 14 percent (i.e., reduction of about 378 daily trips resulting in approximately 2,400 daily trips) as a result of the opening of the adjacent Capitol Hill LINK station.
- The related on-campus peak parking demand would likewise decrease by 13 percent (87 vehicles) and the SCC parking would be over 80 percent utilized during the peak midday period (i.e., 600 vehicle demand vs. 735 supply).
- Actual campus parking demand is higher than 600 vehicles since a portion of the parking occurring on-street in the vicinity of the campus is related to SCC.
- Actual current transportation demands are substantially less than disclosed in the 2002 MIMP FEIS (i.e., 22,000 daily trips disclosed in 2002).

Site D Transportation Demands

- Projected vehicle trips for Site D are expected to be less than the 378 daily trip reduction in campus vehicle trips due to the new Capitol Hill LINK station (196 daily trips, 14 AM peak hour trips, 17 PM peak hour trips).
- Parking for Site D (i.e., 40 to 50 vehicles) could potentially be accommodated within SCC facilities since residential parking peaks overnight when utilization on-campus is less than 20 percent and with LINK parking demand decreases by 87 vehicles during the midday period.
- Based on this, subject to related entitlement strategies, it appears the opening of the Capitol Hill LINK station will provide more benefit than added demands of the proposed Site D project. This may provide the City with the needed information to allow Site D approval without triggering a new MIMP.

NELSON NYGAARD

MEMORANDUM

To: Kurt Gahnberg and Stefanie Herzstein, Transpo Group

From: Steve Crosley, Kevin Shively, and Jody Trendler, Nelson\Nygaard

Date: April 26, 2016

Subject: DRAFT Access and Trip Generation Profile for Seattle Central College Campus and Site D

The primary purpose of this memo is to assess Site D-specific trip generation and parking demand and compare those projections to available, off-street parking supply owned/leased by Seattle Central College (SCC). This analysis is intended to help the College better understand whether that demand can be accommodated internally without exceeding the College's off-street supply and/or resulting in substantial neighborhood spillover.

To prepare that assessment, a campus profile of trip and parking generation was developed, using available data primarily from the fall 2015 quarter. The baseline travel survey and parking occupancy data do not account for the improved regional accessibility and mobility afforded to students, faculty, and staff and the prospective residents of Site D that has occurred with the March 19, 2016 opening of Link Light Rail on Capitol Hill. With home zip code information and GIS mapping capabilities, additional mode shift from private vehicles to transit was estimated in order to develop a "post-Link opening" campus profile of trip and parking generation. The post-Link profile, with revised parking demand estimates including available supply by time of day, was then compared to the Site D-specific parking demand to complete the comparative assessment.

OVERVIEW

This document provides first an overview of the parking and travel survey data and other information reviewed and referenced in this parking and trip generation analysis, campus access profile. Next, a profile of the baseline parking and travel patterns of SCC students, faculty and staff is developed, followed by a forecast of likely changes to these campus access and travel trends as a result of the opening of the Capitol Hill Link Station. The memo then assesses trip generation and parking demand for the primarily residential development proposed for Site D, including definition of three potential development/marketing scenarios for the project and an estimation of parking demand utilizing two different tools/methodologies. The memo concludes with an assessment of the capacity for accommodation of Site D residential parking demand within existing SCC parking facilities and nearby public and private facilities. A summary of key findings is presented below.

Summary of Findings

Campus Trip Generation and Parking Demand

Based on the campus access profiles prepared for this study, our analysis projects a net reduction in vehicle trips and a net increase in transit ridership by campus affiliates between the pre-Link and post-Link scenarios:

- Total transit ridership to campus is projected to increase by 234 trips/day (inbound and outbound) over baseline (baseline = 2,810/day)
- This is projected to result in an estimated reduction of 189 daily vehicle trips to campus (and a corresponding 189 outbound vehicle trips).

The reduction of 189 inbound vehicle trips to campus would reduce peak demand for parking in SCC on-campus parking facilities by 87 spaces, leaving approximately 135 of the 735 on-campus parking spaces available at the hour of peak utilization (11:00 AM-12:00 PM). Available supply would be greater for all other hours. It is important to note that the parking demand analysis was performed holding all campus and City parking prices, policies, and programs constant in order to isolate the effect of improved transit access, rather than that of a change in price, for example.

Comparison to 2001 FEIS & 2002 MIMP

Seattle Central College has come a long way since the City of Seattle approved its Major Institution Master Plan (MIMP) in 2002 (following certification of the project's FEIS in 2001), when a major expansion of parking supply was proposed (and deemed necessary). Through aggressive transportation demand management (TDM) actual peak parking demand has been reduced to be commensurate with supply, even potentially allowing surplus capacity to accommodate demand associated with the Site D development.

This current analysis also provides a much clearer picture of SCC trip generation; the 2001 FEIS and 2002 MIMP relied on ITE trip generation rates for Junior/Community College in order to provide a reference for daily and peak hour vehicle trips generated the College. Using unadjusted ITE rates grossly inflated vehicle trip generation beyond what actually occurs in the dense, urban environment of Capitol Hill, which is reduced even further through aggressive TDM strategies implemented by SCC.

- The 2001 FEIS projected 22,359 daily, 1,887 AM peak hour, and 2,265 PM peak hour trips using ITE rates[1]
- The 2002 MIMP projected 13,244 daily, 1,593 AM peak hour, and 1,195 PM peak hour trips using ITE rates[2]

Either of these projections are orders of magnitude above actual vehicle trip generation observed in 2015, demonstrating both the limitations with ITE in dense urban settings as well as the unequivocal success with TDM policies and strategies implemented by SCC over the years.

[1] *Final Environmental Impact Statement for the Seattle Central Community College Major Institution Master Plan*, Seattle Community College District, State of Washington, August 2001.

[2] *Seattle Central Community College Compiled Major Institution Master Plan*, Seattle Community College District, State of Washington, September 2002.

Site D Trip Generation and Parking Demand

Site D trip generation was estimated using ITE base rates with appropriate adjustments for the proposed project's location in a dense, urban mixed-use neighborhood, its proximity to high quality and high capacity public transit, the attractiveness of walk and bike trips, and the proposed unbundling of any parking that might be provided as an accessory to the residential land uses on-site. Resulting vehicle trip generation is 196 daily, 14 AM peak hour, and 17 PM peak hour trips. This projection is approximately half the net reduction in vehicle trips between the pre-Link and post-Link scenarios.

The potential parking demand for residential development at Site D was assessed for three different development scenarios using two different methodologies/sources of information. Parking demand estimates for the 93 residential units range from 40-54 spaces depending on type of housing (market rate, below market rate, and 'workforce') and methodology used. Given the site's location, with low parking ratios and unbundling of parking from the cost of rent, the apartments for lease within a new development at Site D may be most attractive to households with lower rates of vehicle ownership than the citywide average. This self-selection process may in turn reduce site-specific parking demand further than our projections suggest.

The approximately 135 parking spaces forecast to be available during periods of peak demand in SCC facilities (~11:00 AM on weekdays) would provide sufficient capacity to accommodate the projected Site D residential demand. However, midday vehicle occupancy generated by Site D would be less than 100% of peak (overnight) demand for the site because a share of such vehicles would be used as a primary mode of access for home-based work or other trips, resulting in additional surplus capacity during the peak. This assessment even holds true even if one vehicle per unit were left parked at campus facilities all day, which is a highly conservative assumption. Based on this analysis of likely travel patterns, mode of access, and parking conditions after the opening of the Capitol Hill Link Station, Site D residential parking demand could be accommodated entirely within SCC off-street facilities, without the need for additional off-street parking supply, and without generating spillover parking impacts within the surrounding neighborhood.

DATA AND LITERATURE REVIEW

As a basis for our work to develop a campus access profile for Seattle Central College and Site D access profile, Nelson\Nygaard reviewed selected data and information about campus parking and travel patterns provided by Seattle Central College and other members of the consultant team for the Major Institutional Master Plan (MIMP). A summary of the data collection and literature review is presented in Attachment A.

SEATTLE CENTRAL COLLEGE CAMPUS ACCESS PROFILE

This task creates a profile of SCC trip generation by mode and private vehicle parking demand (single occupant, carpool) for a typical weekday, before and after the opening of the Capitol Hill Link Station. The purpose is twofold: first, to create an accurate picture of current trip generation by SCC for use in transportation-related follow-on work; and second, to assess the additional reduction in private vehicle trips and parking demand that improved transit accessibility would produce. An even higher transit mode share could help further offset/accommodate any new vehicle trip generation or parking demand resulting from development of Site D.

While SCC drive alone rates are already low (students 17.8%; faculty/staff 34.1%), the opening of Link to Capitol Hill on March 19th further enhanced regional transit access to campus. Link, operating either grade-separated or in exclusive right-of way, substantially reduces in-vehicle travel time and improves reliability to all areas served by Link. The U-Link extension was accompanied by restructuring of King County (KC) Metro service on March 26, 2016 to better serve Link and facilitate bus to rail transfers for travel along the Link spine, including Capitol Hill. Consequently, this analysis includes a forecast of how we would expect vehicle travel and parking demand to be reduced in 2016 based on a home zip code analysis of students, faculty, and staff who would be better served by Link.

The campus trip and parking generation profiles of faculty/staff and students were based on the following populations for fall 2015 quarter:

- 951 faculty/staff
- 6,747 students

Pre Capitol Hill Link (Baseline)

This section describes how mode share, trip generation, and parking demand by time of day were estimated for a profile of campus access prior to the opening of the Capitol Hill Link Station.

Methodology

As a first step, daily person trip ends were calculated with reference to the total number of staff, faculty, and students reported by SCC for fall of 2015. To estimate the number of current employees and students who might visit campus on a typical weekday, the total population of employees and students was calculated with reference to data from the Puget Sound Colleges Survey (PSRC, 2014) on the number of days per week that students and employees reported coming to campus during a typical week.

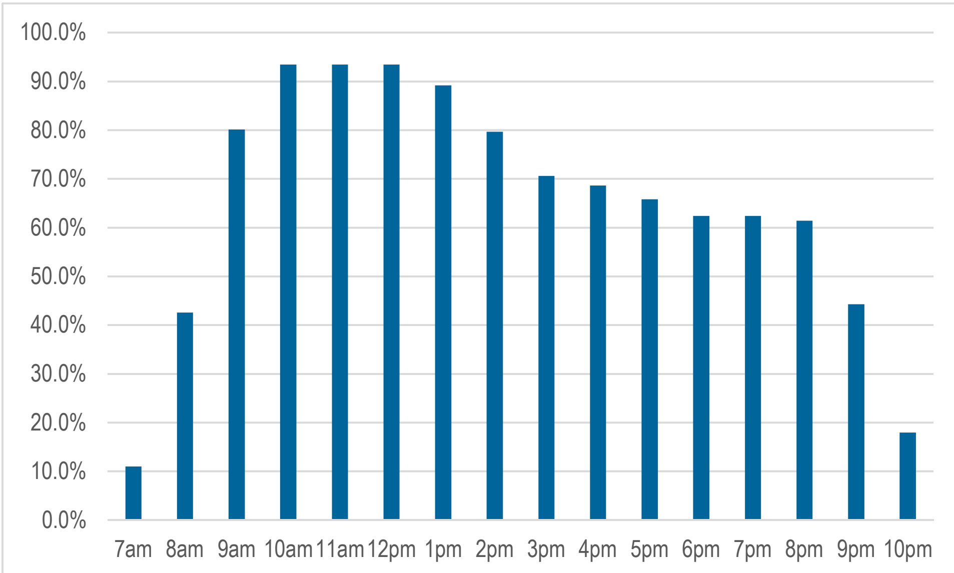
Next, the volume of person trips to and from campus by mode of travel (auto, transit, walk, bike, etc.) was calculated based on the primary mode of travel to/from campus reported by students in the 2014 Puget Sound Colleges Travel Survey, and by faculty and staff members in the fall 2015 Commute Trip Reduction Survey conducted by College administration, in compliance with state requirements.

The total volume of vehicle trips to and from campus was estimated based on the estimated number of person trips to campus made by drive-alone and carpool modes of travel, with an assumption that each reported carpool trip was made by a person traveling in a vehicle with average occupancy of 2.2 persons.

Vehicle trip making by time of day (including vehicle trip generation for AM and PM peak periods), and temporal parking demand were estimated by calibrating the estimated daily vehicle trips to available data on variance in the percentage of all parking spaces occupied in all SCC parking facilities hour by hour over the course of one day (as currently configured, SCC parking facilities have capacity for 735 self-parked vehicles). Figure 1 shows parking utilization in SCC parking facilities by time of day for a typical weekday in 2015.

This calibration was completed with an assumption that on a typical weekday one-third of all campus affiliates stay on campus for an average of eight hours, one-third stay on site for six hours, and one-third stay for an average of three hours.

Figure 1 Parking Utilization Percentage by Hour in SCC Parking Facilities (Capacity 735 spaces), Typical Weekday, Fall 2015



Trip Generation Profile

Based on the methodology described above, estimated person trip generation by mode and resulting vehicle trip generation for the AM peak hour, PM peak hour, and daily timeframe is shown in Figure 2.

Figure 2 Seattle Central College Trip Generation Pre-Link

Total Person Trip Ends									Vehicle Trip Ends
Period	Auto	Carpool	Delivery	Transit	Bike	Walk	Other	Total	
Weekday AM Peak	195	58	2	450	43	203	25	976	223
Weekday PM Peak	210	63	4	484	46	219	27	1,053	243
Daily	2,441	729	20	5,619	538	2,543	314	12,204	2,792

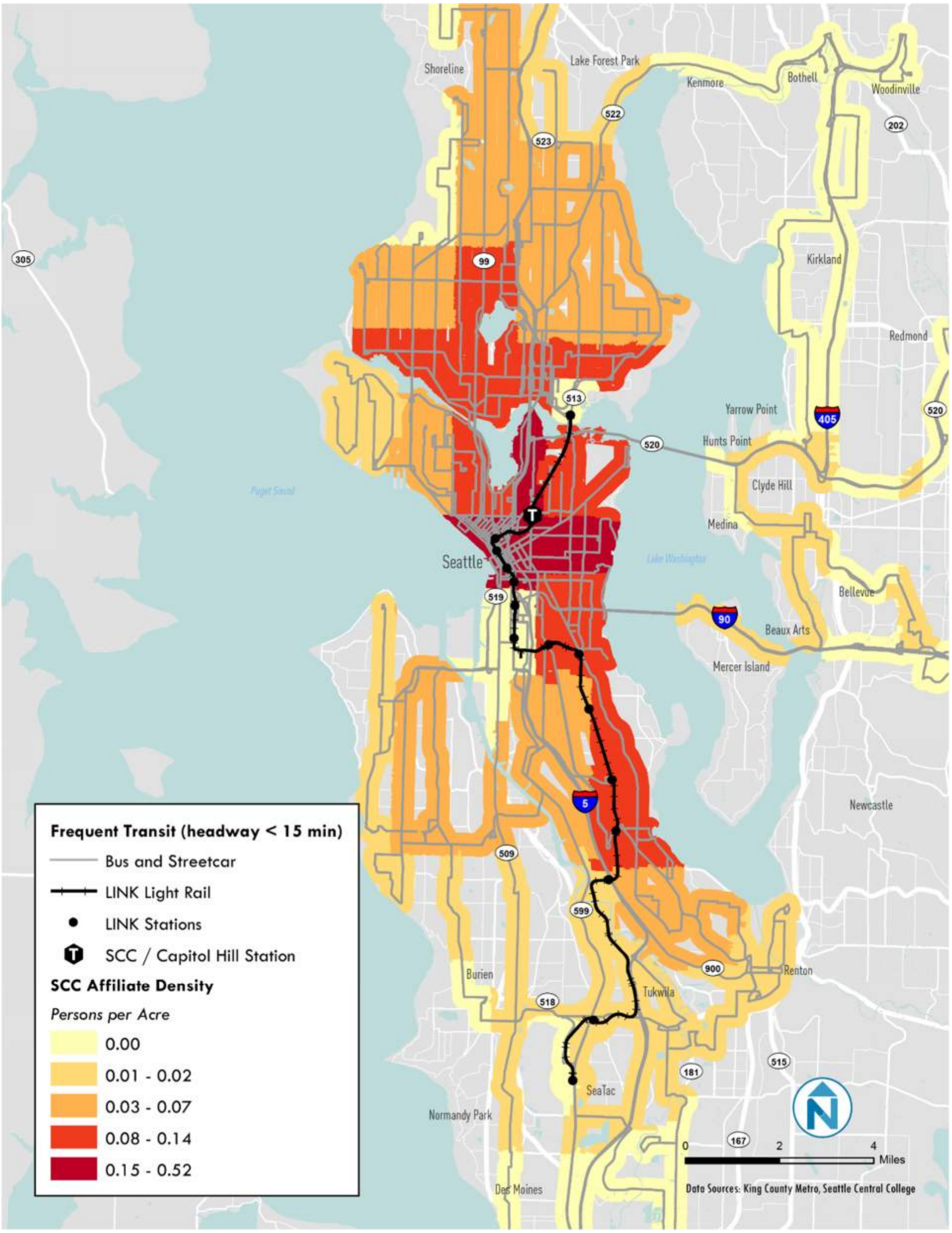
Note: Weekday AM Peak 8-9 AM = 8.0% of daily trips; Weekday PM Peak 4-5PM = 8.6% of daily trips; Delivery trip estimates derived from FHWA Quick Response Freight Manual II (2006) Table D-2d

Post Capitol Hill Link

The opening of the Capitol Hill Link Station, directly adjacent to the SCC Campus, on March 19, 2016, and the subsequent restructuring of KC Metro bus service on March 26, 2016, have significantly improved the local and regional accessibility of the campus by public transportation. Not only is it much quicker to get to the College from stations along the existing Link line from Downtown Seattle to Sea-Tac, but the campus is more accessible from many parts of King County that are served by frequent transit lines that connect to Link Stations.

Figure 3 shows the SCC campus and adjacent Capitol Hill Link Station in relation to the Link line from Seattle to Sea-Tac, and other frequent transit lines providing enhanced access to SCC by way of a transfer to Link. The zip code-level density of SCC campus affiliates (students and employees) is shown for the areas within one quarter mile of these frequent transit lines and the area within one half mile of each Link Station.

Figure 3 **Density of SCC Campus Affiliates in Areas Served by Enhanced Transit Connections**



Based on evidence from the Transit Cooperative Research Program (TCRP), we projected a limited (14%) increase in transit mode share for those employees and students living within walking distance of Link Stations (including Angle Lake Station in Sea-Tac), including approximately 50% of the area and 50% of the affiliates living within zip codes with Link Stations.[3] We also projected a 7% increase in transit mode share for SCC affiliates living within walking distance of frequent transit lines, including those bus/streetcar lines operating every 15 minutes or better at least 18 hours per day, provide a new and direct connection to SCC as a result of the March 2016 KC Metro service restructure, or substantially enhanced access to SCC via a single transfer to Link. This estimated 7% increase was applied to 75% of the campus affiliate population residing within zip codes served by frequent transit (FTN) lines, reflecting the fact that most such zip codes are served by multiple FTN lines and that population density is generally concentrated along such lines. The primary reason an even greater mode shift to transit wasn't projected in light of the significant increase in regional accessibility is due to the already high transit and low single occupant vehicle mode share that SCC generates (baseline profile). Based on this estimated mode shift, estimated person trip generation by mode and resulting vehicle trip generation for the AM peak hour, PM peak hour, and daily is show in Figure 4.

Figure 4 Seattle Central College Trip Generation Post-Link

Total Person Trip Ends									Vehicle Trip Ends
Period	Auto	Carpool	Delivery	Transit	Bike	Walk	Other	Total	
Weekday AM Peak	169	49	2	487	41	203	25	976	193
Weekday PM Peak	182	52	4	524	44	219	27	1,053	210
Daily	2,118	607	20	6,087	515	2,543	314	12,204	2,414

Note: Weekday AM Peak 8-9 AM = 8.0% of daily trips; Weekday PM Peak 4-5PM = 8.6% of daily trips; Delivery trip estimates derived from FHWA Quick Response Freight Manual II (2006) Table D-2d

Change in Transit Ridership and Vehicle Travel

Post-Link, this analysis projects a net reduction in vehicle trips and a net increase in transit ridership by campus affiliates, shown in Figure 5 and summarized below:

- Total transit ridership to campus is projected to increase by 234 trips/day (inbound and outbound) over baseline (baseline = 2,810/day)
- This is projected to result in an estimated reduction of 189 daily vehicle trips to campus (and a corresponding 189 outbound vehicle trips).

[3] Transit Cooperative Research Program (TCRP)(2007). TCRP Report 95: Traveler Response to Transportation System Changes Handbook, Chapter 17 – Transit-Oriented Development," referencing Cervero, R. (1993), and Lund, et al. (2004).

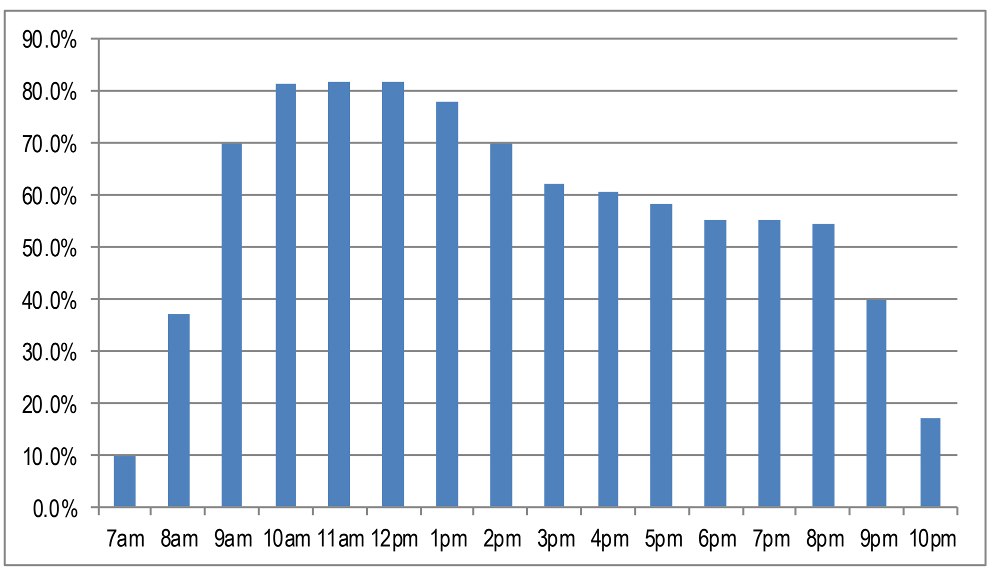
Figure 5 **Change in Person and Vehicle Trip Generation Pre- and Post-Link**

Total Person Trip Ends									Vehicle Trip Ends
Period	Auto	Carpool	Delivery	Transit	Bike	Walk	Other	Total	
Weekday AM Peak	(26)	(9)	-	37	(2)	-	-	-	(30)
Weekday PM Peak	(28)	(11)	-	41	(2)	-	-	-	(33)
Daily	(323)	(122)	-	468	(23)	-	-	-	(378)

Change in Parking Demand

This analysis estimates that—holding all other campus and City parking prices, policies, and programs constant—these recent transit improvements (and the Angle Lake station opening in Sep. 2016), and the associated reduction of 189 vehicle trips to campus, would reduce peak utilization of parking in SCC on-campus parking facilities from 687 spaces (as observed in fall 2015) to 600 spaces in 2016 (after the opening of the Capitol Hill Link Station), leaving 135 of the 735 on-campus parking spaces available at the hour of peak utilization (11:00 AM-12:00 PM), as shown in Figure 6.

Figure 6 **Estimated Parking Utilization Percentage by Hour in SCC Parking Facilities (Capacity 735 spaces), Typical Weekday, Post-Link (April 2016)**



SITE D ANALYSIS

Seattle Central College is proposing a mixed-use development on development “Site D,” located adjacent to the Capitol Hill Link Station’s southeast portal (east of Broadway, south of E Denny Way, and north of E Howell Street). The proposed project would be six stories high and contain 40,052 square feet (sf) of ancillary college uses (school facilities/classrooms) and 93 workforce residential units (22 studio, 28 one-bedroom, 16 two-bedroom, and 27 “open one” units) totaling 68,788 sf. No parking would be provided. This section provides an analysis of residential trip generation and potential parking demand for Site D. Parking demand is estimated for three different development scenarios, using three different methodologies.

Site D Parking Requirements

Because the project is located within the Capitol Hill Station Area Overlay District, the City of Seattle does not require minimum parking for residential units. Further, the city does not require parking for Major Institution (i.e. Seattle Central College) uses within the Capitol Hill Station Area Overlay District. Therefore, based on municipal code requirements, Seattle Central College would not be required to provide any parking for the Site D development. In lieu of code required parking, this analysis develops an estimation of expected parking demand generated by Site D residential uses calibrated to local conditions and factors such as income level and auto usage in dense, transit friendly built environments.

Site D Trip Generation

Vehicle trip generation for Site D was prepared for weekday daily and peak hours. Trip generation was based on rates published in Institute of Transportation Engineer's (ITE) *Trip Generation, 9th Edition*, with reductions taken for the proposed project's location in a dense, urban mixed-use neighborhood, its proximity to high quality and high capacity public transit, the attractiveness of walk and bike trips, and the proposed unbundling of any parking that might be provided as an accessory to the residential land uses on-site. No trip generation was estimated for the ancillary school uses. By definition, as ancillary uses, they would not generate net new trips—rather trip generation for SCC is a function of student enrollment and faculty and staff positions.

Methodology for Estimation of ITE Adjusted Trip Generation for Site D

Methods and assumptions for the trip generation estimate for Site D (as shown in Figure 7) are as follows:

- Baseline vehicle trip generation for apartment land uses was taken from the most comparable category of land use published in the ITE Trip Generation Manual (9th Edition), which is Low/Mid-Rise Apartments (ITE Land Use 221: Urban Location). This baseline ITE estimate does not assume any reductions in vehicle travel demand as a result of the area's density, mix of uses, or multimodal transportation access (transit, bicycle, walking). This results in an extremely conservative trip generation projection, and as such, it is **not** recommended that this ITE-based trip generation estimate be used for any policy or decision making. It is used solely as a starting point from which to estimate site specific vehicle trip rates using evidence of the trip reduction impacts of different program, location, and accessibility factors.
- Adjustments are taken for location, accessibility and TDM factors, according to research cited in "Crediting Low Traffic Developments: Adjusting Site-Level Vehicle Trip Generation Using URBEMIS" (Nelson\Nygaard, 2005), as follows:
  - **Density**: Residential density provides one of the strongest correlations of any variable with automobile use. However, care needs to be taken when calculating the impact of density on trip generation, since only some of this effect is due to the inherent effects of density, as opposed to factors for which density serves as a proxy, such as parking price, local retail, transit service frequency, and pedestrian friendliness. URBEMIS therefore uses the nonlinear equation developed by

Holtzclaw et. al. (2002), but reduces the credit by 40% to avoid double counting with transit service, mix of uses, and bicycle and pedestrian facilities, all of which correlate with density.[4] With 93 residential dwelling units on a 0.56 acre site, the net residential density of the proposed development at site D is 165 dwelling units per acre. This results in a 51.6% reduction from ITE vehicle trip generation rates for Site D.

- **Proximity to transit:** Even prior to the opening of the Capitol Hill Link Station on March 19, 2016, Site D was highly accessible to the regional public transit network, with multiple local routes operated by KC Metro serving stops at the perimeter of the SCC campus, including routes 9, 10, 11, 49, 60, 43, and 8, as well as the First Hill Streetcar, which has its current northern terminus directly adjacent to this prospective development site. To account for the impact of Site D's high transit accessibility on parking demand, the ITE baseline estimate was adjusted with reference to literature cited in URBEMIS – a program developed for the California Air Resources Board to calculate emissions resulting from new developments.[5] This literature indicates a potential for up to a 15% reduction in parking demand for highly accessible locations. This maximum 15% reduction is assumed based on Site D's access to high capacity rail and bus transit service.
- **Mix of uses:** The diversity of land uses and activities in the immediate vicinity of Site D, including commercial retail and office uses, institutional and civic uses, and other residential uses, provides a context wherein new residents can live comfortably without access to a motor vehicle, or with limited private vehicle use. This can be expected to make the site appealing to potential tenants who do not own motor vehicles, and to encourage other potential tenants to sell a vehicle or make alternative parking arrangements. Literature cited in the URBEMIS model indicates a potential reduction in demand for vehicle travel—and consequent vehicle ownership and parking demand—of up to 11% for sites in a mixed-use environment with proximity to local serving retail. To maintain a conservative estimate of the vehicle trip generation potential of Site D, a limited 5% reduction was taken for this factor.
- **Bicycle and Pedestrian Environment:** Site D is highly accessible by walking and riding a bicycle, with direct access to a protected bike lane on Broadway, sidewalks on all streets and a dense network of street intersections. This accessibility can be expected to slightly reduce demand for vehicle ownership, vehicle use and parking demand on site. For this analysis, we have assumed a 9% reduction in vehicle travel demand, consistent with literature cited in the

[4] Per Holtzclaw, et. Al (2002), the vehicle trip reduction associated with density of residential development is calculated by the following equation: Trip reduction =0.6*(1-(19749*((4.814+ households per residential acre)/(4.814+7.14))-0.639)/25914)

[5] URBEMIS is an industry standard air emissions calculator for CEQA documents and is also used in calculating trip generation rates by using the ITE *Trip Generation, 8th Edition* manual as a base. It is a more suitable model for estimating parking demand in many areas given that ITE trip and parking generation rates are based largely on observations made at single-use sites in suburban locations with free parking, little or no transit service and no transportation demand management programs. Since trip generation is closely correlated to parking demand, the model has been used as a proxy to calculate the parking demand reductions that can be anticipated from different measures. Evidence of the impact of transit accessibility on trip and parking generation is cited in URBEMIS from Kittselson & Associates et. al, (2003); Holtzclaw et. al. (2002) Pratt et. al. (2003); Nelson\Nygaard (2002), as well as Lund, et. Al. (2004).

URBEMIS model, including Dill (2003), Kuzmyak, et al. (2003), Ewing and Cervero (2001), and Ewing (1999).

- **Unbundled parking:** It is assumed that any off-street parking provided accessory to the residential uses on Site D—whether provided on-site, off-site, by arrangement with SCC, or other private property owners—would be made available only to residents willing to pay a separate fee for parking (i.e. "unbundled" from their rent). In a review of the literature on parking demand management strategies, Todd Littman (2015) found that unbundling can reduce parking and travel demand by 10-30%[6]. This analysis assumes a conservative 10% reduction of vehicle trips associated with unbundling.

As shown in Figure 7, unadjusted ITE project trip generation (person trips) is vastly higher than the projected vehicular trips due to the multitude of built environment accessibility, and transportation demand management factors, which disincentivize driving. Based on the adjustments assumed for Site D residential, actual vehicular trip generation would be roughly one-third of a residential location without good transit accessibility, mix of uses, and a walkable and bikeable built environment.

Figure 7 Site D Trip Generation

ITE Land Use Code & Rates					Project Trip Generation				
Use	Daily	AM	PM	Units (Dus)	Daily	AM		PM	
						In[1]	Out[1]	In[1]	Out[1]
(221) Low-Rise Apartment, Occupied Dwelling Units	6.59	0.46	0.58	93	613	9	34	35	19
Adjustments									
Density (165 Dwelling Units per Net Residential Acre)					*-316*	*-5*	*-17*	*-18*	*-10*
Mix of Land Uses and Local Serving Retail in Vicinity - 5%					*-15*	*0*	*-1*	*-1*	*0*
Parking Priced Separately from Rent (Unbundled) - 10%					*-28*	*0*	*-2*	*-2*	*-1*
Transit Proximity - 15%					*-38*	*-1*	*-2*	*-2*	*-1*
Bicycle and Pedestrian Connectivity - 9%					*-19*	*0*	*-1*	*-1*	*-1*
Total Vehicle Trips					**196**	**3**	**11**	**11**	**6**

1. Inbound/Outbound trip distribution based on ITE Trip Generation, 9th Edition.

Development Scenarios for Parking Demand

All three development scenarios include 93 residential units and ancillary College uses, in the following arrangement:

- One six-story mixed-use structure, with a building footprint of 24,580 sf.
- 40,052 sf of non-residential space dedicated to ancillary College uses on floors 1-2
- 93 residential units on floors 3-6, including:
  - 22 studio units
  - 28 one-bedroom units

[6] http://www.vtpi.org/tdm/tdm28.htm#_Toc128220488

  - 16 two-bedroom units
  - 27 "open one" units
- Any accessory off-street parking provided either on-site, or nearby (e.g., within existing Seattle Central College Parking facilities, or other underutilized off-street parking structures nearby), is assumed to be unbundled from residential rents under all development scenarios.

Because residential parking utilization varies based on residents' household incomes, and the location of the structure relative to residents' place of employment, parking demand was evaluated for three different scenarios: market rate residential, mixed-income residential, and college workforce housing.

Market Rate Residential

This scenario assumes that all 93 residential units would be leased on the open market at market rates. No special preference is assumed for Seattle Central College students or employees.

Mixed-Income Residential

Under this scenario, 25% of the planned residential units (23 units) would be available at Below Market Rates (BMR) to households with low or very low incomes. The remaining 60 units would be leased on the open market at market rates.

College Workforce Housing

To provide student/workforce housing, residential units under this scenario would be made available on a preferential basis to Seattle Central College affiliates, including faculty, staff, Seattle College District employees, and students enrolled full time. Similar to the Mixed-Income Residential scenario, 25% of units would be available at BMR to households (College and non-College affiliated alike) earning low or very low-income.

Methods of Parking Demand Estimation

For reference, two different methods of parking demand analysis were conducted for the Site D development scenarios. These include:

1. **Local Comps:** Reference to comparable sites on First Hill and Capitol Hill as published by King County Metro and the Transportation Research Board (TRB).
2. **Right Size Parking:** Estimation based on use of the Right Size Parking model, calibrated for King County.

Local Comps

Perhaps the best reference for an understanding of potential parking utilization if new parking is to be supplied as an accessory to residential land uses at Site D is a comparison to evidence of actual parking utilization during peak periods at comparable sites in the same area. Such data automatically accounts for the local and contextual factors used to adjust ITE estimates of parking demand for apartment buildings, because data are drawn from sites with similar accessibility to transit and local serving retail uses, similar pedestrian and bicycle accessibility, and in some cases similar parking supply and pricing structures (e.g., unbundling).

For this analysis, we reference local comps cited in a paper titled "Evaluating the Impact of Transit Service on Parking Demand and Requirements," by Rowe, D.H., C.H.C. Bae, and Q. Shen (2011).[7] These researchers compared parking supply and demand at four multi-family buildings in the First Hill/Capitol Hill neighborhood of Seattle with four similar buildings in suburban Redmond, Washington. The weighted average parking supply for the buildings surveyed in the First Hill/Capitol Hill area was 0.74 parking spaces per unit, while the weighted average parking utilization at these sites was 0.52 spaces/unit.

Referencing these local comps, the estimated parking demand for a 93 unit residential building on Site D would be 48 spaces.

Right Size Parking Model Estimate

An excellent alternative to the use of parking demand ratios published in ITE *Parking Generation* is utilization of the Right Size Parking model, prepared by KC Metro. The model was developed with funding from the Federal Highway Administration (FHWA) Value Pricing Program, as a means of better balancing supply with the actual demand for off-street parking as it varies by project and location. Based on off-street parking utilization data collected at multi-family residential buildings across King County, KC Metro and its consultants developed a model that estimates parking demand for any parcel of land in the County, with a variance to account for project attributes and pricing. The model accounts for the reduced parking demand associated with unbundling the full cost of parking and lower vehicle ownership rates for residents of units that are dedicated as "affordable housing." The right size parking model results for each of the three potential development scenarios for Site D are provided in Figure 8 below.

This analysis assumes that parking demand for market rate workforce housing would be 0.46 spaces/unit, which is the average of the parking demand estimated in the Right Size Parking demand model for market rate and below market rate (BMR) units at Site D.

Figure 8 Right Sized Parking Model - Parking Demand Estimates for Site D Scenarios

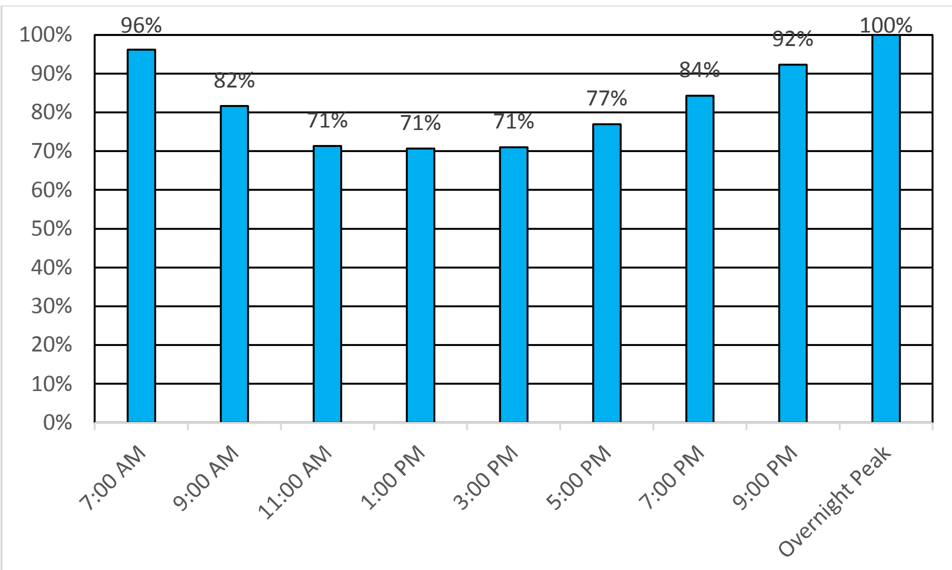
Site D Scenario	Market Rate Units	Below Market Rate (BMR) Units	Est. Parking Demand (spaces) per Market Rate Unit	Est. Parking Demand (spaces) per BMR Unit	Est. Total Parking Demand Assoc. w/ Site D
Market Rate (All units)	93	0	0.58	n/a	54 spaces
Market Rate + 25% BMR "Affordable Housing"	70	23	0.58	0.35	49 spaces
Workforce Housing (25% BMR + preference for SCC affiliates)	70	23	0.46	0.35	40 spaces

[7] Rowe, D.H., C.H.C. Bae, and Q. Shen (2011), "Evaluating the Impact of Transit Service on Parking Demand and Requirements," *Transportation Research Record: Journal of the Transportation Research Board,* No. 2245, Transportation Research Board of the National Academies, Washington, D.C., pp. 56-62.

The estimates prepared using both methods/reference sources represent a picture of potential parking utilization during the projected period of peak parking demand—typically overnight (e.g., 2:00-4:00 AM) for residential uses. Further, these estimates assume that off-street parking is provided as an accessory to the residential development planned for site D, and that such parking is made available to prospective tenants—either on-site, or within one-half mile off-site—at full cost, and charged separately (unbundled) from the cost of rent.

Figure 9 shows the estimated parking demand for Site D, as it is projected to vary by hour over the course of a typical weekday. This projection of temporal variance in parking utilization was derived based on evidence of the difference between overnight (peak) and midday (lowest) parking utilization at comparable off-street residential parking sites on Capitol Hill, as reported in in recent studies.[8]

Figure 9 Estimated Parking Utilization Percentage by Hour at Site D, Compared to Overnight Peak



Due to the density, mix of uses, walkable retail, and transit accessibility of Capitol Hill, residential properties in the area experience a smaller decline from peak overnight occupancy to midday occupancy than may be common in most residential properties across King County. Many vehicle owners may choose to walk, bike, or take transit, leaving their vehicles in the garage for most of the day.

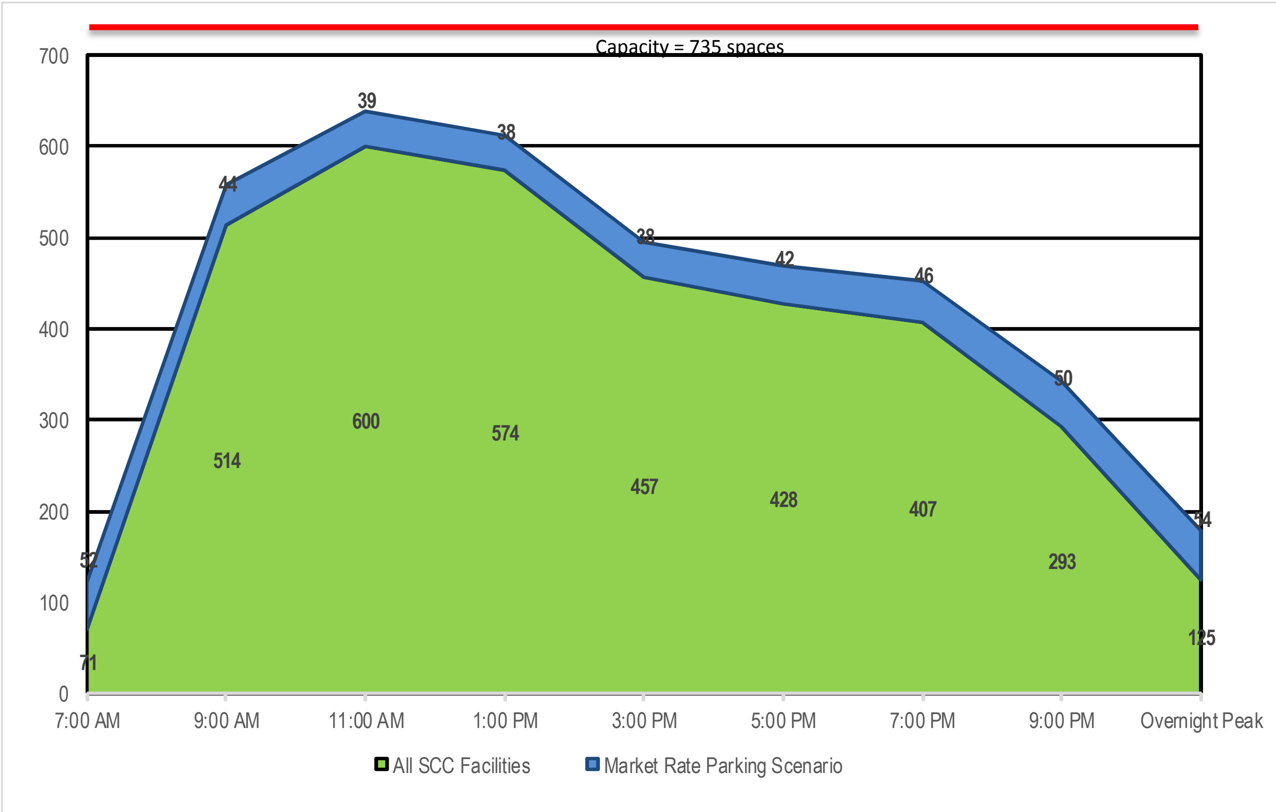
Recent parking occupancy counts conducted in the Pike Pine neighborhood for the Capitol Hill Eco District Study found that approximately 71 percent of the residential spaces occupied at peak hour (overnight), remain occupied during the day.[9] Hourly parking demand for Site D was estimated with reference to this ratio between peak overnight occupancy and midday occupancy in the Pike Pine neighborhood and time of data variation in parking occupancy rates for a

[8] Alexander Brennan and Erin David. *District Shared Parking: Program, Policy and Technology Strategies for a More Resilient Parking System in Pike Pine*. Capitol Hill Ecodistrict, 2015.

[9] Ibid. Page 32. Also note: Capitol Hill Ecodistrict found that nighttime peak occupancy in residential parking spaces was on average 85 percent of total supply.

multifamily apartment property in Downtown Redmond, WA.[10] Figure 10 and Figure 11 show the estimated cumulative parking demand atall SCC parking facilities under two different Site D development scenarios—market rate (highest demand) and workforce housing (lowest demand).

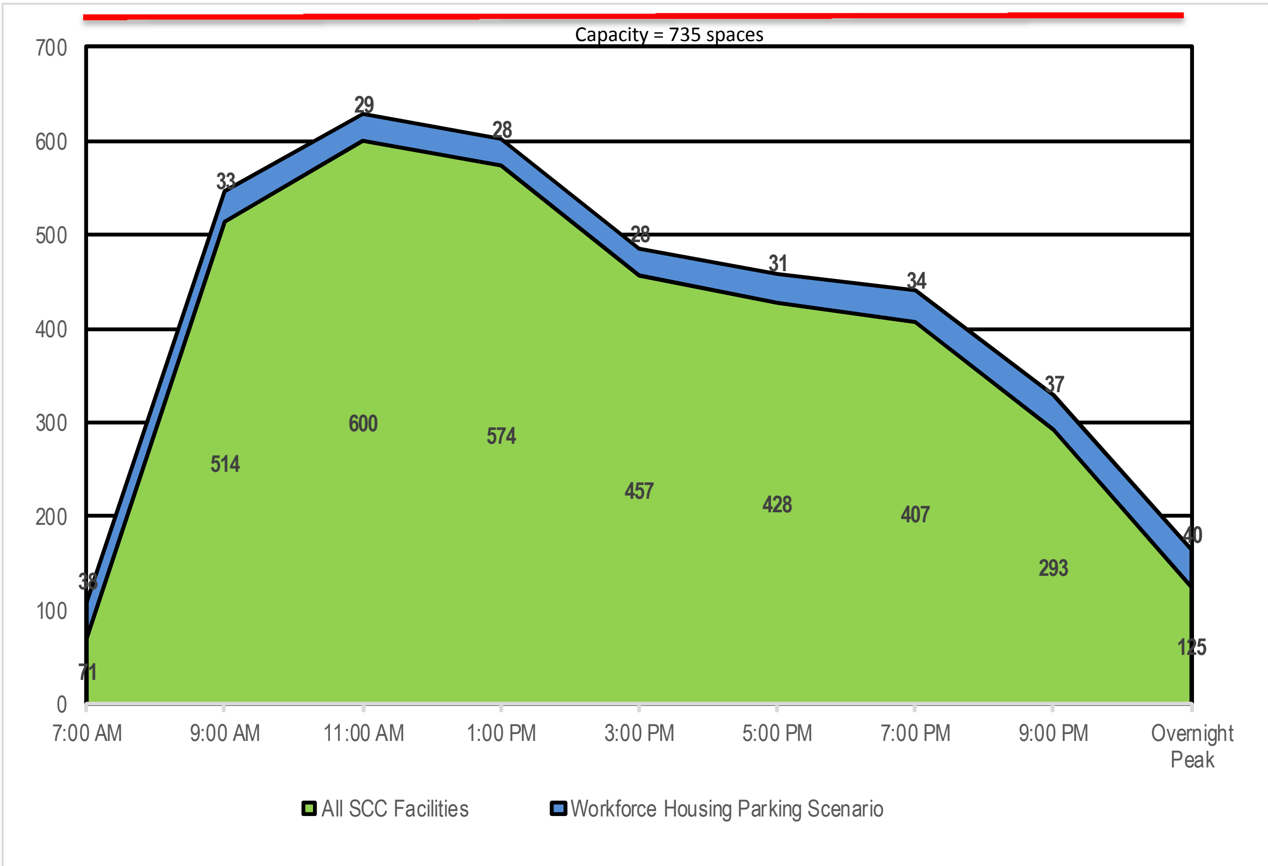
Figure 10 Cumulative Weekday Parking Occupancy for SCC and Market Rate Parking Scenario



Capacity = 735 spaces

[10] Parking occupancy counts were conducted every two hours from 7:00 AM-10:00 PM, and at 1:00 AM on typical weekdays at a mixed-use TOD site in Redmond, WA (Ewing, R., G. Tian, K. Shively, and R. Weinberger (2016). "Trip and Parking Generation at Transit-Oriented Developments: Case Study of Redmond TOD, Seattle Region," Scheduled for publication in: *Transportation Research Record: Journal of the Transportation Research Board*, No. 2543.

Figure 11 Cumulative Weekday Parking Occupancy for SCC and Workforce Housing Parking Scenario



Comment on Parking Supply

Decisions about the supply of off-street parking in this highly transit accessible location should not be based exclusively on this type of analysis of potential utilization/demand, as it is based on data from a selection of buildings that do have access to off-street parking. It is important to note that there is no inherent demand for parking associated with residential buildings in such a location. There are many multi-unit apartment buildings throughout Capitol Hill and in close proximity to Site D that offer no off-street parking to residents. The market for the purchase/lease of such structures no doubt remains strong and it is quite possible that development of Site D with no new residential parking would—through self-selection—attract a significant share of residents who do not own or regularly operate motor vehicles. Therefore, the parking demand projections presented herein should be viewed as conservative.

ATTACHMENT A

SCC TRAVEL INFORMATION REVIEWED

As a basis for our work to develop a Campus Access Profile for Seattle Central College (Task 2), the Site D Access Profile (Task 3), and documentation of campus trip generation (Task 4), Nelson\Nygaard reviewed selected data and information about campus parking and travel patterns provided by Seattle Central College and other members of the consultant team for the Major Institutional Master Plan (MIMP). Specific resources referenced in this analysis include the following:

SCC Transportation Management Plan

The 2015-2016 Transportation Management Plan (TMP) for Seattle Central, completed by College staff, provides an overview of transportation choices available to faculty, staff, and students. The TMP also includes information on the pricing of and discounts available for parking, transit, ferries, vanpools, and other travel choices, as well as other commuter benefits programs offered.

SCC Commute Trip Reduction Annual Report

In accordance with the Washington State Commute Trip Reduction Law, Seattle Central College prepared and submitted an Annual CTR Report to WSDOT in 2015. This report provides an overview of Campus transportation demand management programs, and the availability and pricing of transportation and campus access alternatives, including parking.

According to this CTR Report,

- The average price of carpool parking in these facilities is $30/month, while the average price of parking for single occupant vehicles is $54/month. (The CTR report notes that the average price of off-street parking in private facilities off-campus is ~$100).
- SCC offers a transit pass good for trips valued up to $4.75 per trip, at a discount of 82.7% off of the cash fare.
- Subsidies of up to $58 per month are available for vanpooling, vanshare, and ferry commuters.
- To support bicycle access to campus, the College offers covered racks/lockers, uncovered racks/lockers (for short-term use), clothes lockers, and showers. The campus is planning to expand the number of uncovered bike racks.

- The campus does not offer flex time, tele-work, or compressed work week schedules.
- The College offers guaranteed ride home services, and zipcar carsharing services on campus.

CTR Employer Survey Report

On November 2, 2015, Seattle Central College reported results of its Commute Trip Reduction (CTR) program required travel survey of all worksite employees. The College reported:

- 216 surveys returned out of 951 employees at the worksite
- Commute trips by mode, including drive-alone commute rate of 34.1%,
- One-way vehicle miles traveled (VMT) per employee of 4.6 miles

This report summarizes commute trips by mode of travel and historical travel patterns at the worksite, including a decline in the drive-alone rate for SCC employees, from 46.7% in 2007-2008 to 34.1% in 2015.

Student Transportation Summary Report

This document provides a summary of responses to the Seattle Community Colleges Student Transportation Survey, prepared for the Seattle Community Colleges Carbon Footprint Report. Survey data were collected from December 7, 2009 through January 7, 2010 for all SCC campuses. This survey provided information on the share of the student population "scheduled to arrive on campus between 6 and 9 a.m. on each weekday, as well as the mode of transportation used and the distance traveled to reach work each day.

Student Commute Distances

Documentation prepared by Seattle Central College staff provides an overview of the share of students traveling multiple categories of distances to reach SCC from their place of residence. For 2013-2014, the 45.3% of students lived within five miles of campus, and more than 80% lived within ten miles.

Employee Residential Locations

Commute distance and travel options analysis can be conducted for Seattle Central College and District employees, based on Employee Zip Code data provided by the College. This data, provided in spreadsheet format includes a count of employees living within each zip code, with no address data or other personally identifiable data or information.

Puget Sound Colleges Survey

In the fall of 2014 a travel survey of College affiliates (students, faculty, and staff) was conducted for institutions across the Puget Sound for the Puget Sound Regional Council (PSRC) by RSG. Seattle Central College provided cross-tabulated data, allowing discrete analysis of survey responses for (1) campus employees (faculty and staff members), and (2) students. This survey provided essential information for developing a campus access profile, including:

- Vehicle availability
- Frequency of trips to campus (days per week)

- Mode of travel to/from campus for trips on the most recent weekday
- Location of parking on most recent trip to/from campus

Seattle Central College Parking Space Inventory and Occupancy

During one weekday in the fall of 2015, a survey was conducted to record the inventory and occupancy of parking spaces within each Seattle Central College parking facility, including:

- The Harvard Garage (628 spaces)
- North Plaza Lot (37 spaces)
- SAM Garage (35 spaces)
- Walgreens Garage (25 spaces)
- South Annex Lot (10 spaces)

The percentage of total spaces (735 spaces) utilized was reported by facility for every hour from 7:00 AM-10:00 PM.

On-Street Parking Inventory and Occupancy

A survey of the inventory and occupancy of on-street parking spaces, including total spaces for each block face, was conducted for the entire area within one radial half mile of the main entrance to the Seattle Central College Campus on Broadway. This includes roughly the diamond shaped portion of the Central Seattle street grid between 13th Ave E/E. Howell Street (to the East); E. Broadway and E. Thomas St (to the North); Summit Ave E and E. Pine St. (to the West); and Spring Street and E. Broadway (to the South).

Occupancy is reported for all block faces on an hourly basis, every hour from 8:00 AM-10:00 PM on a weekday.

Attachment D:

Detailed Trip Generation

Appendix A: Seattle Central College Site D and Campus Trip Generation and Parking memorandum

SCC MIMP Trip Generation

Independent variables options for LU 225 include bedrooms or residents. SCC Plan of 500 beds = residents whereas bedrooms may include multiple students

Person Trip Calculation

Land Use	Setting	Size	Units	Model	Trip Rate[1] Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate[2]	Person Trips
Future Use										
Off-Campus Student Apartment - Adjacent to Campus (LU 225)		**570**	residents							
Daily	General Urban/Suburban			Rate	3.65	per resident	vehicle trips	50%	1.11	2309
AM Peak Hour	General Urban/Suburban			Rate	0.13	per resident	vehicle trips	41%	1.11	82
PM Peak Hour	General Urban/Suburban			Rate	0.28	per resident	vehicle trips	50%	1.11	177
Off-Campus Student Apartment - Adjacent to Campus (LU 225)		**70**	residents							
Daily	General Urban/Suburban			Rate	3.65	per resident	vehicle trips	50%	1.11	284
AM Peak Hour	General Urban/Suburban			Rate	0.13	per resident	vehicle trips	41%	1.11	10
PM Peak Hour	General Urban/Suburban			Rate	0.28	per resident	vehicle trips	50%	1.11	22
Existing Use										
Off-Campus Student Apartment - Adjacent to Campus (LU 225)		**70**	residents							
Daily	General Urban/Suburban			Rate	3.65	per resident	vehicle trips	50%	1.11	284
AM Peak Hour	General Urban/Suburban			Rate	0.13	per resident	vehicle trips	41%	1.11	10
PM Peak Hour	General Urban/Suburban			Rate	0.28	per resident	vehicle trips	50%	1.11	22

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 10th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. AVO based on NCHRP 365 for urban areas with populations over 1 million people.

Appendix A: Seattle Central College Site D and Campus Trip Generation and Parking memorandum

SCC MIMP Trip Generation

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Proposed Use								
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]								
Walk, Bike, Other Trips	*15%*	346	5	7	12	14	13	27
Transit Trips	*70%*	1,617	24	34	58	62	62	124
Person Trips by Vehicle	*15%*	346	5	7	12	13	13	26
Total	*100%*	2,309	34	48	82	89	88	177
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]								
Walk, Bike, Other Trips	*15%*	43	1	1	2	2	1	3
Transit Trips	*70%*	199	3	4	7	8	7	15
Person Trips by Vehicle	*15%*	42	0	1	1	1	3	4
Total	*100%*	284	4	6	10	11	11	22
Existing Use								
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]								
Walk, Bike, Other Trips	*15%*	43	1	1	2	2	1	3
Transit Trips	*66%*	187	3	4	7	7	7	14
Person Trips by Vehicle	*19%*	54	0	1	1	2	3	5
Total	*100%*	284	4	6	10	11	11	22
Net New Project Person Trips								
Walk, Bike, Other Trips		346	5	7	12	14	13	27
Transit Trips		1,629	24	34	58	63	62	125
Person Trips by Vehicle		334	5	7	12	12	13	25
Total		2,309	34	48	82	89	88	177

1. Person trip mode splits for the residential uses are consistent with commuter students mode splits. Note that a review of typical residential within the site's census tracts was completed; however, the student data was more appropriate in this instance.

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Proposed Use								
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]	1.10	316	5	6	11	12	12	24
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]	1.10	38	0	1	1	1	2	3
Existing Use								
Off-Campus Student Apartment - Adjacent to Campus (LU 225) [1]	1.08	50	0	1	1	2	2	4

1. Average Vehicle Occupancy (AVO) consistent with commuter students.

COMMUTERS ONLY (excludes on-campus student housing)

Existing TG

Campus Access Profile		Source:
Total employees	829	(951 total, 829 typical weekday)
Nearby Affordable Housing Units (staff live in)	0	

Students		Source:
2015 Total SCC FTE	5269	(6747 total, reduced for anticapted total weekday - Stephen Starling email 8/22/18)
Number of On Campus Students	70	per Lincoln Ferris email 7/9/19
Number of off-campus	5199	

Mode of Travel (2019 CTR)	Faculty/Staff		Students		All Trips	
	%	#	%	#		
Drive Alone/Motorcycle	34.0%	283	17.0%	883	**1166**	19%
Carpool/Vanpool	9.0%	73	2.0%	104	**177**	
Subtotal: Auto	**43.0%**	**356**	**19.0%**	**987**	**1343**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	780	**780**	
Bus	28.0%	232	37.0%	1924	**2156**	
Rail	16.0%	132	14.0%	728	**860**	
Subtotal: Transit	**44.0%**	**364**	**66.0%**	**3432**	**3796**	
Walk/Bike	7.0%	59	12.0%	624	**683**	
Telework	4.0%	34		0	**34**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	8	2.0%	104	**112**	
Other	1.0%	8	1.0%	52	**60**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**109**	**15.0%**	**780**	**889**	
Total	100.0%	829	100.0%	5199	**6028**	

Vehicle Trips (1 direction)	All		
Drive Alone Vehicle Trips (Including Motorcycle)	1166	1	1.07746
Carpool Vehicle Trips*	80	2.2	
Vehicle Trips/Campus	**1246**		

**Assumes 2.2 passengers per vehicle in "Carpools"*

	In	Out	Total	Trip/FTE
Daily	1,246	1,246	2,493	0.48
AM Peak Hour	157	42	199	0.04
PM Peak Hour	95	122	217	0.04

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Based on previous SCC specific data

Based on an average of 3 rates/studies (ITE, UW Bothell, UW Seattle)

No Action (Link Light Rail Expansion)

Campus Access Profile	
Total employees	1000
Nearby Affordable Housing Units (staff live in)	0

Students	
2015 Total SCC FTE	7500
Number of On Campus Students	70
Number of off-campus	7430

Mode of Travel	Faculty/Staff		Students		All Trips	
	%	#	%	#		
Drive Alone	28.0%	280	13.0%	966	**1246**	15%
Carpool	9.0%	90	2.0%	148	**238**	
Subtotal: Auto	**37.0%**	**370**	**15.0%**	**1114**	**1484**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	1115	**1115**	
Bus	24.0%	240	33.0%	2452	**2692**	
Rail	26.0%	259	22.0%	1635	**1894**	
Subtotal: Transit	**50.0%**	**499**	**70.0%**	**5201**	**5700**	
Walk/Bike	7.0%	69	12.0%	892	**961**	
Telework	4.0%	40		0	**40**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	10	2.0%	149	**159**	
Other	1.0%	10	1.0%	74	**84**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**130**	**15.0%**	**1115**	**1244**	
Total	100.0%	999	100.0%	7430	**8428**	

Vehicle Trips (1 direction)	All		
Drive Alone Vehicle Trips (Including Motorcycle)	1246	1	1.09586
Carpool Vehicle Trips*	108	2.2	
Vehicle Trips/Campus	**1354**		

**Assumes 2.2 passengers per vehicle in "Carpools"*

	In	Out	Total	Trip/FTE
Daily	1,354	1,354	2,708	0.370
AM Peak Hour	170	46	216	0.03
PM Peak Hour	104	132	236	0.03

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Students:

	walking	
-4.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
8.0%	LRT	change from LRT expansion
	multi-modal	

Staff:

	walking	
-6.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
10.0%	LRT	change from LRT expansion
	multi-modal	

MIMP Forecast (Post 2024)

Campus Access Profile	
Total employees	1000
Nearby Affordable Housing Units (staff live in)	0

Students	
Total SCC FTE	7500
Number of On Campus Students	570
Number of off-campus	6930
	-500

Mode of Travel	Faculty/Staff		Students		All Trips	
	%	#	%	#		
Drive Alone	28.0%	280	13.0%	901	**1181**	15%
Carpool	9.0%	90	2.0%	139	**229**	
Subtotal: Auto	**37.0%**	**370**	**15.0%**	**1040**	**1410**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	1039	**1039**	
Bus	24.0%	240	33.0%	2287	**2527**	
Rail	26.0%	260	22.0%	1525	**1785**	
Subtotal: Transit	**50.0%**	**500**	**70.0%**	**4851**	**5351**	
Walk/Bike	7.0%	70	12.0%	831	**901**	
Telework	4.0%	40		0	**40**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	10	2.0%	139	**149**	
Other	1.0%	10	1.0%	69	**79**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**130**	**15.0%**	**1039**	**1169**	
Total	100.0%	1000	100.0%	6930	**7930**	

Vehicle Trips (1 direction)	All	
Drive Alone Vehicle Trips (Including Motorcycle)	1181	0.066667
Carpool Vehicle Trips*	104	
Vehicle Trips/Campus	**1285**	

**Assumes 2.2 passengers per vehicle in "Carpools"*

	In	Out	Total	Trip/FTE
Daily	1,285	1,285	2,570	0.371
AM Peak Hour	161	44	205	0.03
PM Peak Hour	98	126	224	0.03

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Students:

	walking	
-4.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
8.0%	LRT	change from LRT expansion
	multi-modal	

Staff:

	walking	
-6.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
10.0%	LRT	change from LRT expansion
	multi-modal	

Trip Generation Summary

COMMUTER

Time Period	Person Trips: Vehicular[1]	Person Trips: Transit	Person Trips: Non-Motorized	Person Trips: Total	Vehicular Trip Rate per Student FTE	Vehicle Trips: In	Vehicle Trips: Out	Vehicle Trips: Total
Existing (6,750 FTE)								
Daily	1,343	3,796	889	6,028	0.48	1,246	1,246	2,493
AM Peak Hour	107	303	71	481	0.04	157	42	199
PM Peak Hour	117	330	77	525	0.04	95	122	217
No Action (7,500 FTE)								
Daily	1,484	5,700	1,244	8,428	0.37	1,354	1,354	2,708
AM Peak Hour	119	455	99	673	0.03	170	46	216
PM Peak Hour	129	496	108	734	0.03	104	132	236
Action (7,500 FTE)								
Daily	1,410	5,351	1,169	7,930	0.37	1,285	1,285	2,570
AM Peak Hour	113	427	95	635	0.03	161	44	205
PM Peak Hour	123	466	102	690	0.03	98	126	224
(Action relative to No Action)								
Daily	-74	-349	-75	-498		-69	-69	-138
AM Peak Hour	-6	-28	-4	-38		-9	-2	-11
PM Peak Hour	-6	-30	-7	-43		-5	-7	-12

RESIDENTIAL

Time Period	Person Trips: Vehicular[1]	Person Trips: Transit	Person Trips: Non-Motorized	Person Trips: Total	Vehicular Trip Rate per bed	Vehicle Trips: In	Vehicle Trips: Out	Vehicle Trips: Total
Existing (6,750 FTE)								
Daily	27	94	22	142	0.71	25	25	50
AM Peak Hour	1	4	1	6	0.02	0	1	1
PM Peak Hour	2	7	2	11	0.06	2	2	4
No Action (7,500 FTE)								
Daily	21	100	22	142	0.55	19	19	38
AM Peak Hour	1	4	1	6	0.02	0	1	1
PM Peak Hour	2	8	2	11	0.05	1	2	3
Action (7,500 FTE	**15%**	**70%**	**15%**					
Daily	173	809	173	1,155	0.55	158	158	316
AM Peak Hour	6	29	6	41	0.02	5	6	11
PM Peak Hour	13	62	14	89	0.05	12	12	24
(Action relative to No Action)								
Daily	152	709	152	1,013		139	139	278
AM Peak Hour	5	26	5	36		5	5	10
PM Peak Hour	11	55	12	78		11	10	21

OTHER

Time Period	Person Trips: Vehicular[1]	Person Trips: Transit	Person Trips: Non-Motorized	Person Trips: Total	Vehicular Trip Rate per Student FTE	Vehicle Trips: In	Vehicle Trips: Out	Vehicle Trips: Total
Existing (6,750 FTE)								
Daily	67	190	44	301	0.024	62	62	124
AM Peak Hour	5	15	4	24	0.002	8	2	10
PM Peak Hour	6	17	4	26	0.002	5	6	11
No Action (7,500 FTE)								
Daily	74	285	62	421	0.018	68	68	136
AM Peak Hour	6	23	5	34	0.001	8	2	10
PM Peak Hour	6	25	5	37	0.002	5	7	12
Action (7,500 FTE)								
Daily	71	268	58	397	0.018	63	63	126
AM Peak Hour	6	21	5	32	0.001	8	2	10
PM Peak Hour	6	23	5	35	0.002	5	7	12
(Action relative to No Action)								
Daily	-4	-17	-4	-25		-5	-5	-10
AM Peak Hour	0	-1	0	-2		0	0	0
PM Peak Hour	0	-2	0	-2		0	0	0

TOTAL

Time Period	Person Trips: Vehicular[1]	Person Trips: Transit	Person Trips: Non-Motorized	Person Trips: Total	Vehicle Trips: In	Vehicle Trips: Out	Vehicle Trips: Total
Existing (6,750 FTE)							
Daily	1,437	4,079	955	6,471	1,334	1,334	2,667
AM Peak Hour	114	322	76	511	164	46	210
PM Peak Hour	125	354	83	562	102	130	232
No Action (7,500 FTE)							
Daily	1,579	6,085	1,328	8,991	1,441	1,441	2,882
AM Peak Hour	125	482	105	712	178	49	227
PM Peak Hour	137	528	115	781	110	141	251
Action (7,500 FTE)							
Daily	1,654	6,427	1,400	9,481	1,506	1,506	3,012
AM Peak Hour	124	478	106	708	174	52	226
PM Peak Hour	142	551	120	813	116	144	260
(Action relative to No Action)							
Daily	75	342	72	490	65	65	130
AM Peak Hour	-1	-4	1	-4	-4	3	-1
PM Peak Hour	5	23	5	32	6	3	9

Attachment E:

Detailed Parking Demand

Appendix A: Seattle Central College Site D and Campus Trip Generation and Parking memorandum

Total Supply	510	37	26	35	25	**633**

4 motorcycle spaces

Time	Harvard Garage	North Plaza Lot	South Annex Lot	SAM Garage	Walgreens Garage	All SCC Facilities	Occupancy	Time of Day
7am	51	11	3	4	3	71	11.2%	12%
8am	204	28	20	14	13	278	43.9%	47%
9am	408	37	26	21	19	511	80.7%	86%
10am	485	37	26	21	23	591	93.4%	100%
11am	485	37	26	21	23	591	93.4%	100%
12 noon	485	37	26	21	23	591	93.4%	100%
1pm	459	37	26	21	23	566	89.3%	96%
2pm	408	30	26	21	23	507	80.1%	86%
3pm	357	30	26	18	23	453	71.5%	77%
4pm	357	19	26	14	23	438	69.2%	74%
5pm	357	19	7	11	13	405	64.0%	69%
6pm	357	15	7	2	2	380	60.0%	64%
7pm	357	15	7	2	0	380	60.0%	64%
8pm	357	7	7	2	0	373	58.9%	63%
9pm	255	7	7	2	0	271	42.8%	46%
10pm	102	4	7	0	0	112	17.7%	19%

2015 Pre-Link Parking Scenario

(includes commuters and residential)

FTE 5269

Commuter FTE 5199 Residential 70

Time	Arriving at SCC Pkg (or Present overnight)	Departing	Vehicles Present	Capacity	Spaces Available	Occupancy	Time	Total Veh Present	Commuter	Residential	Typical residential time of day (ITE, LU 221)	Commuter (no resi) Also includes demand from off-site
7am	71	0	71	633	562	11.2%	7am	71	65	6	71%	11%
8am	207	0	278	633	355	43.9%	8am	278	273	5	61%	46%
9am	233	0	511	633	122	80.7%	9am	511	507	4	55%	86%
10am	104	24	591	633	42	93.4%	10am	591	587	4	54%	100%
11am	69	69	591	633	42	93.4%	11am	591	587	4	53%	100%
12pm	78	78	591	633	42	93.4%	12pm	591	587	4	50%	100%
1pm	33	58	566	633	68	89.3%	1pm	566	562	4	49%	96%
2pm	34	92	507	633	126	80.1%	2pm	507	503	4	49%	86%
3pm	73	127	453	633	180	71.5%	3pm	453	449	4	50%	76%
4pm	100	114	438	633	195	69.2%	4pm	438	433	5	58%	74%
5pm	79	112	405	633	228	64.0%	5pm	405	400	5	64%	68%
6pm	60	85	380	633	253	60.0%	6pm	380	375	5	67%	64%
7pm	67	67	380	633	253	60.0%	7pm	380	374	6	70%	64%
8pm	56	63	373	633	260	58.9%	8pm	373	367	6	76%	62%
9pm	13	115	271	633	362	42.8%	9pm	271	264	7	83%	45%
10pm	26	185	112	633	521	17.7%	10pm	112	105	7	90%	18%
11p-7a	0	42	591	633	42	93%	**Peak**	587	8			
Totals from 2015	1301	1231					**Rate**	0.11	0.11			
								per FTE	*per bed*			

Total Vehicle Trip Ends at SCC Over 24-Hour Period (2015)

Rate 0.11 /fte — 1453 FTE (ALL) — 1437 FTE (Commuters)

COMMUTER

Time	Existing (2019 CTR) FTE 5199 Vehicles Present	No Action FTE 7430 Vehicles Present	Action FTE 6930 Vehicles Present
7am	56	61	58
8am	237	257	244
9am	439	477	453
10am	509	553	525
11am	509	553	525
12pm	509	553	525
1pm	487	529	502
2pm	436	474	450
3pm	389	423	401
4pm	376	408	387
5pm	347	377	358
6pm	325	353	335
7pm	324	352	334
8pm	318	345	328
9pm	229	248	236
10pm	91	99	94
Max	509	553	525
Veh/Day	1246	1354	1285
	Rate	Rate	Rate
	0.10	0.07	0.08
	FTE	*FTE*	*FTE*

Assumes reduction for Link Light Rail opening after 2015 (Existing)

Assumes increase in enrollment + reduction for Link Light Rail extension (No Action, Action)

RESIDENTIAL

Time	Existing Beds 70 Vehicles Present	No Action Beds 70 Vehicles Present	Action Beds 570 Vehicles Present
7am	6	6	45
8am	5	5	38
9am	4	4	35
10am	4	4	34
11am	4	4	33
12pm	4	4	32
1pm	4	4	31
2pm	4	4	31
3pm	4	4	32
4pm	5	5	37
5pm	5	5	40
6pm	5	5	42
7pm	6	6	44
8pm	6	6	48
9pm	7	7	52
10pm	7	7	57
Max	7	7	57
	8	8	63
	Rate	Rate	Rate
	0.11	0.11	0.11
	Bed	*Bed*	*Bed*

TOTAL

Time	Existing Vehicles Present	Existing Capacity	Existing Utilization	No Action Vehicles Present	No Action Capacity	No Action Utilization	Action Vehicles Present	Action Capacity	Action Utilization
7am	62	633	10%	67	633	11%	103	500	21%
8am	242	633	38%	262	633	41%	282	500	56%
9am	443	633	70%	481	633	76%	488	500	98%
10am	513	633	81%	557	633	88%	559	500	112%
11am	513	633	81%	557	633	88%	558	500	112%
12pm	513	633	81%	557	633	88%	557	500	111%
1pm	491	633	78%	533	633	84%	533	500	107%
2pm	440	633	70%	478	633	76%	481	500	96%
3pm	393	633	62%	427	633	67%	433	500	87%
4pm	381	633	60%	413	633	65%	424	500	85%
5pm	352	633	56%	382	633	60%	398	500	80%
6pm	330	633	52%	358	633	57%	377	500	75%
7pm	330	633	52%	358	633	57%	378	500	76%
8pm	324	633	51%	351	633	56%	376	500	75%
9pm	236	633	37%	255	633	40%	288	500	58%
10pm	98	633	16%	106	633	17%	151	500	30%
Max	513	633	81%	557	633	88%	559	500	112%

2015 Results (All)

Campus Access Profile		Source:
Total employees	829	(951 total, 829 typical weekday)
Nearby Affordable Housing Units (staff live in)	0	

Students		Source:
2015 Total SCC FTE	5269	(6747 total, reduced for anticapted total weekday - Stephen Starling email 8/22/18)
Number of On Campus Students	70	per Lincoln Ferris email 7/9/19

Mode of Travel for Commuters (2017 CTR)	**Faculty/Staff**		**Students**		**All Trips**
	%	#	%	#	
Drive Alone	34.0%	283	19.0%	1001	**1284**
Carpool	13.0%	108	5.0%	263	**371**
Vanpool	0.0%	0		0	**0**
Motorcycle		0	0.0%	0	**0**
Multi-modal (bus + bike, bike + rail, etc)		0	0.0%	0	**0**
Bus	36.0%	298	47.0%	2476	**2774**
Rail	4.0%	33	1.0%	53	**86**
Subtotal: Transit	**40.0%**	**331**	**48.0%**	**2529**	**2860**
Bike	12.0%	99	27.0%	1423	**1522**
Walk	0.0%	0	0.0%	0	**0**
Telework	1.0%	8		0	**8**
Ferry (car/van/bus)	0.0%	0		0	**0**
Ferry (walk on)	0.0%	0	1.0%	53	**53**
Subtotal: Ferry	**0.0%**	**0**	**1.0%**	**53**	**53**
Other	0.0%	0	0.0%	0	**0**
Total	100.0%	829	100.0%	5269	**6098**

Vehicle Trips	All	
Drive Alone Vehicle Trips	1284	**6098**
Carpool Vehicle Trips*	169	
Vehicle Trips/Campus	1453	

**Assumes 2.2 passengers per vehicle in "Carpools"*

2015 Results (Exclude Residential)

Campus Access Profile		Source:
Total employees	829	(951 total, 829 typical weekday)
Nearby Affordable Housing Units (staff live in)	0	

Students		Source:
2015 Total SCC FTE	5269	(6747 total, reduced for anticapted total weekday - Stephen Starling email 8/22/18)
Number of On Campus Students	70	per Lincoln Ferris email 7/9/19
FTE Commuters	5199	

	Mode of Travel for Commuters (2017 CTR)	**Faculty/Staff**		**Students**		**All Trips**
		%	#	%	#	
21%	Drive Alone	34.0%	283	19.0%	987	**1270**
	Carpool	13.0%	108	5.0%	260	**368**
	Vanpool	0.0%	0		0	**0**
	Motorcycle		0	0.0%	0	**0**
	Multi-modal (bus + bike, bike + rail, etc)		0	0.0%	0	**0**
	Bus	36.0%	298	47.0%	2444	**2742**
	Rail	4.0%	33	1.0%	52	**85**
	Subtotal: Transit	**40.0%**	**331**	**48.0%**	**2496**	**2827**
	Bike	12.0%	99	27.0%	1404	**1503**
	Walk	0.0%	0	0.0%	0	**0**
	Telework	1.0%	8		0	**8**
	Ferry (car/van/bus)	0.0%	0		0	**0**
	Ferry (walk on)	0.0%	0	1.0%	52	**52**
	Subtotal: Ferry	**0.0%**	**0**	**1.0%**	**52**	**52**
	Other	0.0%	0	0.0%	0	**0**
	Total	100.0%	829	100.0%	5199	**6028**

Vehicle Trips	All	
Drive Alone Vehicle Trips	1270	**6028**
Carpool Vehicle Trips*	167	
Vehicle Trips/Campus	1437	

**Assumes 2.2 passengers per vehicle in "Carpools"*

Attachment F:

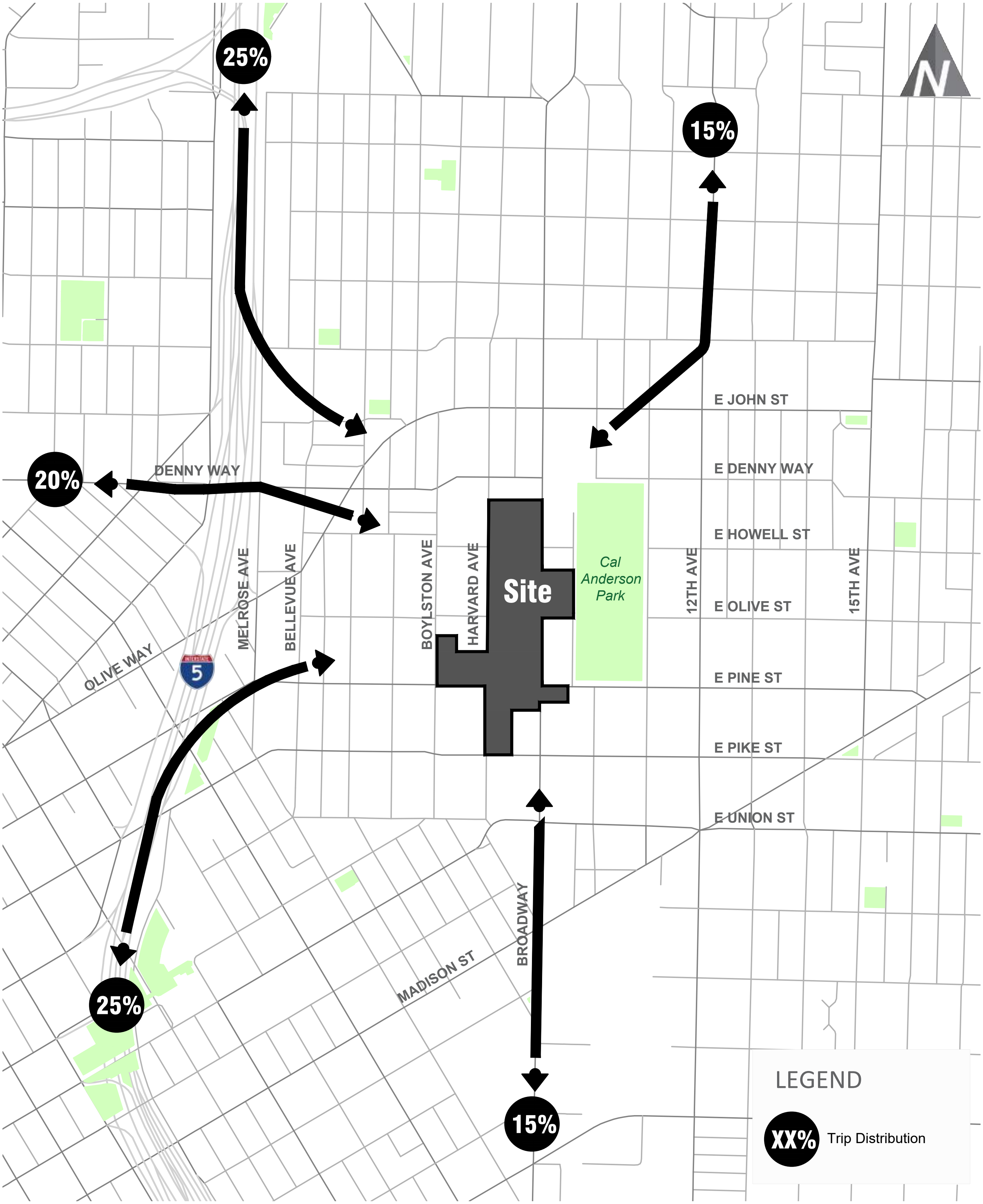
Pipeline Projects

Pipeline List

- **118 Broadway E** (#3021140) - Land Use Application to allow a seven-story, 150-unit apartment building with 22,846 sq. ft. of retail at street level. Parking for 140 vehicles to be located below grade. *(We have this report)*
- **123 10th Avenue E** (#3021179) - Land Use Application to allow a 7-story, 74-unit apartment building with retail. Parking for 25 vehicles proposed. An additional 30 offsite parking spaces proposed at 923 East John Street. *(We have this report)*
- **800 Denny Way** (#3033602) - Land Use Land Use Application to allow a 7-story apartment building with 13 apartment units, 87 small efficiency dwelling units (100 units total) and retail. No parking proposed. Existing building to be demolished to allow a fourth floor addition to an existing building (Seattle Landmark Garfield Exchange Building) and change the use from utility services to 25 unit apartments. Parking for 7 vehicles to be located below grade. (**We need this report**)
- **1818 Harvard Avenue** (#3025137) - Land Use Application to allow a six-story hotel and residential building with 28 small efficiency dwelling units. Parking for 15 vehicles will be located below grade. Existing apartment building to be demolished. *(We have this report)*
- **1833 Broadway** (#3016632) - Land Use Application to allow a 6-story, 50-unit apartment building with restaurant, office, and general retail sales and service. Parking for 34 vehicles proposed. Existing building to be demolished. (**We need this report**)
- **1830 Broadway** (#3021149)- Land Use Application to allow a 7-story, 94-unit apartment building with retail and childcare center. Parking for 21 vehicles proposed*. (We have this report)*
- **1732 + 1812 Broadway** (#3028538, 3028539) - Land Use Application to allow two 6-story mixed-use structures with a total of 223 apartment units and approximately 8,776 SF of commercial space. There will be a total of 126 below grade parking spaces. *(We have this report)*
- **1106 E Denny Way** (#3029406)- Design Review Streamlined Design Review for a 5-story apartment building with 10 small efficiency dwelling units and 8 apartment units (18 units total). No parking proposed. Existing building to be removed. (**We need this report**)
- **1208 E Olive Street** (#3024138)- Land Use Application to allow a five-story apartment building containing 69 units above retail in an environmentally critical area. Parking for one vehicle to be provided. Existing structures to be demolished. (**We need this report**)
- **1717 Belmont Avenue** (#3028324) - Land Use Application to allow a 7-story apartment building with 84 small efficiency dwelling units and 6 apartments. No parking proposed. Existing building to be demolished. (**We need this report**)
- **1517 Bellevue Avenue** (#3018252) - Land Use Application to allow a 7-story structure containing 45 residential units, 5 live-work units and 771 sq. ft. of retail space. Existing 2-story building to be demolished*. (We have this report)*
- **1515 Broadway** (#3032704) - Land use application to allow an 8-story, 118-unit apartment, retail, and institution building (community center). Project includes renovation of the Atlas Building and Eldridge Tire Building. Atlas Building façade to be rebuilt. Eldridge Tire Building façade to remain. No parking proposed. (**We need this report**)
- **1525 11th Avenue** (#3023226) - Land Use Application to allow a 5-story addition to an existing 2-story, landmark building (Kelly Springfield Building), containing 71,564 sq. ft. of office space and 13,548 sq. ft. of retail. Parking for 34 vehicles (including two spaces for loading) to be provided. *(We have this report)*

Attachment G:

Trip Distribution



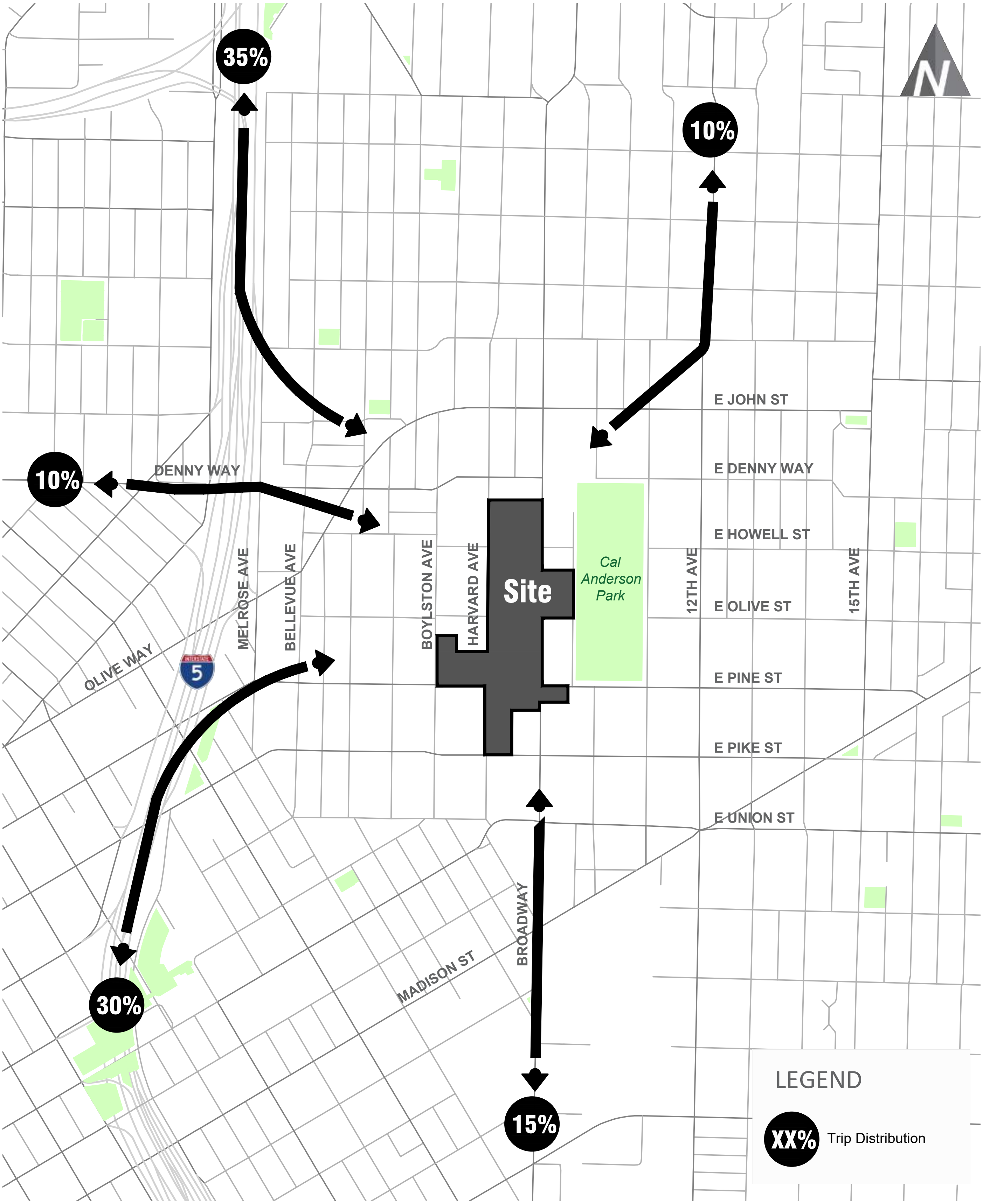
Commuter Trip Distribution

Seattle Central College MIMP

ATTACHMENT

G-1

transpogroup



Residential Trip Distribution

Seattle Central College MIMP

ATTACHMENT

G-2

transpogroup

Appendix B Detailed Residential Mode Split Assumptions

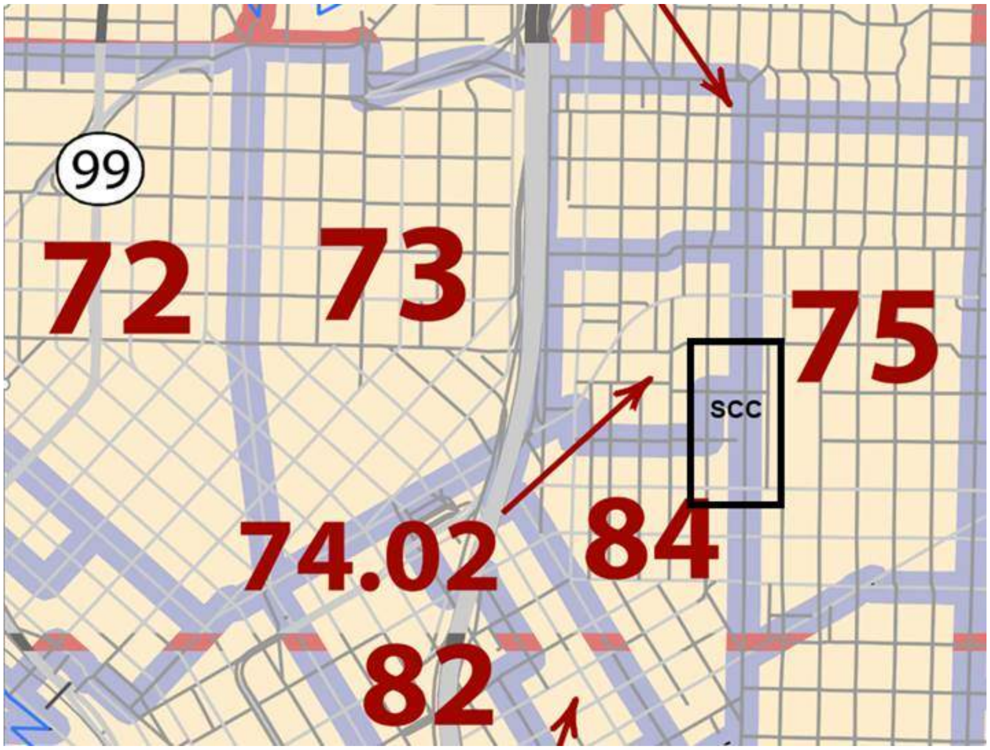


Table 1 below summarizes the mode splits for the 3 census tracts and the mode split from the SCC student surveys. Consistent with our discussion in the scoping meeting, the non-motorized mode splits are much higher based on the census tract data given the ability to walk and bike for most of your travel when living in Capital Hill. The driving mode split for students based on the survey is less than shown with the census tract data, which is likely due to ability to afford a car with the student income level, SCC TMP program that provides subsidies for non-SOV trips including transit subsidy, limited parking and having to pay for parking, and ease of access to the campus via transit and other modes.

Table 1 Summary of Mode Split Data Related to Residential Students

	Census Tract				SCC Student Survey	Blended Existing Splits	Recommended Future Splits
	74.02	84	75	*Average*			
Driving	25%	27%	24%	*25%*	19%	**19%**	**15%**
Transit	22%	24%	31%	*26%*	66%	**28%**	**30%**
Non-Motorized	53%	49%	45%	*49%*	15%	**53%**	**55%**

Given the student and residential (Census data) travel behaviors for SCC and the surrounding area, we recommend a blended approach for the mode split assumptions related to resident students. This approach recognizes that the primary mode is non-motorized for residents but also accounts for the lower driving rates of students.

Existing Residential Mode Splits (Blended Approach). Existing resident splits would assume the driving mode split based on the SCC student survey (19%). The travel behavior for the remaining 81% would be portioned based on the average Census Tract data, which will account for the higher non-motorized resident mode splits. The calculations are:

- Driving Mode = 19%
- Other Modes = 81% (100% - 19%)
  - Transit Mode = 28% (*Portion based on Census Tract Avg 26%/(26% + 49%) = 35%; 35% of 81% = 28%*)
  - Non-Motorized Mode = 53% (*Portion based on Census Tract Avg 49% /(26% + 49%) = 65%; 65% of 81% = 53%*)

Future Residential Mode Splits. The mode splits would assume a reduction in driving consistent with the commuter students so 4% reduction resulting in 15% driving. This reduction accounts for improvements to area biking and walking facilities and the light rail extensions so resident students will be able to travel further distances more easily resulting in less auto use (and likely less auto ownership). The resulting future mode splits are shown in Table 1.

Appendix C Campus Trip Generation

COMMUTERS ONLY (excludes on-campus student housing)

Existing TG

		Source:
Campus Access Profile		
Total employees	829	(951 total, 829 typical weekday)
Students		Source:
2015 Total SCC FTE	5269	(6747 total, reduced for anticapted total weekday - Stephen Starling email 8/22/18)
Number of On Campus Students	70	per Lincoln Ferris email 7/9/19
Number of off-campus	5199	

Mode of Travel (2019 CTR)	**Faculty/Staff**		**Students**		**All Trips**	
	%	#	%	#		
Drive Alone/Motorcycle	34.0%	283	17.0%	883	**1166**	19%
Carpool/Vanpool	9.0%	73	2.0%	104	**177**	
Subtotal: Auto	**43.0%**	**356**	**19.0%**	**987**	**1343**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	780	**780**	
Bus	28.0%	232	37.0%	1924	**2156**	
Rail	16.0%	132	14.0%	728	**860**	
Subtotal: Transit	**44.0%**	**364**	**66.0%**	**3432**	**3796**	
Walk/Bike	7.0%	59	12.0%	624	**683**	
Telework	4.0%	34		0	**34**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	8	2.0%	104	**112**	
Other	1.0%	8	1.0%	52	**60**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**109**	**15.0%**	**780**	**889**	
Total	100.0%	829	100.0%	5199	**6028**	

Vehicle Trips (1 direction)	All		
Drive Alone Vehicle Trips (Including Motorcycle)	1166	1	1.07746
Carpool Vehicle Trips*	80	2.2	
Vehicle Trips/Campus	**1246**		

Assumes 2.2 passengers per vehicle in "Carpools"

	In	Out	Total	Trip/FTE
Daily	1,246	1,246	2,493	0.48
AM Peak Hour	157	42	199	0.04
PM Peak Hour	95	122	217	0.04

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Based on previous SCC specific data

Based on an average of 3 rates/studies (ITE, UW Bothell, UW Seattle)

No Action (Link Light Rail Expansion)

Campus Access Profile	
Total employees	1000
Students	
2015 Total SCC FTE	7500
Number of On Campus Students	70
Number of off-campus	7430

Mode of Travel	**Faculty/Staff**		**Students**		**All Trips**	
	%	#	%	#		
Drive Alone	28.0%	280	13.0%	966	**1246**	14.8%
Carpool	9.0%	90	2.0%	148	**238**	
Subtotal: Auto	**37.0%**	**370**	**15.0%**	**1114**	**1484**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	1115	**1115**	
Bus	24.0%	240	33.0%	2452	**2692**	
Rail	26.0%	259	22.0%	1635	**1894**	
Subtotal: Transit	**50.0%**	**499**	**70.0%**	**5201**	**5700**	
Walk/Bike	7.0%	69	12.0%	892	**961**	
Telework	4.0%	40		0	**40**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	10	2.0%	149	**159**	
Other	1.0%	10	1.0%	74	**84**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**130**	**15.0%**	**1115**	**1244**	
Total	100.0%	999	100.0%	7430	**8428**	

Vehicle Trips (1 direction)	All		
Drive Alone Vehicle Trips (Including Motorcycle)	1246	1	1.09586
Carpool Vehicle Trips*	108	2.2	
Vehicle Trips/Campus	**1354**		

Assumes 2.2 passengers per vehicle in "Carpools"

	In	Out	Total	Trip/FTE
Daily	1,354	1,354	2,708	0.370
AM Peak Hour	170	46	216	0.03
PM Peak Hour	104	132	236	0.03

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Students:

	walking	
-4.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
8.0%	LRT	change from LRT expansion
	multi-modal	

Staff:

	walking	
-6.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
10.0%	LRT	change from LRT expansion
	multi-modal	

MIMP Forecast (Post 2024)

Campus Access Profile	
Total employees	1000
Students	
Total SCC FTE	7500
Number of On Campus Students	510
Number of off-campus	6990
	-440

Mode of Travel	**Faculty/Staff**		**Students**		**All Trips**	
	%	#	%	#		
Drive Alone	28.0%	280	13.0%	909	**1189**	14.9%
Carpool	9.0%	90	2.0%	140	**230**	
Subtotal: Auto	**37.0%**	**370**	**15.0%**	**1049**	**1419**	
Multi-modal (bus + bike, bike + rail, etc)			15.0%	1048	**1048**	
Bus	24.0%	240	33.0%	2307	**2547**	
Rail	26.0%	260	22.0%	1538	**1798**	
Subtotal: Transit	**50.0%**	**500**	**70.0%**	**4893**	**5393**	
Walk/Bike	7.0%	70	12.0%	838	**908**	
Telework	4.0%	40		0	**40**	
Ferry (car/van/bus)	0.0%	0		0	**0**	
Ferry (walk on)	1.0%	10	2.0%	140	**150**	
Other	1.0%	10	1.0%	70	**80**	
Subtotal: Non-Motorized (and Ferry)	**13.0%**	**130**	**15.0%**	**1048**	**1178**	
Total	100.0%	1000	100.0%	6990	**7990**	

Vehicle Trips (1 direction)	All	
Drive Alone Vehicle Trips (Including Motorcycle)	1189	0.0666667
Carpool Vehicle Trips*	105	
Vehicle Trips/Campus	**1294**	

Assumes 2.2 passengers per vehicle in "Carpools"

	In	Out	Total	Trip/FTE
Daily	1,294	1,294	2,588	0.370
AM Peak Hour	163	44	207	0.03
PM Peak Hour	99	126	225	0.03

	% In	Total of Daily
AM	79%	8.0%
PM	44%	8.7%

Students:

	walking	
-4.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
8.0%	LRT	change from LRT expansion
	multi-modal	

Staff:

	walking	
-6.0%	auto	change from LRT expansion
-4.0%	bus	change from LRT expansion
10.0%	LRT	change from LRT expansion
	multi-modal	

Trip Generation Summary

COMMUTER

	Person Trips					Vehicle Trips		
Time Period	Vehicular[1]	Transit	Non-Motorized	Total	Vehicular Trip Rate per Student FTE	In	Out	Total
Existing (6,750 FTE)								
Daily	1,343	3,796	889	6,028	0.48	1,246	1,246	2,492
AM Peak Hour	107	303	71	481	0.04	157	42	199
PM Peak Hour	117	330	77	524	0.04	95	122	217
No Action (7,500 FTE)								
Daily	1,484	5,700	1,244	8,428	0.37	1,354	1,354	2,708
AM Peak Hour	119	455	99	673	0.03	170	46	216
PM Peak Hour	129	496	108	733	0.03	104	132	236
Action (7,500 FTE)								
Daily	1,419	5,393	1,178	7,990	0.37	1,294	1,294	2,588
AM Peak Hour	113	431	94	638	0.03	163	44	207
PM Peak Hour	124	469	103	696	0.03	99	126	225
(Action relative to No Action)								
Daily	-65	-307	-66	-438		-60	-60	-120
AM Peak Hour	-6	-24	-5	-35		-7	-2	-9
PM Peak Hour	-5	-27	-5	-37		-5	-6	-11

RESIDENTIAL

	Person Trips					Vehicle Trips		
Time Period	Vehicular[1]	Transit	Non-Motorized	Total	Vehicular Trip Rate per bed	In	Out	Total
Existing (6,750 FTE)								
Daily	19	28	53	100	0.51	18	18	36
AM Peak Hour	1	1	1	3	0.02	1	0	1
PM Peak Hour	1	3	5	9	0.03	2	0	2
No Action (7,500 FTE)								
Daily	15	30	55	100	0.40	14	14	28
AM Peak Hour	1	1	1	3	0.02	1	0	1
PM Peak Hour	1	3	5	9	0.03	2	0	2
Action (7,500 FTE)	**15%**	**30%**	**55%**					
Daily	124	248	455	827	0.45	114	114	228
AM Peak Hour	4	7	12	23	0.01	3	3	6
PM Peak Hour	10	21	38	69	0.04	9	9	18
(Action relative to No Action)								
Daily	109	218	400	727		100	100	200
AM Peak Hour	3	6	11	20		2	3	5
PM Peak Hour	9	18	33	60		7	9	16

OTHER

	Person Trips					Vehicle Trips		
Time Period	Vehicular[1]	Transit	Non-Motorized	Total	Vehicular Trip Rate per Student FTE	In	Out	Total
Existing (6,750 FTE)								
Daily	67	190	44	301	0.024	62	62	124
AM Peak Hour	5	15	4	24	0.002	8	2	10
PM Peak Hour	6	17	4	27	0.002	5	6	11
No Action (7,500 FTE)								
Daily	74	285	62	421	0.018	68	68	136
AM Peak Hour	6	23	5	34	0.001	9	2	11
PM Peak Hour	6	25	5	36	0.002	5	7	12
Action (7,500 FTE)								
Daily	71	270	59	400	0.018	65	65	130
AM Peak Hour	6	22	5	33	0.001	8	2	10
PM Peak Hour	6	23	5	34	0.002	5	6	11
(Action relative to No Action)								
Daily	-3	-15	-3	-21		-3	-3	-6
AM Peak Hour	0	-1	0	-1		-1	0	-1
PM Peak Hour	0	-2	0	-2		0	-1	-1

TOTAL

	Person Trips				Vehicle Trips		
Time Period	Vehicular[1]	Transit	Non-Motorized	Total	In	Out	Total
Existing (6,750 FTE)							
Daily	1,429	4,014	986	6,429	1,326	1,326	2,652
AM Peak Hour	113	319	76	508	166	44	210
PM Peak Hour	124	350	86	560	102	128	230
No Action (7,500 FTE)							
Daily	1,573	6,015	1,361	8,949	1,436	1,436	2,872
AM Peak Hour	126	479	105	710	180	48	228
PM Peak Hour	136	524	118	778	111	139	250
Action (7,500 FTE)							
Daily	1,614	5,911	1,692	9,217	1,473	1,473	2,946
AM Peak Hour	123	460	111	694	174	49	223
PM Peak Hour	140	513	146	799	113	141	254
(Action relative to No Action)							
Daily	41	-104	331	268	37	37	74
AM Peak Hour	-3	-19	6	-16	-6	1	-5
PM Peak Hour	4	-11	28	21	2	2	4

SCC MIMP Trip Generation

Person Trip Calculation

Land Use	Setting	Size	Units[3]	Model	Trip Rate[1] Rate	Units	Person or Vehicle Trips?	Inbound %	AVO Rate[2]	Person Trips
Future Use										
Addition with Action										
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226)		**510**	bedrooms							
Daily	General Urban/Suburban			Rate	2.57	per bedroom	vehicle trips	50%	1.11	1455
AM Peak Hour	General Urban/Suburban			Rate	0.07	per bedroom	vehicle trips	46%	1.11	40
PM Peak Hour	General Urban/Suburban			Rate	0.21	per bedroom	vehicle trips	47%	1.11	119
No action *(Total, reflects future mode splits)*										
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226)		**70**	bedrooms							
Daily	General Urban/Suburban			Rate	2.57	per bedroom	vehicle trips	50%	1.11	200
AM Peak Hour	General Urban/Suburban			Rate	0.07	per bedroom	vehicle trips	46%	1.11	5
PM Peak Hour	General Urban/Suburban			Rate	0.21	per bedroom	vehicle trips	47%	1.11	16
Existing Use										
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226)		**70**	bedrooms							
Daily	General Urban/Suburban			Rate	2.57	per bedroom	vehicle trips	50%	1.11	200
AM Peak Hour	General Urban/Suburban			Rate	0.07	per bedroom	vehicle trips	46%	1.11	5
PM Peak Hour	General Urban/Suburban			Rate	0.21	per bedroom	vehicle trips	47%	1.11	16

Notes:

1. Trip rates based on Institute of Transportation Engineers' (ITE) *Trip Generation* 11th Edition equation and average trip rate as shown above.
2. AVO = average vehicle occupancy. AVO based on NCHRP 365 for urban areas with populations over 1 million people.
3. Bedrooms noted to be assumed in ITE's LU 226 to serve a single resident.

SCC MIMP Trip Generation

Person Trips by Mode of Travel

Trip Generation Summary	Percent By Mode	Daily Person Trips	AM Peak Hour In	AM Peak Hour Out	AM Peak Hour Total	PM Peak Hour In	PM Peak Hour Out	PM Peak Hour Total
Action								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]								
Walk, Bike, Other Trips	*55%*	800	10	12	22	31	34	65
Transit Trips	*30%*	436	6	6	12	17	19	36
Person Trips by Vehicle	*15%*	219	2	4	6	8	10	18
Total	*100%*	1,455	18	22	40	56	63	119
No Action								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]								
Walk, Bike, Other Trips	*55%*	110	1	1	2	4	5	9
Transit Trips	*30%*	60	1	1	2	2	3	5
Person Trips by Vehicle	*15%*	30	1	0	1	2	0	2
Total	*100%*	200	3	2	5	8	8	16
Existing Use								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]								
Walk, Bike, Other Trips	*53%*	106	1	1	2	4	5	9
Transit Trips	*28%*	56	1	1	2	2	3	5
Person Trips by Vehicle	*19%*	38	1	0	1	2	0	2
Total	*100%*	200	3	2	5	8	8	16
Net New Project Person Trips								
Walk, Bike, Other Trips		804	10	12	22	31	34	65
Transit Trips		440	6	6	12	17	19	36
Person Trips by Vehicle		211	2	4	6	8	10	18
Total		1,455	18	22	40	56	63	119

1. Person trip mode splits for the residential uses are consistent with commuter students mode splits. Note that a review of typical residential within the site's census tracts was completed; however, the student data was more appropriate in this instance.

Vehicle Trip Generation

Land Use	AVO	Daily Vehicle Trips	AM Peak Hour Vehicle Trips In	AM Peak Hour Vehicle Trips Out	AM Peak Hour Vehicle Trips Total	PM Peak Hour Vehicle Trips In	PM Peak Hour Vehicle Trips Out	PM Peak Hour Vehicle Trips Total
Action								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]	1.10	200	2	3	5	7	9	16
No Action		28	1	0	1	2	0	2
Total		**228**	**3**	**3**	**6**	**9**	**9**	**18**
No Aciton								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]	1.10	28	1	0	1	2	0	2
Net New relative to Existing [2]		*-8*	*0*	*0*	*0*	*0*	*0*	*0*
Existing Use								
Off-Campus Student Apartment (Mid-Rise) - Adjacent to Campus (LU 226) [1]	1.08	36	1	0	1	2	0	2

1. Average Vehicle Occupancy (AVO) consistent with commuter students.

2. Reflects future change in mode split between existing and No Action.

Appendix D Pedestrian Analysis

EXISTING

Location	Effective Width Calc: Measured Walking Width (ft)	Measured Width (ft) (Effective Width plus Outside Buffer)	Inside Buffer (curbside): fixed object	Inside Buffer (curbside): shy distance (ft)	Outside Buffer: fixed object	Outside Buffer: shy distance	Effective Width	Weekday AM Peak Hour: Peak Hour Ped Vol	Peak 15 Min Vol	Ped Flow	Characteristic	LOS	Weekday PM Peak Hour: Peak Hour Ped Vol	Peak 15 Min Vol	Ped Flow	Characteristic	LOS
Broadway (east sidewalk) Howell St. to E Denny Way	14	7	tree	4.00	building face with window	3.00	4.0	204	408	1.7	Free Flow	A	232	464	1.9	Free Flow	A
Broadway (west sidewalk) Howell St. to E Denny Way	9	5	tree	4.00	low wall	1.50	3.5	204	408	1.9	Free Flow	A	364	728	3.5	Free Flow	A
Broadway (east sidewalk) Crosswalk to Howell St.	14	7	tree	4.00	building face with window	3.00	4.0	73	146	0.6	Free Flow	A	203	406	1.7	Free Flow	A
Broadway (west sidewalk) Crosswalk to Howell St.	24	14	tree	4.00	building face	2.00	12.0	64	128	0.2	Free Flow	A	49	98	0.1	Free Flow	A
Broadway (east sidewalk) E Pine St. to Crosswalk (E Olive St)	14	8	tree	4.00	building face with window	3.00	5.0	126	253	0.8	Free Flow	A	284	568	1.9	Free Flow	A
Broadway (west sidewalk) E Pine St. to Crosswalk (E Olive St)	18	18	curb	1.50	low wall	1.50	15.0	165	331	0.4	Free Flow	A	334	668	0.7	Free Flow	A
Broadway (east sidewalk) E Pike St. to E Pine St.	13	13	curb	1.50	building face with window	3.00	8.5	139	279	0.5	Free Flow	A	284	568	1.1	Free Flow	A
Broadway (west sidewalk) E Pike St. to E Pine St.	15	9	tree	4.00	building face with window	3.00	6.0	243	486	1.4	Free Flow	A	334	668	1.9	Free Flow	A
E Pine Street (north sidewalk) Harvard Ave. to Broadway	13	7	tree	4.00	low wall	1.50	5.5	165	331	1.0	Free Flow	A	334	668	2.0	Free Flow	A
E Pine Street (south sidewalk) Harvard Ave. to Broadway	11	5	tree	4.00	building face	2.00	3.0	165	331	1.8	Free Flow	A	334	668	3.7	Free Flow	A
E Pine Street (north sidewalk) Boylston Ave. to Harvard Ave.	14	8	tree	4.00	building face	2.00	6.0	149	298	0.8	Free Flow	A	310	620	1.7	Free Flow	A
E Pine Street (south sidewalk) Boylston Ave. to Harvard Ave.	12	5	tree	4.00	building face with window	3.00	2.0	94	188	1.6	Free Flow	A	226	452	3.8	Free Flow	A

Prop Increase change in student Pop

Ex	5269	Future	7500	1.42342

No Action/Action

Location	Weekday AM Peak Hour: 1% Annual Background Growth	Population Growth	Total Peak Hour Ped Vol	Peak 15 Min Vol	Ped Flow	Characteristic	LOS	Weekday PM Peak Hour: 1% Annual Background Growth	Population Growth	Peak Hour Ped Vol	Peak 15 Min Vol	Ped Flow	Characteristic	LOS
Broadway (east sidewalk) Howell St. to E Denny Way	30	91	325	650	2.7	Free Flow	A	35	103	370	740	3.1	Free Flow	A
Broadway (west sidewalk) Howell St. to E Denny Way	30	91	325	650	3.1	Free Flow	A	54	156	574	1,150	5.5	Free Flow	B
Broadway (east sidewalk) Crosswalk to Howell St.	11	32	116	230	1.0	Free Flow	A	30	87	320	640	2.7	Free Flow	A
Broadway (west sidewalk) Crosswalk to Howell St.	10	31	105	210	0.3	Free Flow	A	7	21	77	150	0.2	Free Flow	A
Broadway (east sidewalk) E Pine St. to Crosswalk (E Olive St)	19	54	199	400	1.3	Free Flow	A	42	121	447	890	3.0	Free Flow	A
Broadway (west sidewalk) E Pine St. to Crosswalk (E Olive St)	25	75	265	530	0.6	Free Flow	A	50	146	530	1,060	1.2	Free Flow	A
Broadway (east sidewalk) E Pike St. to E Pine St.	21	61	221	440	0.9	Free Flow	A	42	121	447	890	1.7	Free Flow	A
Broadway (west sidewalk) E Pike St. to E Pine St.	36	107	386	770	2.1	Free Flow	A	50	146	530	1,060	2.9	Free Flow	A
E Pine Street (north sidewalk) Harvard Ave. to Broadway	25	75	265	530	1.6	Free Flow	A	50	146	530	1,060	3.2	Free Flow	A
E Pine Street (south sidewalk) Harvard Ave. to Broadway	25	75	265	530	2.9	Free Flow	A	50	146	530	1,060	5.9	Free Flow	B
E Pine Street (north sidewalk) Boylston Ave. to Harvard Ave.	22	66	237	470	1.3	Free Flow	A	46	135	491	980	2.7	Free Flow	A
E Pine Street (south sidewalk) Boylston Ave. to Harvard Ave.	14	41	149	300	2.5	Free Flow	A	34	99	359	720	6.0	Free Flow	B

WORKSHEET 1: PEAK-HOUR, 35 MPH (55 KM/H) OR LESS

Analyst and Site Information

Analyst: Transpo Group Analysis Date: Existing Data Collection Date: 10/3/2023	Major Street: Nagle Pl Minor Street or Location: Midblock Peak Hour: 12 to 1 pm

Step 1: Select worksheet (speed reflects posted or statutory speed limit or 85th percentile speed on the major street):
a) Worksheet 1 – 35 mph (55 km/h) or less
b) Worksheet 2 – exceeds 35 mph (55 km/h), communities with less than 10,000, or where major transit stop exists

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a TCD type of treatment?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	12
If *2a* ≥ 20 ped/h, then go to Step 3. Does not meet threshold		
If *2a* < 20 ped/h, then consider median refuge islands, curb extensions, traffic calming, etc. as feasible.		
Step 3: Does the crossing meet the pedestrian volume warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), V_{maj-s}	*3a*	
Minimum signal warrant volume for peak hour (use *3a* for V_{maj-s}), SC $SC = (0.00021\ V_{maj-s}^2 - 0.74072\ V_{maj-s} + 734.125)/0.75$ OR $[(0.00021\ 3a^2 - 0.74072\ 3a + 734.125)/0.75]$	*3b*	
If *3b* < 133, then enter 133. If *3b* ≥ 133, then enter *3b*.	*3c*	
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50 percent; otherwise enter *3c.*	*3d*	
If *2a* ≥ *3d,* then the warrant has been met and a traffic signal should be considered if not within 300 ft (91 m) of another traffic signal. Otherwise, the warrant has not been met. Go to Step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	
Pedestrian walking speed (ft/s), S_p	*4b*	
Pedestrian start-up time and end clearance time (s), t_s	*4c*	
Critical gap required for crossing pedestrian (s), $t_c = (L/S_p) + t_s$ OR [(*4a*/*4b*) + *4c*)]	*4d*	
Major road volume, total both approaches or approach being crossed if median refuge island is present during peak hour (veh/h), V_{maj-d}	*4e*	
Major road flow rate (veh/s), $v = V_{maj-d}/3600$ OR [*4e/3600*]	*4f*	
Average pedestrian delay (s/person), $d_p = (e^{v\,tc} - v\,t_c - 1)/v$ OR $[(e^{4f \times 4d} - 4f \times 4d - 1)/4f]$	*4g*	
Total pedestrian delay (h), $D_p = (d_p \times V_p)/3{,}600$ OR [(*4g*×*2a*)/3600] (this is estimated delay for all pedestrians crossing the major roadway without a crossing treatment – assumes 0% compliance). This calculated value can be replaced with the actual total pedestrian delay measured at the site.	*4h*	
Step 5: Select treatment based upon total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region, Comp = high or low	5a	

Total Pedestrian Delay, D_p (from *4h*) and Motorist Compliance, Comp (from *5a*)	**Treatment Category** (see Descriptions of Sample Treatments for examples)
$D_p \geq 21.3$ h (Comp = high or low) OR $5.3\text{ h} \leq D_p < 21.3$ h and Comp = low	RED
$1.3\text{ h} \leq D_p < 5.3$ h (Comp = high or low) OR $5.3\text{ h} \leq D_p < 21.3$ h and Comp = high	ACTIVE OR ENHANCED
$D_p < 1.3$ h (Comp = high or low)	CROSSWALK

Figure A-2. Worksheet 1.

WORKSHEET 1: PEAK-HOUR, 35 MPH (55 KM/H) OR LESS

Analyst and Site Information		
Analyst: Transpo Group Analysis Date: No Action Data Collection Date: 10/3/2023	Major Street: Nagle Pl Minor Street or Location: Midblock Peak Hour: 12 to 1 pm	
Step 1: Select worksheet (speed reflects posted or statutory speed limit or 85th percentile speed on the major street): a) Worksheet 1 – 35 mph (55 km/h) or less b) Worksheet 2 – exceeds 35 mph (55 km/h), communities with less than 10,000, or where major transit stop exists		
Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a TCD type of treatment?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	16
If *2a* ≥ 20 ped/h, then go to Step 3. Does not meet threshold		
If *2a* < 20 ped/h, then consider median refuge islands, curb extensions, traffic calming, etc. as feasible.		
Step 3: Does the crossing meet the pedestrian volume warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$	*3a*	
Minimum signal warrant volume for peak hour (use *3a* for $V_{maj\text{-}s}$), SC $SC = (0.00021\ V_{maj\text{-}s}^2 - 0.74072\ V_{maj\text{-}s} + 734.125)/0.75$ OR $[(0.00021\ 3a^2 - 0.74072\ 3a + 734.125)/0.75]$	*3b*	
If *3b* < 133, then enter 133. If *3b* ≥ 133, then enter *3b*.	*3c*	
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50 percent; otherwise enter *3c.*	*3d*	
If *2a* ≥ *3d,* then the warrant has been met and a traffic signal should be considered if not within 300 ft (91 m) of another traffic signal. Otherwise, the warrant has not been met. Go to Step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	
Pedestrian walking speed (ft/s), S_p	*4b*	
Pedestrian start-up time and end clearance time (s), t_s	*4c*	
Critical gap required for crossing pedestrian (s), $t_c = (L/S_p) + t_s$ OR $[(4a/4b) + 4c)]$	*4d*	
Major road volume, total both approaches or approach being crossed if median refuge island is present during peak hour (veh/h), $V_{maj\text{-}d}$	*4e*	
Major road flow rate (veh/s), $v = V_{maj\text{-}d}/3600$ OR $[4e/3600]$	*4f*	
Average pedestrian delay (s/person), $d_p = (e^{v\,tc} - v\,t_c - 1)/v$ OR $[(e^{4f \times 4d} - 4f \times 4d - 1)/4f]$	*4g*	
Total pedestrian delay (h), $D_p = (d_p \times V_p)/3{,}600$ OR $[(4g \times 2a)/3600]$ (this is estimated delay for all pedestrians crossing the major roadway without a crossing treatment – assumes 0% compliance). This calculated value can be replaced with the actual total pedestrian delay measured at the site.	*4h*	
Step 5: Select treatment based upon total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region, Comp = high or low	5a	

Total Pedestrian Delay, D_p (from *4h*) and Motorist Compliance, Comp (from *5a*)	**Treatment Category** (see Descriptions of Sample Treatments for examples)
$D_p \geq 21.3$ h (Comp = high or low) OR $5.3\ h \leq D_p < 21.3$ h and Comp = low	RED
$1.3\ h \leq D_p < 5.3$ h (Comp = high or low) OR $5.3\ h \leq D_p < 21.3$ h and Comp = high	ACTIVE OR ENHANCED
$D_p < 1.3$ h (Comp = high or low)	CROSSWALK

Figure A-2. Worksheet 1.

WORKSHEET 1: PEAK-HOUR, 35 MPH (55 KM/H) OR LESS

Analyst and Site Information	
Analyst: Transpo Group Analysis Date: Action Alternatives Data Collection Date: 10/3/2023	Major Street: Nagle Pl Minor Street or Location: Midblock Peak Hour: 12 to 1 pm

Step 1: Select worksheet (speed reflects posted or statutory speed limit or 85th percentile speed on the major street):
a) Worksheet 1 – 35 mph (55 km/h) or less
b) Worksheet 2 – exceeds 35 mph (55 km/h), communities with less than 10,000, or where major transit stop exists

Step 2: Does the crossing meet minimum pedestrian volumes to be considered for a TCD type of treatment?		
Peak-hour pedestrian volume (ped/h), V_p	*2a*	26
If *2a* ≥ 20 ped/h, then go to Step 3. meets threshold		
If *2a* < 20 ped/h, then consider median refuge islands, curb extensions, traffic calming, etc. as feasible.		
Step 3: Does the crossing meet the pedestrian volume warrant for a traffic signal?		
Major road volume, total of both approaches during peak hour (veh/h), $V_{maj\text{-}s}$	*3a*	28
Minimum signal warrant volume for peak hour (use *3a* for $V_{maj\text{-}s}$), SC $SC = (0.00021\,V_{maj\text{-}s}^2 - 0.74072\,V_{maj\text{-}s} + 734.125)/0.75$ OR $[(0.00021\,3a^2 - 0.74072\,3a + 734.125)/0.75]$	*3b*	951
If *3b* < 133, then enter 133. If *3b* ≥ 133, then enter *3b*.	*3c*	951
If 15th percentile crossing speed of pedestrians is less than 3.5 ft/s (1.1 m/s), then reduce *3c* by up to 50 percent; otherwise enter *3c.*	*3d*	951
If *2a* ≥ *3d,* then the warrant has been met and a traffic signal should be considered if not within 300 ft (91 m) of another traffic signal. Otherwise, the warrant has not been met. Go to Step 4.		
Step 4: Estimate pedestrian delay.		
Pedestrian crossing distance, curb to curb (ft), L	*4a*	24
Pedestrian walking speed (ft/s), S_p	*4b*	3.5
Pedestrian start-up time and end clearance time (s), t_s	*4c*	3
Critical gap required for crossing pedestrian (s), $t_c = (L/S_p) + t_s$ OR $[(4a/4b) + 4c)]$	*4d*	10
Major road volume, total both approaches or approach being crossed if median refuge island is present during peak hour (veh/h), $V_{maj\text{-}d}$	*4e*	28
Major road flow rate (veh/s), $v = V_{maj\text{-}d}/3600$ OR $[4e/3600]$	*4f*	0.008
Average pedestrian delay (s/person), $d_p = (e^{v\,tc} - v\,t_c - 1)/v$ OR $[(e^{4f \times 4d} - 4f \times 4d - 1)/4f]$	*4g*	0.003
Total pedestrian delay (h), $D_p = (d_p \times V_p)/3{,}600$ OR $[(4g \times 2a)/3600]$ (this is estimated delay for all pedestrians crossing the major roadway without a crossing treatment – assumes 0% compliance). This calculated value can be replaced with the actual total pedestrian delay measured at the site.	*4h*	2.17E-5
Step 5: Select treatment based upon total pedestrian delay and expected motorist compliance.		
Expected motorist compliance at pedestrian crossings in region, Comp = high or low	5a	high

Total Pedestrian Delay, D_p (from *4h*) and Motorist Compliance, Comp (from *5a*)	**Treatment Category** (see Descriptions of Sample Treatments for examples)
$D_p \geq 21.3$ h (Comp = high or low) OR $5.3\text{ h} \leq D_p < 21.3$ h and Comp = low	RED
$1.3\text{ h} \leq D_p < 5.3$ h (Comp = high or low) OR $5.3\text{ h} \leq D_p < 21.3$ h and Comp = high	ACTIVE OR ENHANCED
$D_p < 1.3$ h (Comp = high or low)	CROSSWALK

Figure A-2. Worksheet 1.

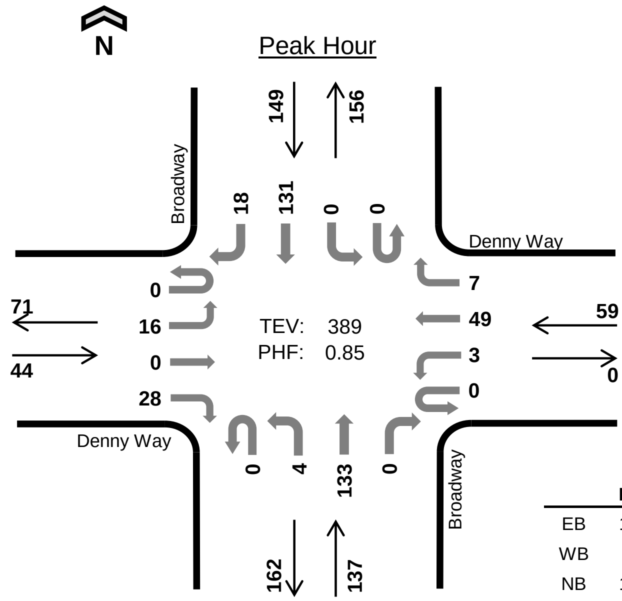
Appendix E Transit Analysis

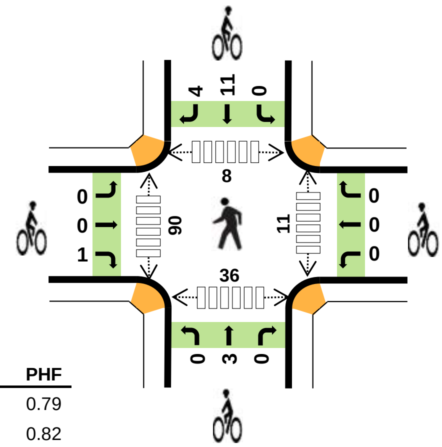
Appendix F Traffic Volumes

Broadway
Denny Way

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour





	HV %:	PHF
EB	11.4%	0.79
WB	1.7%	0.82
NB	13.1%	0.88
SB	8.7%	0.87
TOTAL	9.5%	0.85

Two-Hour Count Summaries

Interval Start		Denny Way Eastbound				Denny Way Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	1	0	2	0	2	1	2	0	1	19	0	0	0	30	0	58	0
7:15 AM		0	3	0	9	0	0	10	2	0	1	30	0	0	0	26	3	84	0
7:30 AM		0	2	0	10	0	3	6	3	0	0	26	0	0	3	32	1	86	0
7:45 AM		0	2	0	7	0	0	8	0	0	2	20	0	0	0	32	3	74	302
8:00 AM		**0**	**2**	**0**	**8**	**0**	**0**	**7**	**2**	**0**	**1**	**37**	**0**	**0**	**0**	**32**	**5**	**94**	338
8:15 AM		**0**	**4**	**0**	**7**	**0**	**0**	**13**	**2**	**0**	**1**	**27**	**0**	**0**	**0**	**28**	**2**	**84**	338
8:30 AM		**0**	**6**	**0**	**8**	**0**	**1**	**15**	**2**	**0**	**1**	**38**	**0**	**0**	**0**	**36**	**7**	**114**	366
8:45 AM		**0**	**4**	**0**	**5**	**0**	**2**	**14**	**1**	**0**	**1**	**31**	**0**	**0**	**0**	**35**	**4**	**97**	**389**
Count Total		0	24	0	56	0	8	74	14	0	8	228	0	0	3	251	25	691	0
Peak Hour	**All**	**0**	**16**	**0**	**28**	**0**	**3**	**49**	**7**	**0**	**4**	**133**	**0**	**0**	**0**	**131**	**18**	**389**	**0**
	HV	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**18**	**0**	**0**	**0**	**13**	**0**	**37**	**0**
	HV%	**-**	**13%**	**-**	**11%**	**-**	**0%**	**0%**	**14%**	**-**	**0%**	**14%**	**-**	**-**	**-**	**10%**	**0%**	**10%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	5	5	*11*	0	0	0	2	*2*	0	7	1	2	*10*
7:15 AM	1	1	5	2	*9*	0	0	0	1	*1*	2	15	2	1	*20*
7:30 AM	0	1	3	5	*9*	0	0	1	5	*6*	6	28	1	6	*41*
7:45 AM	0	0	7	3	*10*	0	0	3	6	*9*	2	27	2	7	*38*
8:00 AM	**0**	**1**	**6**	**4**	***11***	**0**	**0**	**0**	**8**	***8***	**3**	**13**	**2**	**8**	*26*
8:15 AM	**1**	**0**	**2**	**2**	***5***	**0**	**0**	**0**	**1**	***1***	**2**	**13**	**0**	**2**	*17*
8:30 AM	**2**	**0**	**4**	**3**	***9***	**0**	**0**	**1**	**3**	***4***	**4**	**34**	**2**	**10**	*50*
8:45 AM	**2**	**0**	**6**	**4**	***12***	**1**	**0**	**2**	**3**	***6***	**2**	**30**	**4**	**16**	***52***
Count Total	6	4	38	28	*76*	1	0	7	29	*37*	21	167	14	52	*254*
Peak Hour	**5**	**1**	**18**	**13**	***37***	**1**	**0**	**3**	**15**	***19***	**11**	**90**	**8**	**36**	***145***

project.manager.wa@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Denny Way Eastbound UT	LT	TH	RT	Denny Way Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	1	0	0	0	0	5	0	0	0	5	0	11	0
7:15 AM	0	0	0	1	0	0	0	1	0	0	5	0	0	0	2	0	9	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	3	0	0	3	2	0	9	0
7:45 AM	0	0	0	0	0	0	0	0	0	1	6	0	0	0	3	0	10	39
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**4**	**0**	**11**	39
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**5**	35
8:30 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**9**	35
8:45 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**4**	**0**	**12**	**37**
Count Total	0	2	0	4	0	2	0	2	0	1	37	0	0	3	25	0	76	0
Peak Hour	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**18**	**0**	**0**	**0**	**13**	**0**	**37**	**0**

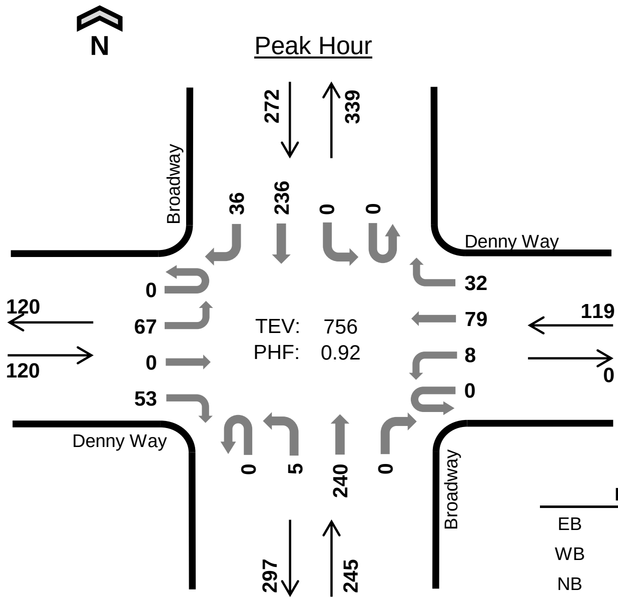
Two-Hour Count Summaries - Bikes

Interval Start	Denny Way Eastbound LT	TH	RT	Denny Way Westbound LT	TH	RT	Broadway Northbound LT	TH	RT	Broadway Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	5	0	6	0
7:45 AM	0	0	0	0	0	0	0	3	0	0	5	1	9	18
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**3**	**8**	24
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	24
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**4**	22
8:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**1**	**6**	**19**
Count Total	0	0	1	0	0	0	0	7	0	0	23	6	37	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**11**	**4**	**19**	**0**

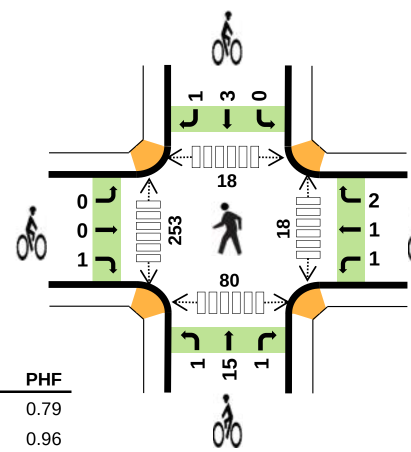
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Denny Way

Date:	12-03-2020
Count Period:	4:00 PM to 6:00 PM
Peak Hour:	4:00 PM to 5:00 PM



	HV %:	PHF
EB	1.7%	0.79
WB	0.0%	0.96
NB	5.7%	0.85
SB	3.7%	0.93
TOTAL	3.4%	0.92



Two-Hour Count Summaries

Interval Start	Denny Way Eastbound UT	LT	TH	RT	Denny Way Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	**0**	**10**	**0**	**14**	**0**	**2**	**21**	**8**	**0**	**0**	**57**	**0**	**0**	**0**	**56**	**9**	**177**	0
4:15 PM	**0**	**22**	**0**	**16**	**0**	**2**	**19**	**9**	**0**	**0**	**60**	**0**	**0**	**0**	**63**	**7**	**198**	0
4:30 PM	**0**	**18**	**0**	**12**	**0**	**1**	**19**	**10**	**0**	**4**	**68**	**0**	**0**	**0**	**63**	**10**	**205**	0
4:45 PM	**0**	**17**	**0**	**11**	**0**	**3**	**20**	**5**	**0**	**1**	**55**	**0**	**0**	**0**	**54**	**10**	**176**	**756**
5:00 PM	0	8	0	14	0	0	18	4	0	0	65	0	0	0	55	8	172	751
5:15 PM	0	14	0	19	0	2	17	4	0	0	78	0	0	0	50	7	191	744
5:30 PM	0	14	0	16	0	3	19	6	0	0	66	0	0	0	54	13	191	730
5:45 PM	0	13	0	18	0	7	25	4	0	4	56	0	0	0	64	5	196	750
Count Total	0	116	0	120	0	20	158	50	0	9	505	0	0	0	459	69	1,506	0
Peak Hour All	**0**	**67**	**0**	**53**	**0**	**8**	**79**	**32**	**0**	**5**	**240**	**0**	**0**	**0**	**236**	**36**	**756**	**0**
Peak Hour HV	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**10**	**0**	**26**	**0**
Peak Hour HV%	**-**	**1%**	**-**	**2%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**6%**	**-**	**-**	**-**	**4%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	**1**	**0**	**2**	**4**	***7***	**0**	**0**	**3**	**1**	***4***	**4**	**52**	**6**	**13**	*75*
4:15 PM	**0**	**0**	**4**	**3**	***7***	**0**	**1**	**5**	**0**	***6***	**5**	**73**	**3**	**23**	*104*
4:30 PM	**0**	**0**	**4**	**2**	***6***	**0**	**2**	**6**	**1**	***9***	**4**	**59**	**4**	**28**	*95*
4:45 PM	**1**	**0**	**4**	**1**	***6***	**1**	**1**	**3**	**2**	***7***	**5**	**69**	**5**	**16**	***95***
5:00 PM	0	0	2	7	*9*	0	0	2	2	*4*	10	83	7	25	*125*
5:15 PM	0	0	1	4	*5*	0	1	3	3	*7*	3	69	0	28	*100*
5:30 PM	1	0	2	3	*6*	1	0	3	0	*4*	4	84	3	21	*112*
5:45 PM	0	0	4	4	*8*	0	0	1	1	*2*	4	78	4	17	*103*
Count Total	3	0	23	28	*54*	2	5	26	10	*43*	39	567	32	171	*809*
Peak Hour	**2**	**0**	**14**	**10**	***26***	**1**	**4**	**17**	**4**	***26***	**18**	**253**	**18**	**80**	***369***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Denny Way Eastbound UT	LT	TH	RT	Denny Way Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**7**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**7**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**6**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**6**	**26**
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	6	1	9	28
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	0	5	26
5:30 PM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	3	0	6	26
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	1	8	28
Count Total	0	2	0	1	0	0	0	0	0	0	23	0	0	0	26	2	54	0
Peak Hour	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**10**	**0**	**26**	**0**

Two-Hour Count Summaries - Bikes

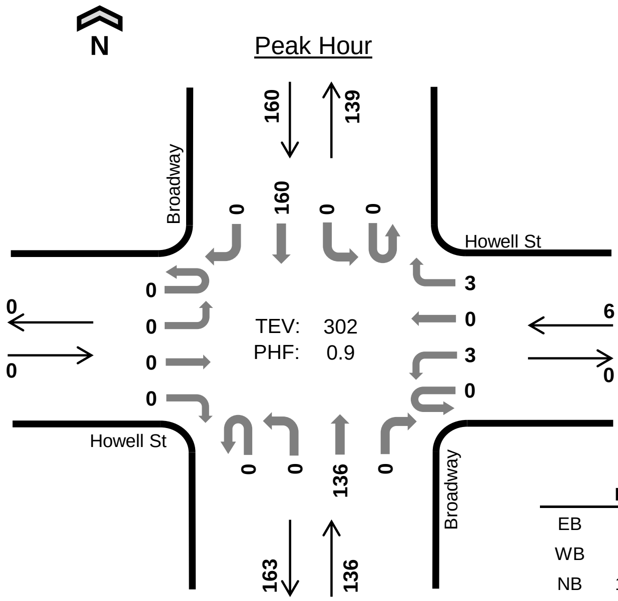
Interval Start	Denny Way Eastbound LT	TH	RT	Denny Way Westbound LT	TH	RT	Broadway Northbound LT	TH	RT	Broadway Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**4**	0
4:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**6**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	**0**	**0**	**1**	**0**	**9**	0
4:45 PM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**1**	**1**	**7**	**26**
5:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	4	26
5:15 PM	0	0	0	0	1	0	0	3	0	0	2	1	7	27
5:30 PM	1	0	0	0	0	0	0	3	0	0	0	0	4	22
5:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	17
Count Total	1	0	1	1	2	2	1	24	1	0	8	2	43	0
Peak Hour	**0**	**0**	**1**	**1**	**1**	**2**	**1**	**15**	**1**	**0**	**3**	**1**	**26**	**0**

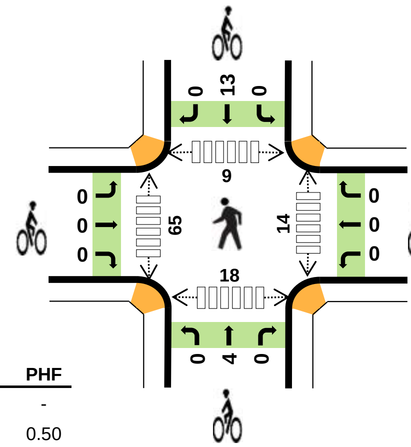
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Howell St

idax

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	-	-
WB	0.0%	0.50
NB	13.2%	0.89
SB	9.4%	0.89
TOTAL	10.9%	0.90

Two-Hour Count Summaries

Interval Start	Howell St Eastbound UT	LT	TH	RT	Howell St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	1	0	0	0	0	23	2	0	0	35	0	61	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	25	1	0	0	34	0	62	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	27	0	0	0	46	0	74	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	24	0	0	0	38	0	62	259
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**38**	**0**	**0**	**0**	**38**	**0**	**77**	275
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**25**	**0**	**0**	**0**	**33**	**0**	**61**	274
8:30 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**38**	**0**	**0**	**0**	**44**	**0**	**84**	284
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35**	**0**	**0**	**0**	**45**	**0**	**80**	**302**
Count Total	0	0	0	0	0	5	0	5	0	0	235	3	0	0	313	0	561	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**136**	**0**	**0**	**0**	**160**	**0**	**302**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**15**	**0**	**33**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**0%**	**-**	**-**	**13%**	**-**	**-**	**-**	**9%**	**-**	**11%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	0	6	6	*12*	0	0	0	3	*3*	2	8	2	2	*14*
7:15 AM	0	0	5	3	*8*	0	0	1	1	*2*	1	15	1	2	*19*
7:30 AM	0	0	3	3	*6*	0	0	1	6	*7*	2	10	4	1	*17*
7:45 AM	0	0	8	2	*10*	0	0	3	5	*8*	1	19	1	1	*22*
8:00 AM	**0**	**0**	**5**	**4**	***9***	**0**	**0**	**0**	**5**	***5***	**0**	**12**	**1**	**6**	*19*
8:15 AM	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**3**	**14**	**3**	**4**	*24*
8:30 AM	**0**	**0**	**4**	**2**	***6***	**0**	**0**	**1**	**4**	***5***	**3**	**19**	**5**	**2**	*29*
8:45 AM	**0**	**0**	**7**	**7**	***14***	**0**	**0**	**3**	**4**	***7***	**8**	**20**	**0**	**6**	*34*
Count Total	0	0	40	29	*69*	0	0	9	28	*37*	20	117	17	24	*178*
Peak Hour	**0**	**0**	**18**	**15**	***33***	**0**	**0**	**4**	**13**	***17***	**14**	**65**	**9**	**18**	***106***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Howell St				Howell St				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	6	0	12	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	4	1	0	0	3	0	8	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	2	0	10	36
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**9**	33
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**4**	29
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**0**	**6**	29
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**7**	**0**	**14**	**33**
Count Total	0	0	0	0	0	0	0	0	0	0	39	1	0	0	29	0	69	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**0**	**0**	**15**	**0**	**33**	**0**

Two-Hour Count Summaries - Bikes

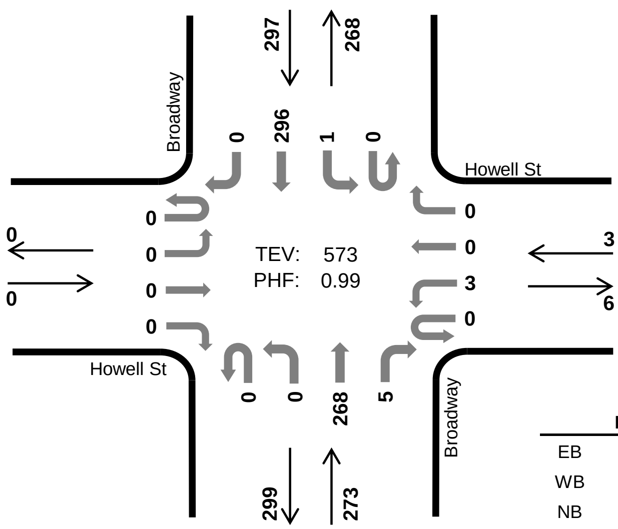
Interval Start	Howell St			Howell St			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	6	0	7	0
7:45 AM	0	0	0	0	0	0	0	3	0	0	5	0	8	20
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	22
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	20
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**5**	18
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**0**	**7**	**17**
Count Total	0	0	0	0	0	0	0	9	0	0	28	0	37	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**13**	**0**	**17**	**0**

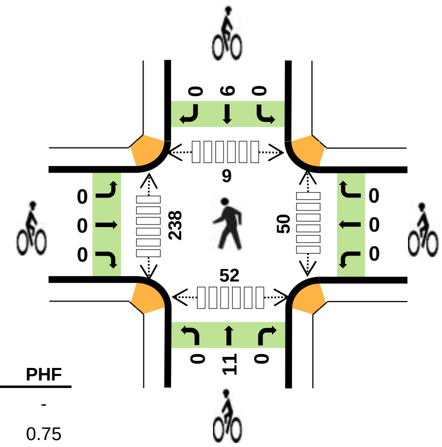
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Howell St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour





	HV %:	PHF
EB	-	-
WB	0.0%	0.75
NB	3.3%	0.91
SB	5.4%	0.85
TOTAL	4.4%	0.99

Two-Hour Count Summaries

Interval Start		Howell St Eastbound UT	LT	TH	RT	Howell St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	0	0	0	0	0	0	1	0	0	57	0	0	0	73	0	131	0
4:15 PM		0	0	0	0	0	0	0	0	0	0	64	1	0	0	82	0	147	0
4:30 PM		0	0	0	0	0	0	0	0	0	0	67	1	0	0	75	0	143	0
4:45 PM		0	0	0	0	0	1	0	1	1	0	55	0	0	1	67	0	126	547
5:00 PM		**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**72**	**0**	**0**	**0**	**71**	**0**	**144**	560
5:15 PM		**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**72**	**3**	**0**	**0**	**65**	**0**	**141**	554
5:30 PM		**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**68**	**1**	**0**	**0**	**74**	**0**	**144**	555
5:45 PM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**56**	**1**	**0**	**1**	**86**	**0**	**144**	573
Count Total		0	0	0	0	0	4	0	2	1	0	511	7	0	2	593	0	1,120	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**268**	**5**	**0**	**1**	**296**	**0**	**573**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**16**	**0**	**25**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**-**	**3%**	**0%**	**-**	**0%**	**5%**	**-**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	0	2	4	*6*	0	0	3	0	*3*	9	39	3	13	*64*
4:15 PM	0	0	5	3	*8*	0	0	6	0	*6*	5	50	0	18	*73*
4:30 PM	0	0	3	1	*4*	0	0	5	2	*7*	8	47	1	10	*66*
4:45 PM	0	0	4	3	*7*	0	0	4	3	*7*	9	45	3	7	*64*
5:00 PM	**0**	**0**	**2**	**6**	***8***	**0**	**0**	**3**	**1**	***4***	**19**	**67**	**2**	**16**	*104*
5:15 PM	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**4**	**4**	***8***	**10**	**53**	**5**	**12**	*80*
5:30 PM	**0**	**0**	**2**	**4**	***6***	**0**	**0**	**2**	**0**	***2***	**9**	**58**	**2**	**14**	*83*
5:45 PM	**0**	**0**	**4**	**3**	***7***	**0**	**0**	**2**	**1**	***3***	**12**	**60**	**0**	**10**	***82***
Count Total	0	0	23	27	*50*	0	0	29	11	*40*	81	419	16	100	*616*
Peak Hour	**0**	**0**	**9**	**16**	***25***	**0**	**0**	**11**	**6**	***17***	**50**	**238**	**9**	**52**	***349***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Howell St Eastbound				Howell St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	4	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	3	0	8	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	4	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	7	25
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**8**	27
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	23
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**6**	25
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**7**	**25**
Count Total	0	0	0	0	0	0	0	0	0	0	23	0	0	0	27	0	50	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**16**	**0**	**25**	**0**

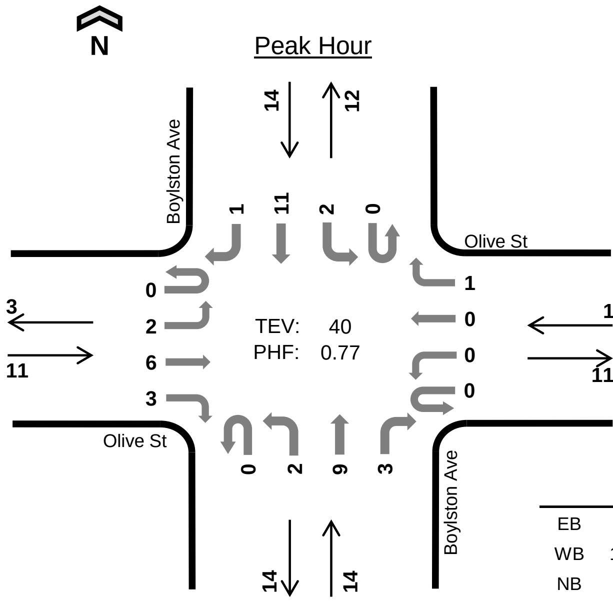
Two-Hour Count Summaries - Bikes

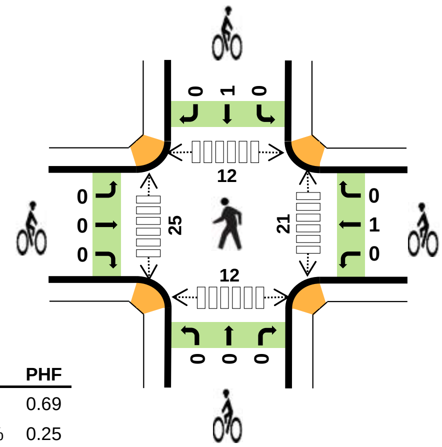
Interval Start	Howell St Eastbound			Howell St Westbound			Broadway Northbound			Broadway Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	0
4:15 PM	0	0	0	0	0	0	0	6	0	0	0	0	6	0
4:30 PM	0	0	0	0	0	0	0	5	0	0	2	0	7	0
4:45 PM	0	0	0	0	0	0	0	4	0	0	3	0	7	23
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	24
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**4**	**0**	**8**	26
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	21
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	**17**
Count Total	0	0	0	0	0	0	0	29	0	0	11	0	40	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**6**	**0**	**17**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boylston Ave
Olive St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	18.2%	0.69
WB	100.0%	0.25
NB	14.3%	0.70
SB	7.1%	0.70
TOTAL	15.0%	0.77

Two-Hour Count Summaries

Interval Start	Olive St Eastbound UT	LT	TH	RT	Olive St Westbound UT	LT	TH	RT	Boylston Ave Northbound UT	LT	TH	RT	Boylston Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	2	0	0	0	0	1	0	0	0	0	0	0	2	1	6	0
7:15 AM	0	0	1	1	0	0	0	0	0	0	3	1	0	0	0	1	7	0
7:30 AM	0	1	0	0	0	1	1	0	0	0	1	0	0	0	2	0	6	0
7:45 AM	**0**	**1**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**4**	**0**	**13**	32
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**5**	31
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**4**	**0**	**0**	**2**	**2**	**1**	**12**	36
8:30 AM	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**0**	**10**	**40**
8:45 AM	0	1	1	1	0	0	0	0	0	0	3	0	0	1	1	1	9	36
Count Total	0	4	10	5	0	1	1	2	0	2	16	4	0	3	16	4	68	0
Peak Hour All	**0**	**2**	**6**	**3**	**0**	**0**	**0**	**1**	**0**	**2**	**9**	**3**	**0**	**2**	**11**	**1**	**40**	**0**
Peak Hour HV	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**6**	**0**
Peak Hour HV%	**-**	**50%**	**0%**	**33%**	**-**	**-**	**-**	**100%**	**-**	**0%**	**11%**	**33%**	**-**	**0%**	**0%**	**100%**	**15%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	1	2	1	2	*6*
7:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	1	1	1	2	*5*
7:30 AM	0	1	0	0	*1*	0	0	0	0	*0*	2	4	3	3	*12*
7:45 AM	**2**	**0**	**2**	**0**	***4***	**0**	**0**	**0**	**1**	***1***	**5**	**10**	**5**	**3**	*23*
8:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	***1***	**8**	**4**	**2**	**5**	*19*
8:15 AM	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**6**	**4**	**1**	**3**	*14*
8:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**2**	**7**	**4**	**1**	***14***
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	2	12	3	2	*19*
Count Total	2	2	2	1	*7*	0	1	0	1	*2*	27	44	20	21	*112*
Peak Hour	**2**	**1**	**2**	**1**	***6***	**0**	**1**	**0**	**1**	***2***	**21**	**25**	**12**	**12**	***70***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Olive St Eastbound UT	LT	TH	RT	Olive St Westbound UT	LT	TH	RT	Boylston Ave Northbound UT	LT	TH	RT	Boylston Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:45 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**4**	5
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	5
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	7
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	1	0	1	0	0	1	1	0	0	1	1	0	0	0	1	7	0
Peak Hour	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**6**	**0**

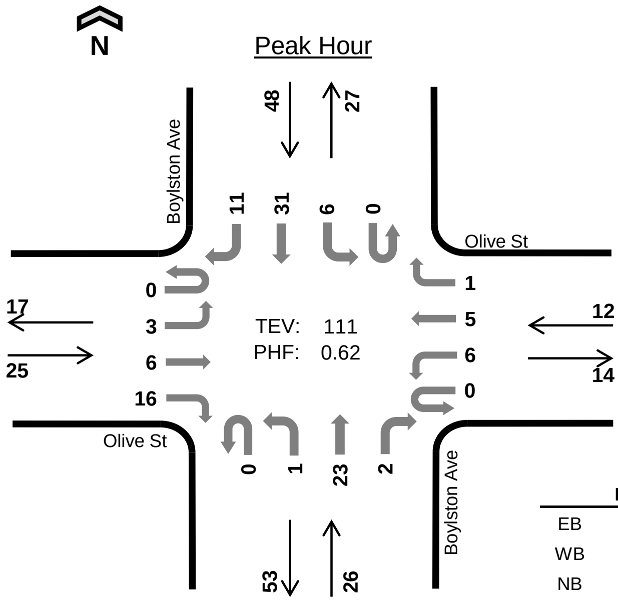
Two-Hour Count Summaries - Bikes

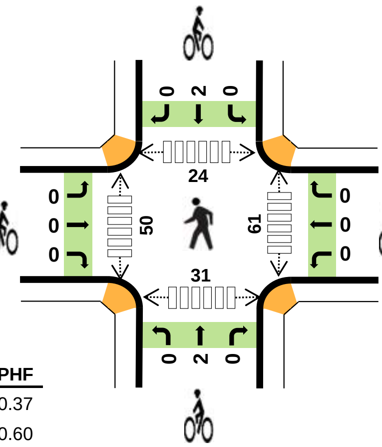
Interval Start	Olive St Eastbound LT	TH	RT	Olive St Westbound LT	TH	RT	Boylston Ave Northbound LT	TH	RT	Boylston Ave Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	1	0	0	0	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boylston Ave
Olive St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	4.0%	0.37
WB	0.0%	0.60
NB	0.0%	0.93
SB	2.1%	0.75
TOTAL	1.8%	0.62

Two-Hour Count Summaries

Interval Start		Olive St Eastbound				Olive St Westbound				Boylston Ave Northbound				Boylston Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	1	3	1	0	0	1	0	0	3	4	1	0	3	3	3	23	0
4:15 PM		0	1	3	0	0	0	2	0	0	0	6	0	0	0	5	0	17	0
4:30 PM		0	0	3	0	0	2	3	0	0	0	4	1	0	1	2	0	16	0
4:45 PM		0	3	3	0	0	0	0	0	0	1	4	0	1	1	4	3	20	76
5:00 PM		**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**6**	**0**	**0**	**2**	**7**	**2**	**19**	72
5:15 PM		**0**	**0**	**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**6**	**1**	**0**	**1**	**5**	**6**	**25**	80
5:30 PM		**0**	**2**	**5**	**10**	**0**	**3**	**1**	**1**	**0**	**1**	**6**	**0**	**0**	**0**	**13**	**3**	**45**	109
5:45 PM		**0**	**1**	**1**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**1**	**0**	**3**	**6**	**0**	**22**	**111**
Count Total		0	8	18	17	0	8	11	1	0	5	41	4	1	11	45	17	187	0
Peak Hour	**All**	**0**	**3**	**6**	**16**	**0**	**6**	**5**	**1**	**0**	**1**	**23**	**2**	**0**	**6**	**31**	**11**	**111**	**0**
	HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**
	HV%	**-**	**33%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**3%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	0	0	*0*	1	0	0	0	*1*	6	10	6	4	*26*
4:15 PM	0	0	0	0	*0*	0	0	1	0	*1*	7	10	5	4	*26*
4:30 PM	0	1	0	0	*1*	0	1	0	1	*2*	6	12	12	6	*36*
4:45 PM	0	0	0	0	*0*	1	1	2	0	*4*	4	12	4	6	*26*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***	**9**	**9**	**9**	**10**	*37*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**2**	***3***	**16**	**17**	**2**	**7**	*42*
5:30 PM	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**17**	**14**	**5**	**9**	*45*
5:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**19**	**10**	**8**	**5**	***42***
Count Total	1	1	0	1	*3*	2	2	5	3	*12*	84	94	51	51	*280*
Peak Hour	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**2**	**2**	***4***	**61**	**50**	**24**	**31**	***166***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Olive St Eastbound UT	LT	TH	RT	Olive St Westbound UT	LT	TH	RT	Boylston Ave Northbound UT	LT	TH	RT	Boylston Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Count Total	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	3	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**

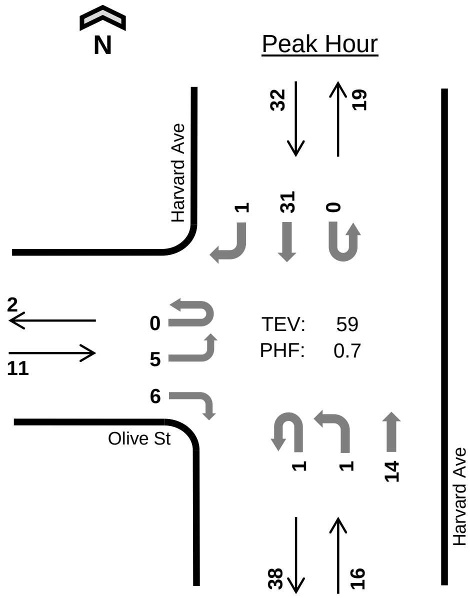
Two-Hour Count Summaries - Bikes

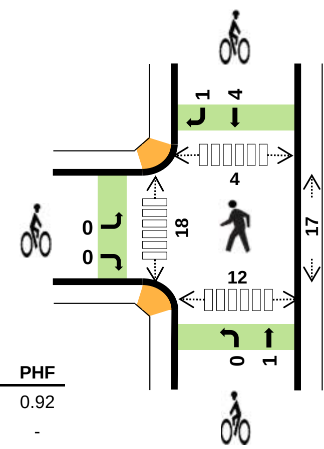
Interval Start	Olive St Eastbound LT	TH	RT	Olive St Westbound LT	TH	RT	Boylston Ave Northbound LT	TH	RT	Boylston Ave Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
4:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	2	0
4:45 PM	0	1	0	1	0	0	0	2	0	0	0	0	4	8
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	8
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**3**	10
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	8
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**
Count Total	0	2	0	1	1	0	0	5	0	0	3	0	12	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Harvard Ave
Olive St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	9.1%	0.92
WB	-	-
NB	0.0%	0.67
SB	3.1%	0.67
TOTAL	3.4%	0.70

Two-Hour Count Summaries

Interval Start	Olive St				0				Harvard Ave				Harvard Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	2	0	0	0	0	0	0	1	0	0	0	5	1	9	0
7:15 AM	0	1	0	1	0	0	0	0	0	0	1	0	0	0	9	0	12	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	4	1	10	0
7:45 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**12**	**0**	**21**	52
8:00 AM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**8**	**0**	**13**	56
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**7**	**1**	**13**	57
8:30 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**12**	**59**
8:45 AM	0	1	0	1	0	0	0	0	0	0	6	0	0	0	7	0	15	53
Count Total	0	7	0	10	0	0	0	0	1	2	26	0	0	0	56	3	105	0
Peak Hour All	**0**	**5**	**0**	**6**	**0**	**0**	**0**	**0**	**1**	**1**	**14**	**0**	**0**	**0**	**31**	**1**	**59**	**0**
Peak Hour HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**
Peak Hour HV%	**-**	**0%**	**-**	**17%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**0%**	**-**	**-**	**-**	**0%**	**100%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	0	0	*0*	0	0	0	0	*0*	4	5	2	1	*12*
7:15 AM	0	0	1	0	*1*	0	0	0	1	*1*	1	2	1	1	*5*
7:30 AM	0	0	0	1	*1*	0	0	0	0	*0*	6	2	2	4	*14*
7:45 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**3**	**5**	**1**	**5**	***14***
8:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**4**	***4***	**5**	**6**	**1**	**5**	***17***
8:15 AM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**1**	***1***	**5**	**4**	**2**	**1**	***12***
8:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***	**4**	**3**	**0**	**1**	***8***
8:45 AM	0	0	0	0	*0*	0	0	0	1	*1*	2	6	1	1	*10*
Count Total	1	0	1	2	*4*	0	0	1	7	*8*	30	33	10	19	*92*
Peak Hr	**1**	**0**	**0**	**1**	***2***	**0**	**0**	**1**	**5**	***6***	**17**	**18**	**4**	**12**	***51***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Olive St				0				Harvard Ave				Harvard Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0
7:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	3
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	3
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	2	4	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**

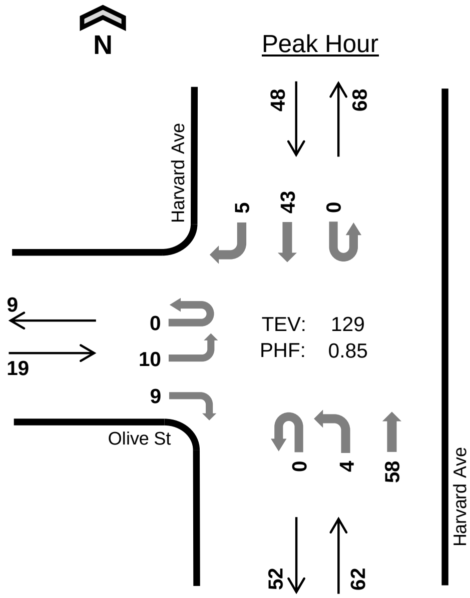
Two-Hour Count Summaries - Bikes

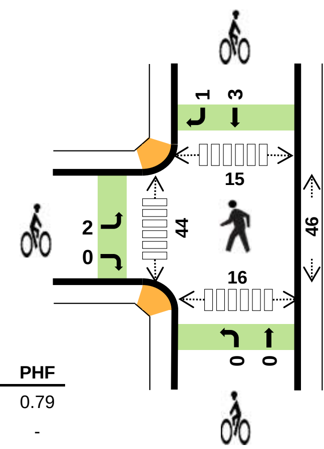
Interval Start	Olive St			0			Harvard Ave			Harvard Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**4**	5
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	5
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**6**
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
Count Total	0	0	0	0	0	0	0	1	0	0	6	1	8	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**1**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Harvard Ave
Olive St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	0.0%	0.79
WB	-	-
NB	1.6%	0.82
SB	0.0%	0.75
TOTAL	0.8%	0.85

Two-Hour Count Summaries

Interval Start		Olive St				0				Harvard Ave				Harvard Ave				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**18**	**0**	**0**	**0**	**10**	**0**	**34**	0
4:15 PM		**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**14**	**2**	**38**	0
4:30 PM		**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**15**	**0**	**0**	**0**	**9**	**3**	**35**	0
4:45 PM		**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**8**	**0**	**0**	**0**	**10**	**0**	**22**	**129**
5:00 PM		0	2	0	0	0	0	0	0	0	2	13	0	0	0	7	0	24	119
5:15 PM		0	1	0	1	0	0	0	0	0	2	13	0	0	0	12	1	30	111
5:30 PM		0	2	0	3	0	0	0	0	0	4	8	0	0	0	16	1	34	110
5:45 PM		0	2	0	4	0	0	0	0	0	2	12	0	0	0	13	0	33	121
Count Total		0	17	0	17	0	0	0	0	0	14	104	0	0	0	91	7	250	0
Peak Hour	**All**	**0**	**10**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**4**	**58**	**0**	**0**	**0**	**43**	**5**	**129**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**
	HV%	**-**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**25%**	**0%**	**-**	**-**	**-**	**0%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***	**10**	**11**	**2**	**5**	*28*
4:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**17**	**7**	**3**	**2**	*29*
4:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**3**	***3***	**9**	**12**	**6**	**7**	*34*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**1**	***2***	**10**	**14**	**4**	**2**	***30***
5:00 PM	0	0	0	1	*1*	0	0	0	0	*0*	4	22	3	4	*33*
5:15 PM	0	0	0	0	*0*	0	0	2	0	*2*	10	15	3	1	*29*
5:30 PM	0	0	1	0	*1*	0	0	1	0	*1*	6	20	2	4	*32*
5:45 PM	0	0	0	1	*1*	0	0	0	1	*1*	9	3	3	3	*18*
Count Total	0	0	2	2	*4*	2	0	3	5	*10*	75	104	26	28	*233*
Peak Hr	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**4**	***6***	**46**	**44**	**15**	**16**	***121***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Olive St				0				Harvard Ave				Harvard Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Count Total	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	4	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Two-Hour Count Summaries - Bikes

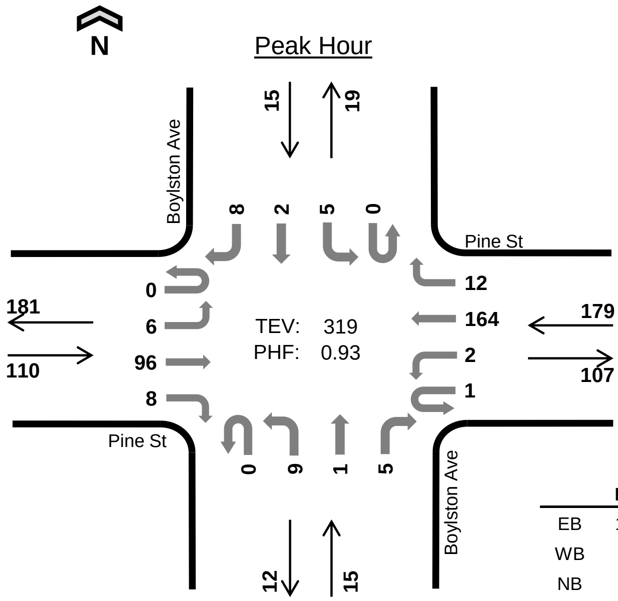
Interval Start	Olive St			0			Harvard Ave			Harvard Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**3**	0
4:45 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	7
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	4
Count Total	2	0	0	0	0	0	0	3	0	0	3	2	10	0
Peak Hour	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**6**	**0**

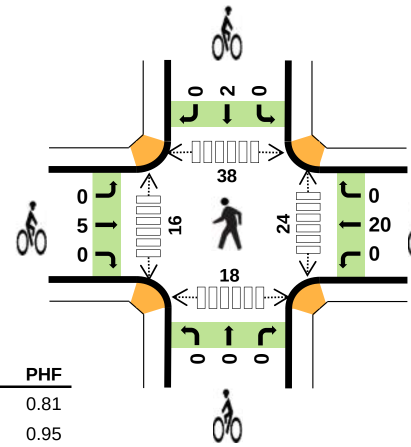
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Boylston Ave
Pine St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour





	HV %:	PHF
EB	12.7%	0.81
WB	8.4%	0.95
NB	6.7%	0.75
SB	6.7%	0.75
TOTAL	9.7%	0.93

Two-Hour Count Summaries

Interval Start		Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Boylston Ave Northbound UT	LT	TH	RT	Boylston Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	0	11	6	0	1	25	1	0	1	0	1	0	1	0	0	47	0
7:15 AM		0	1	17	0	0	1	24	2	0	1	1	1	0	0	0	0	48	0
7:30 AM		0	0	20	1	0	1	39	0	0	1	1	2	0	0	2	2	69	0
7:45 AM		**0**	**4**	**28**	**2**	**0**	**0**	**38**	**4**	**0**	**3**	**0**	**2**	**0**	**2**	**2**	**1**	**86**	250
8:00 AM		**0**	**0**	**26**	**3**	**1**	**0**	**45**	**1**	**0**	**1**	**0**	**1**	**0**	**2**	**0**	**2**	**82**	285
8:15 AM		**0**	**2**	**22**	**2**	**0**	**1**	**39**	**5**	**0**	**2**	**1**	**1**	**0**	**1**	**0**	**1**	**77**	314
8:30 AM		**0**	**0**	**20**	**1**	**0**	**1**	**42**	**2**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**4**	**74**	**319**
8:45 AM		0	1	26	2	0	0	42	1	0	0	1	0	0	1	0	0	74	307
Count Total		0	8	170	17	1	5	294	16	0	12	4	9	0	7	4	10	557	0
Peak Hour	**All**	**0**	**6**	**96**	**8**	**1**	**2**	**164**	**12**	**0**	**9**	**1**	**5**	**0**	**5**	**2**	**8**	**319**	**0**
	HV	**0**	**1**	**11**	**2**	**0**	**0**	**14**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**31**	**0**
	HV%	**-**	**17%**	**11%**	**25%**	**0%**	**0%**	**9%**	**8%**	**-**	**11%**	**0%**	**0%**	**-**	**0%**	**0%**	**13%**	**10%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	3	7	1	0	*11*	1	0	0	0	*1*	5	4	5	4	*18*
7:15 AM	3	3	0	0	*6*	0	0	0	0	*0*	2	4	3	5	*14*
7:30 AM	4	3	0	0	*7*	0	2	0	0	*2*	8	2	7	5	*22*
7:45 AM	**5**	**5**	**1**	**0**	***11***	**2**	**7**	**0**	**1**	***10***	**9**	**7**	**10**	**4**	*30*
8:00 AM	**4**	**5**	**0**	**1**	***10***	**1**	**3**	**0**	**0**	***4***	**5**	**4**	**14**	**0**	*23*
8:15 AM	**3**	**3**	**0**	**0**	***6***	**0**	**7**	**0**	**1**	***8***	**5**	**1**	**5**	**7**	*18*
8:30 AM	**2**	**2**	**0**	**0**	***4***	**2**	**3**	**0**	**0**	***5***	**5**	**4**	**9**	**7**	***25***
8:45 AM	4	3	0	0	*7*	1	2	0	0	*3*	9	4	6	5	*24*
Count Total	28	31	2	1	*62*	7	24	0	2	*33*	48	30	59	37	*174*
Peak Hour	**14**	**15**	**1**	**1**	***31***	**5**	**20**	**0**	**2**	***27***	**24**	**16**	**38**	**18**	***96***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St				Pine St				Boylston Ave				Boylston Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	1	0	0	7	0	0	1	0	0	0	0	0	0	11	0
7:15 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6	0
7:30 AM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	7	0
7:45 AM	**0**	**1**	**4**	**0**	**0**	**0**	**4**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	35
8:00 AM	**0**	**0**	**3**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**	34
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	34
8:30 AM	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**31**
8:45 AM	0	0	3	1	0	0	3	0	0	0	0	0	0	0	0	0	7	27
Count Total	0	1	23	4	0	0	30	1	0	2	0	0	0	0	0	1	62	0
Peak Hour	**0**	**1**	**11**	**2**	**0**	**0**	**14**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**31**	**0**

Two-Hour Count Summaries - Bikes

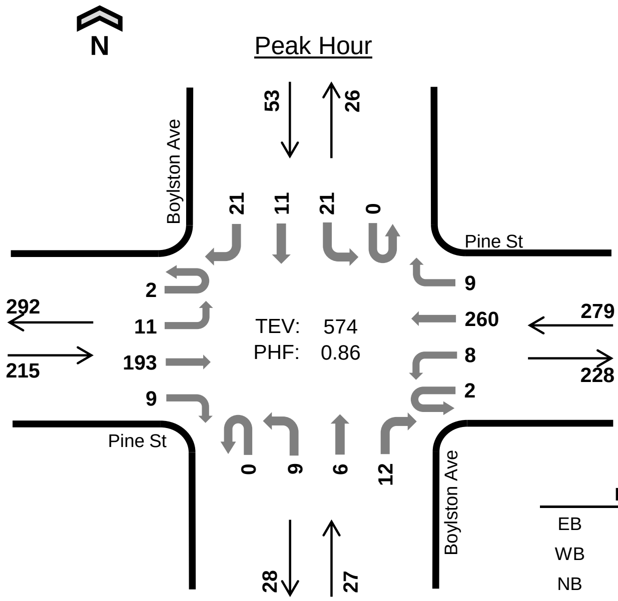
Interval Start	Pine St			Pine St			Boylston Ave			Boylston Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**2**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**10**	13
8:00 AM	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	16
8:15 AM	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**8**	24
8:30 AM	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**27**
8:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	3	20
Count Total	0	7	0	0	24	0	0	0	0	0	2	0	33	0
Peak Hour	**0**	**5**	**0**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**27**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

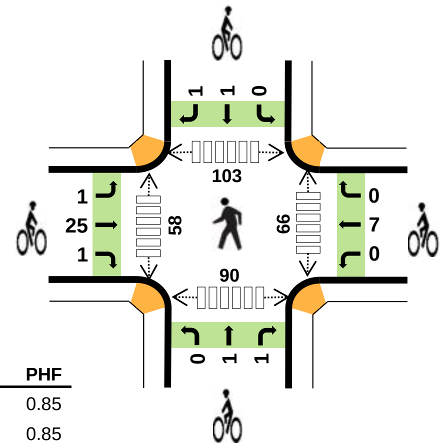
Boylston Ave
Pine St

idax

Peak Hour



Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	4.2%	0.85
WB	3.6%	0.85
NB	0.0%	0.68
SB	1.9%	0.58
TOTAL	3.5%	0.86

Two-Hour Count Summaries

Interval Start		Pine St Eastbound				Pine St Westbound				Boylston Ave Northbound				Boylston Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	3	33	5	0	1	72	1	0	5	2	1	0	1	3	1	128	0
4:15 PM		0	3	32	4	0	5	57	0	0	4	2	0	0	5	1	2	115	0
4:30 PM		0	1	36	1	0	1	70	1	0	2	3	3	0	1	3	1	123	0
4:45 PM		0	1	43	5	0	1	74	2	0	5	2	2	0	0	1	3	139	505
5:00 PM		**1**	**3**	**48**	**5**	**2**	**2**	**58**	**1**	**0**	**1**	**2**	**1**	**0**	**6**	**1**	**3**	**134**	511
5:15 PM		**0**	**2**	**46**	**1**	**0**	**2**	**67**	**3**	**0**	**3**	**1**	**1**	**0**	**5**	**0**	**2**	**133**	529
5:30 PM		**1**	**3**	**41**	**1**	**0**	**2**	**59**	**1**	**0**	**4**	**3**	**3**	**0**	**5**	**7**	**11**	**141**	547
5:45 PM		**0**	**3**	**58**	**2**	**0**	**2**	**76**	**4**	**0**	**1**	**0**	**7**	**0**	**5**	**3**	**5**	**166**	**574**
Count Total		2	19	337	24	2	16	533	13	0	25	15	18	0	28	19	28	1,079	0
Peak Hour	**All**	**2**	**11**	**193**	**9**	**2**	**8**	**260**	**9**	**0**	**9**	**6**	**12**	**0**	**21**	**11**	**21**	**574**	**0**
	HV	**0**	**0**	**9**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**20**	**0**
	HV%	**0%**	**0%**	**5%**	**0%**	**0%**	**0%**	**4%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**9%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	3	0	0	*4*	4	7	0	1	*12*	12	9	14	19	*54*
4:15 PM	3	3	0	0	*6*	3	0	1	0	*4*	15	6	28	20	*69*
4:30 PM	2	2	1	0	*5*	6	4	0	1	*11*	17	16	26	19	*78*
4:45 PM	3	2	0	0	*5*	2	1	1	0	*4*	9	10	21	25	*65*
5:00 PM	**2**	**4**	**0**	**0**	***6***	**6**	**1**	**0**	**0**	***7***	**16**	**9**	**29**	**22**	*76*
5:15 PM	**2**	**2**	**0**	**0**	***4***	**9**	**2**	**2**	**2**	***15***	**14**	**13**	**21**	**18**	*66*
5:30 PM	**2**	**1**	**0**	**0**	***3***	**6**	**3**	**0**	**0**	***9***	**22**	**21**	**30**	**25**	*98*
5:45 PM	**3**	**3**	**0**	**1**	***7***	**6**	**1**	**0**	**0**	***7***	**14**	**15**	**23**	**25**	***77***
Count Total	18	20	1	1	*40*	42	19	4	4	*69*	119	99	192	173	*583*
Peak Hour	**9**	**10**	**0**	**1**	***20***	**27**	**7**	**2**	**2**	***38***	**66**	**58**	**103**	**90**	***317***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Boylston Ave Northbound UT	LT	TH	RT	Boylston Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	0
4:15 PM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6	0
4:30 PM	0	0	2	0	0	0	2	0	0	0	0	1	0	0	0	0	5	0
4:45 PM	0	0	2	1	0	0	2	0	0	0	0	0	0	0	0	0	5	20
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	22
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	20
5:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	18
5:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**7**	**20**
Count Total	0	0	17	1	0	0	20	0	0	0	0	1	0	0	1	0	40	0
Peak Hour	**0**	**0**	**9**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**20**	**0**

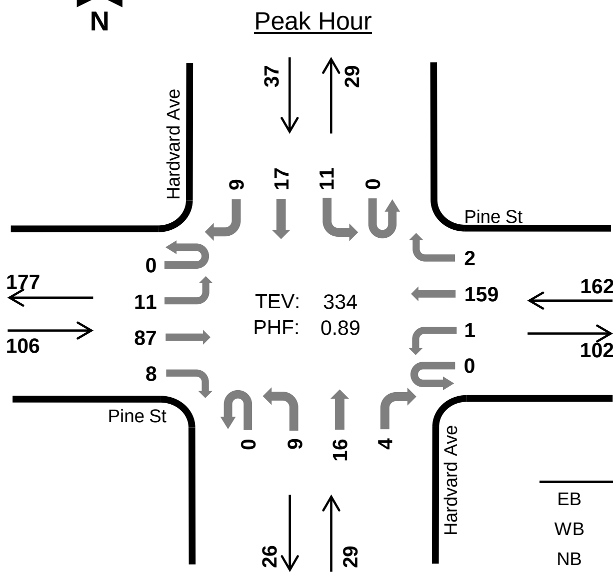
Two-Hour Count Summaries - Bikes

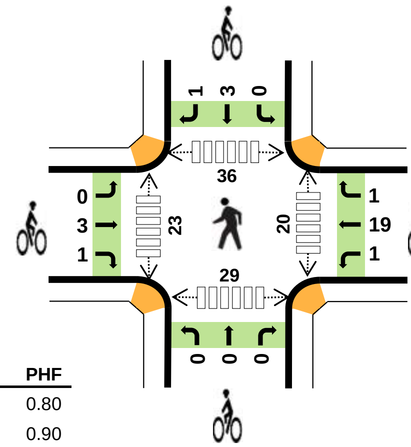
Interval Start	Pine St Eastbound LT	TH	RT	Pine St Westbound LT	TH	RT	Boylston Ave Northbound LT	TH	RT	Boylston Ave Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	4	0	0	7	0	0	0	0	0	0	1	12	0
4:15 PM	0	3	0	0	0	0	0	1	0	0	0	0	4	0
4:30 PM	0	6	0	0	3	1	0	0	0	0	1	0	11	0
4:45 PM	0	2	0	0	1	0	0	1	0	0	0	0	4	31
5:00 PM	**1**	**5**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	26
5:15 PM	**0**	**8**	**1**	**0**	**2**	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**15**	37
5:30 PM	**0**	**6**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	35
5:45 PM	**0**	**6**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**38**
Count Total	1	40	1	0	18	1	0	3	1	0	2	2	69	0
Peak Hour	**1**	**25**	**1**	**0**	**7**	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**38**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Hardvard Ave
Pine St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	11.3%	0.80
WB	8.6%	0.90
NB	0.0%	0.66
SB	2.7%	0.58
TOTAL	8.1%	0.89

Two-Hour Count Summaries

Interval Start		Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Hardvard Ave Northbound UT	LT	TH	RT	Hardvard Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	1	11	1	0	0	23	1	0	3	5	1	0	2	3	0	51	0
7:15 AM		0	3	14	0	0	0	22	2	0	1	1	1	0	1	1	4	50	0
7:30 AM		0	5	16	1	0	1	37	1	0	1	6	0	0	0	0	2	70	0
7:45 AM		**0**	**7**	**26**	**0**	**0**	**0**	**36**	**1**	**0**	**3**	**4**	**1**	**0**	**3**	**10**	**3**	**94**	265
8:00 AM		**0**	**0**	**26**	**3**	**0**	**0**	**41**	**1**	**0**	**1**	**2**	**0**	**0**	**2**	**4**	**4**	**84**	298
8:15 AM		**0**	**1**	**17**	**4**	**0**	**0**	**38**	**0**	**0**	**5**	**5**	**1**	**0**	**3**	**3**	**2**	**79**	327
8:30 AM		**0**	**3**	**18**	**1**	**0**	**1**	**44**	**0**	**0**	**0**	**5**	**2**	**0**	**3**	**0**	**0**	**77**	**334**
8:45 AM		0	1	23	2	0	0	38	2	0	3	7	3	0	0	4	3	86	326
Count Total		0	21	151	12	0	2	279	8	0	17	35	9	0	14	25	18	591	0
Peak Hour	**All**	**0**	**11**	**87**	**8**	**0**	**1**	**159**	**2**	**0**	**9**	**16**	**4**	**0**	**11**	**17**	**9**	**334**	**0**
	HV	**0**	**0**	**12**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**27**	**0**
	HV%	**-**	**0%**	**14%**	**0%**	**-**	**0%**	**9%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**11%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	2	5	1	0	*8*	1	0	0	0	*1*	3	6	5	3	*17*
7:15 AM	3	3	1	0	*7*	0	0	0	1	*1*	3	6	3	2	*14*
7:30 AM	3	4	0	0	*7*	0	2	0	0	*2*	9	1	15	1	*26*
7:45 AM	**5**	**4**	**0**	**1**	***10***	**1**	**8**	**0**	**0**	***9***	**8**	**7**	**8**	**12**	*35*
8:00 AM	**3**	**5**	**0**	**0**	***8***	**2**	**2**	**0**	**3**	***7***	**7**	**8**	**14**	**4**	*33*
8:15 AM	**3**	**3**	**0**	**0**	***6***	**0**	**7**	**0**	**1**	***8***	**3**	**5**	**4**	**10**	*22*
8:30 AM	**1**	**2**	**0**	**0**	***3***	**1**	**4**	**0**	**0**	***5***	**2**	**3**	**10**	**3**	***18***
8:45 AM	3	3	0	0	*6*	2	2	0	1	*5*	5	6	5	4	*20*
Count Total	23	29	2	1	*55*	7	25	0	6	*38*	40	42	64	39	*185*
Peak Hour	**12**	**14**	**0**	**1**	***27***	**4**	**21**	**0**	**4**	***29***	**20**	**23**	**36**	**29**	***108***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Hardvard Ave Northbound UT	LT	TH	RT	Hardvard Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	2	0	0	0	5	0	0	1	0	0	0	0	0	0	8	0
7:15 AM	0	0	3	0	0	0	3	0	0	0	1	0	0	0	0	0	7	0
7:30 AM	0	0	3	0	0	0	4	0	0	0	0	0	0	0	0	0	7	0
7:45 AM	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**	32
8:00 AM	**0**	**0**	**3**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	32
8:15 AM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	31
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**27**
8:45 AM	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	6	23
Count Total	0	0	23	0	0	0	29	0	0	1	1	0	0	0	0	1	55	0
Peak Hour	**0**	**0**	**12**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**27**	**0**

Two-Hour Count Summaries - Bikes

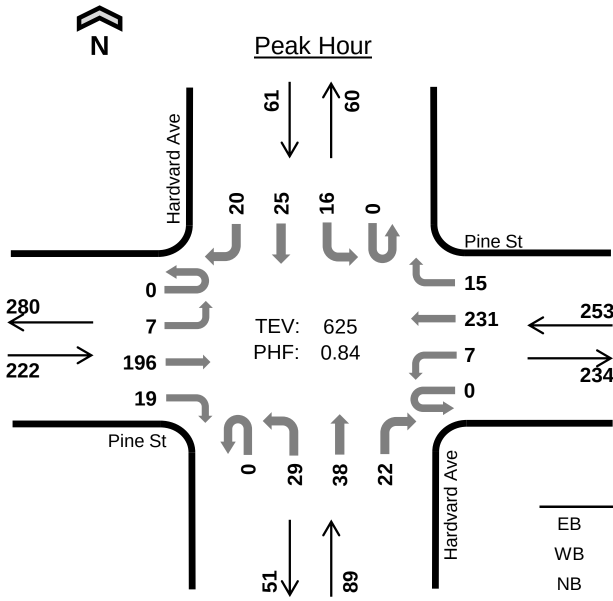
Interval Start	Pine St Eastbound LT	TH	RT	Pine St Westbound LT	TH	RT	Hardvard Ave Northbound LT	TH	RT	Hardvard Ave Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**1**	**1**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	13
8:00 AM	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**7**	19
8:15 AM	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**8**	26
8:30 AM	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**29**
8:45 AM	0	2	0	0	2	0	0	0	0	0	1	0	5	25
Count Total	0	6	1	1	23	1	0	0	0	0	5	1	38	0
Peak Hour	**0**	**3**	**1**	**1**	**19**	**1**	**0**	**0**	**0**	**0**	**3**	**1**	**29**	**0**

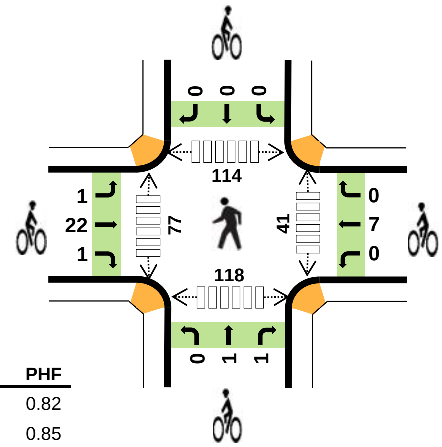
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Hardvard Ave
Pine St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour





	HV %:	PHF
EB	4.1%	0.82
WB	4.0%	0.85
NB	1.1%	0.79
SB	3.3%	0.64
TOTAL	3.5%	0.84

Two-Hour Count Summaries

Interval Start		Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Hardvard Ave Northbound UT	LT	TH	RT	Hardvard Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	7	0	27	0	3	64	2	0	5	12	2	0	2	7	2	133	0
4:15 PM		0	7	0	32	0	3	57	3	0	2	8	3	0	1	10	4	130	0
4:30 PM		0	1	28	8	0	8	59	4	0	5	8	8	0	3	8	7	147	0
4:45 PM		0	1	42	3	0	2	64	2	1	8	11	3	0	7	2	5	151	561
5:00 PM		**0**	**2**	**49**	**4**	**0**	**1**	**50**	**1**	**0**	**7**	**10**	**11**	**0**	**1**	**4**	**4**	**144**	572
5:15 PM		**0**	**2**	**39**	**6**	**0**	**1**	**68**	**5**	**0**	**4**	**11**	**5**	**0**	**4**	**2**	**3**	**150**	592
5:30 PM		**0**	**2**	**46**	**4**	**0**	**1**	**53**	**4**	**0**	**6**	**8**	**1**	**0**	**7**	**6**	**6**	**144**	589
5:45 PM		**0**	**1**	**62**	**5**	**0**	**4**	**60**	**5**	**0**	**12**	**9**	**5**	**0**	**4**	**13**	**7**	**187**	**625**
Count Total		0	23	266	89	0	23	475	26	1	49	77	38	0	29	52	38	1,186	0
Peak Hour	**All**	**0**	**7**	**196**	**19**	**0**	**7**	**231**	**15**	**0**	**29**	**38**	**22**	**0**	**16**	**25**	**20**	**625**	**0**
	HV	**0**	**0**	**9**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**22**	**0**
	HV%	**-**	**0%**	**5%**	**0%**	**-**	**0%**	**4%**	**0%**	**-**	**0%**	**3%**	**0%**	**-**	**0%**	**8%**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	2	3	0	0	*5*	3	8	0	1	*12*	20	9	18	27	*74*
4:15 PM	3	3	0	0	*6*	3	0	0	0	*3*	14	19	28	29	*90*
4:30 PM	3	4	1	0	*8*	5	3	0	2	*10*	8	15	20	20	*63*
4:45 PM	2	2	0	0	*4*	3	1	1	2	*7*	17	11	23	23	*74*
5:00 PM	**2**	**4**	**0**	**1**	***7***	**3**	**1**	**1**	**0**	***5***	**11**	**16**	**25**	**30**	*82*
5:15 PM	**1**	**2**	**0**	**0**	***3***	**10**	**2**	**1**	**0**	***13***	**13**	**22**	**36**	**30**	*101*
5:30 PM	**3**	**1**	**1**	**0**	***5***	**8**	**3**	**0**	**0**	***11***	**6**	**9**	**28**	**20**	*63*
5:45 PM	**3**	**3**	**0**	**1**	***7***	**3**	**1**	**0**	**0**	***4***	**11**	**30**	**25**	**38**	***104***
Count Total	19	22	2	2	*45*	38	19	3	5	*65*	100	131	203	217	*651*
Peak Hour	**9**	**10**	**1**	**2**	***22***	**24**	**7**	**2**	**0**	***33***	**41**	**77**	**114**	**118**	***350***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St				Pine St				Hardvard Ave				Hardvard Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	2	0	1	2	0	0	0	0	0	0	0	0	0	5	0
4:15 PM	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	6	0
4:30 PM	0	0	3	0	0	2	2	0	0	0	1	0	0	0	0	0	8	0
4:45 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	23
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**7**	25
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	22
5:30 PM	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	19
5:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**7**	**22**
Count Total	0	0	14	5	0	3	19	0	0	0	2	0	0	0	2	0	45	0
Peak Hour	**0**	**0**	**9**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**22**	**0**

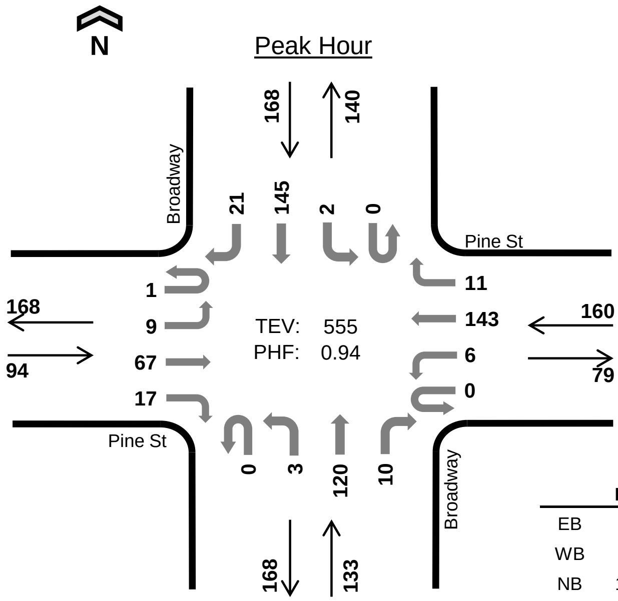
Two-Hour Count Summaries - Bikes

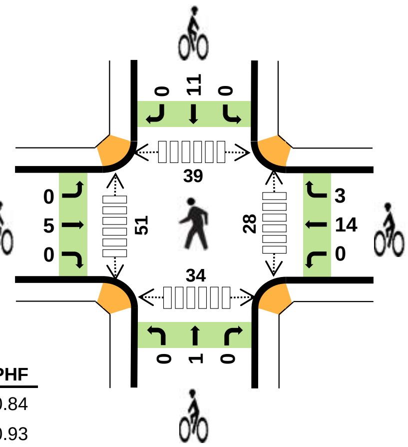
Interval Start	Pine St			Pine St			Hardvard Ave			Hardvard Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	3	0	1	6	1	0	0	0	0	1	0	12	0
4:15 PM	0	0	3	0	0	0	0	0	0	0	0	0	3	0
4:30 PM	0	4	1	0	3	0	0	0	0	0	1	1	10	0
4:45 PM	0	3	0	0	1	0	0	0	1	2	0	0	7	32
5:00 PM	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	25
5:15 PM	**0**	**9**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**13**	35
5:30 PM	**1**	**7**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	36
5:45 PM	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**33**
Count Total	1	32	5	1	17	1	0	1	2	2	2	1	65	0
Peak Hour	**1**	**22**	**1**	**0**	**7**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**33**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Pine St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	9.6%	0.84
WB	5.0%	0.93
NB	10.5%	0.90
SB	8.9%	0.82
TOTAL	8.3%	0.94

Two-Hour Count Summaries

Interval Start		Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	3	6	5	0	0	22	3	0	0	20	2	0	2	31	2	96	0
7:15 AM		0	3	10	3	0	2	18	2	0	0	22	4	0	2	30	3	99	0
7:30 AM		0	1	11	3	0	1	33	1	0	0	26	3	0	0	34	6	119	0
7:45 AM		0	5	19	8	0	0	35	0	0	0	18	2	0	2	32	4	125	439
8:00 AM		**0**	**4**	**18**	**6**	**0**	**3**	**33**	**2**	**0**	**1**	**33**	**3**	**0**	**0**	**36**	**8**	**147**	490
8:15 AM		**0**	**1**	**16**	**4**	**0**	**1**	**35**	**3**	**0**	**2**	**26**	**2**	**0**	**0**	**28**	**3**	**121**	512
8:30 AM		**1**	**2**	**16**	**3**	**0**	**1**	**40**	**2**	**0**	**0**	**33**	**1**	**0**	**1**	**37**	**4**	**141**	534
8:45 AM		**0**	**2**	**17**	**4**	**0**	**1**	**35**	**4**	**0**	**0**	**28**	**4**	**0**	**1**	**44**	**6**	**146**	555
Count Total		1	21	113	36	0	9	251	17	0	3	206	21	0	8	272	36	994	0
Peak Hour	**All**	**1**	**9**	**67**	**17**	**0**	**6**	**143**	**11**	**0**	**3**	**120**	**10**	**0**	**2**	**145**	**21**	**555**	**0**
	HV	**0**	**3**	**5**	**1**	**0**	**0**	**7**	**1**	**0**	**0**	**14**	**0**	**0**	**1**	**9**	**5**	**46**	**0**
	HV%	**0%**	**33%**	**7%**	**6%**	**-**	**0%**	**5%**	**9%**	**-**	**0%**	**12%**	**0%**	**-**	**50%**	**6%**	**24%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	3	5	3	6	*17*	1	0	0	3	*4*	5	3	2	2	*12*
7:15 AM	3	2	3	3	*11*	0	1	0	1	*2*	5	9	2	6	*22*
7:30 AM	3	0	3	4	*10*	0	2	1	6	*9*	6	15	6	4	*31*
7:45 AM	4	4	4	2	*14*	0	6	3	5	*14*	4	20	7	8	*39*
8:00 AM	**3**	**2**	**4**	**4**	***13***	**2**	**2**	**0**	**3**	***7***	**3**	**8**	**12**	**6**	*29*
8:15 AM	**3**	**2**	**2**	**2**	***9***	**0**	**7**	**0**	**1**	***8***	**7**	**17**	**5**	**7**	*36*
8:30 AM	**1**	**1**	**3**	**2**	***7***	**1**	**4**	**0**	**3**	***8***	**6**	**15**	**9**	**9**	*39*
8:45 AM	**2**	**3**	**5**	**7**	***17***	**2**	**4**	**1**	**4**	***11***	**12**	**11**	**13**	**12**	***48***
Count Total	22	19	27	30	*98*	6	26	5	26	*63*	48	98	56	54	*256*
Peak Hour	**9**	**8**	**14**	**15**	***46***	**5**	**17**	**1**	**11**	***34***	**28**	**51**	**39**	**34**	***152***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St				Pine St				Broadway				Broadway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	1	0	0	0	4	1	0	0	3	0	0	1	5	0	17	0
7:15 AM	0	2	1	0	0	0	2	0	0	0	3	0	0	0	2	1	11	0
7:30 AM	0	1	2	0	0	0	0	0	0	0	3	0	0	0	1	3	10	0
7:45 AM	0	3	1	0	0	0	4	0	0	0	4	0	0	0	1	1	14	52
8:00 AM	**0**	**1**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**2**	**2**	**13**	48
8:15 AM	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**9**	46
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**1**	**7**	43
8:45 AM	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**5**	**0**	**0**	**1**	**5**	**1**	**17**	**46**
Count Total	0	11	10	1	0	0	17	2	0	0	27	0	0	2	18	10	98	0
Peak Hour	**0**	**3**	**5**	**1**	**0**	**0**	**7**	**1**	**0**	**0**	**14**	**0**	**0**	**1**	**9**	**5**	**46**	**0**

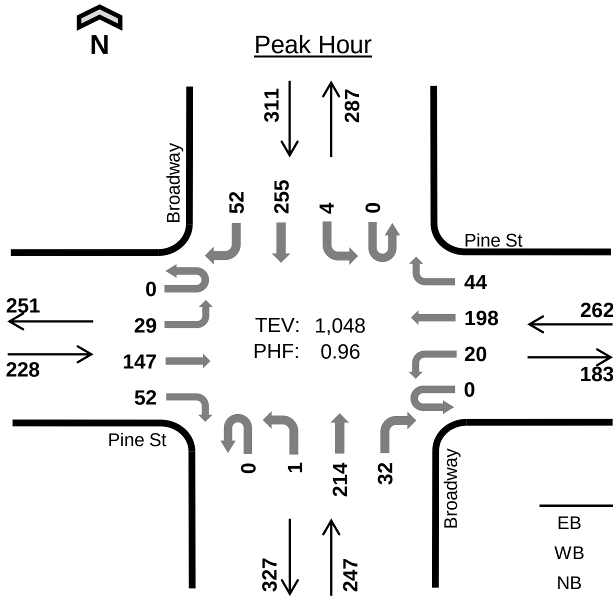
Two-Hour Count Summaries - Bikes

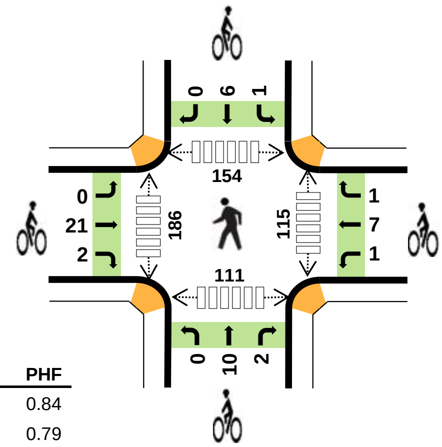
Interval Start	Pine St			Pine St			Broadway			Broadway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	0	0	0	1	0	0	0	0	0	0	1	0	2	0
7:30 AM	0	0	0	0	2	0	0	1	0	0	6	0	9	0
7:45 AM	0	0	0	0	5	1	0	3	0	0	4	1	14	29
8:00 AM	**0**	**2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**7**	32
8:15 AM	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**8**	38
8:30 AM	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**8**	37
8:45 AM	**0**	**2**	**0**	**0**	**2**	**2**	**0**	**1**	**0**	**0**	**4**	**0**	**11**	**34**
Count Total	0	6	0	1	21	4	0	5	0	0	25	1	63	0
Peak Hour	**0**	**5**	**0**	**0**	**14**	**3**	**0**	**1**	**0**	**0**	**11**	**0**	**34**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Pine St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	3.9%	0.84
WB	1.5%	0.79
NB	2.0%	0.86
SB	5.5%	0.82
TOTAL	3.3%	0.96

Two-Hour Count Summaries

Interval Start		Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM		0	0	3	0	0	1	54	10	0	2	50	8	0	1	66	10	205	0
4:15 PM		0	0	1	0	0	2	48	12	0	0	47	13	0	2	65	9	199	0
4:30 PM		0	3	26	8	0	9	58	11	0	1	52	11	0	0	63	7	249	0
4:45 PM		0	6	36	11	0	7	47	8	0	1	50	8	0	1	55	18	248	901
5:00 PM		**0**	**6**	**38**	**17**	**0**	**5**	**37**	**8**	**0**	**0**	**59**	**13**	**0**	**1**	**61**	**13**	**258**	954
5:15 PM		**0**	**3**	**32**	**12**	**0**	**6**	**62**	**15**	**0**	**1**	**63**	**6**	**0**	**2**	**48**	**12**	**262**	1,017
5:30 PM		**0**	**7**	**35**	**10**	**0**	**6**	**47**	**12**	**0**	**0**	**52**	**6**	**0**	**1**	**68**	**10**	**254**	1,022
5:45 PM		**0**	**13**	**42**	**13**	**0**	**3**	**52**	**9**	**0**	**0**	**40**	**7**	**0**	**0**	**78**	**17**	**274**	**1,048**
Count Total		0	38	213	71	0	39	405	85	0	5	413	72	0	8	504	96	1,949	0
Peak Hour	**All**	**0**	**29**	**147**	**52**	**0**	**20**	**198**	**44**	**0**	**1**	**214**	**32**	**0**	**4**	**255**	**52**	**1,048**	**0**
	HV	**0**	**4**	**5**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**11**	**6**	**35**	**0**
	HV%	**-**	**14%**	**3%**	**0%**	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**2%**	**0%**	**-**	**0%**	**4%**	**12%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	1	5	4	*10*	2	8	1	2	*13*	32	50	39	30	*151*
4:15 PM	0	2	4	2	*8*	0	4	3	0	*7*	15	38	36	16	*105*
4:30 PM	2	3	3	1	*9*	3	4	5	3	*15*	23	42	33	20	*118*
4:45 PM	3	1	2	2	*8*	5	1	2	3	*11*	23	42	32	19	*116*
5:00 PM	**2**	**2**	**1**	**7**	***12***	**3**	**1**	**3**	**2**	***9***	**24**	**47**	**28**	**33**	*132*
5:15 PM	**1**	**1**	**1**	**3**	***6***	**8**	**2**	**3**	**2**	***15***	**39**	**33**	**52**	**24**	*148*
5:30 PM	**3**	**0**	**1**	**3**	***7***	**7**	**5**	**4**	**2**	***18***	**24**	**56**	**35**	**28**	*143*
5:45 PM	**3**	**1**	**2**	**4**	***10***	**5**	**1**	**2**	**1**	***9***	**28**	**50**	**39**	**26**	***143***
Count Total	14	11	19	26	*70*	33	26	23	15	*97*	208	358	294	196	*1,056*
Peak Hour	**9**	**4**	**5**	**17**	***35***	**23**	**9**	**12**	**7**	***51***	**115**	**186**	**154**	**111**	***566***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pine St Eastbound UT	LT	TH	RT	Pine St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	1	0	0	0	4	1	0	0	3	1	10	0
4:15 PM	0	0	0	0	0	0	1	1	0	0	2	2	0	0	1	1	8	0
4:30 PM	0	0	2	0	0	1	2	0	0	0	3	0	0	0	1	0	9	0
4:45 PM	0	2	1	0	0	0	1	0	0	0	2	0	0	0	1	1	8	35
5:00 PM	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**2**	**12**	37
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**6**	35
5:30 PM	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**7**	33
5:45 PM	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**2**	**10**	**35**
Count Total	0	6	8	0	0	1	9	1	0	0	16	3	0	0	17	9	70	0
Peak Hour	**0**	**4**	**5**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**11**	**6**	**35**	**0**

Two-Hour Count Summaries - Bikes

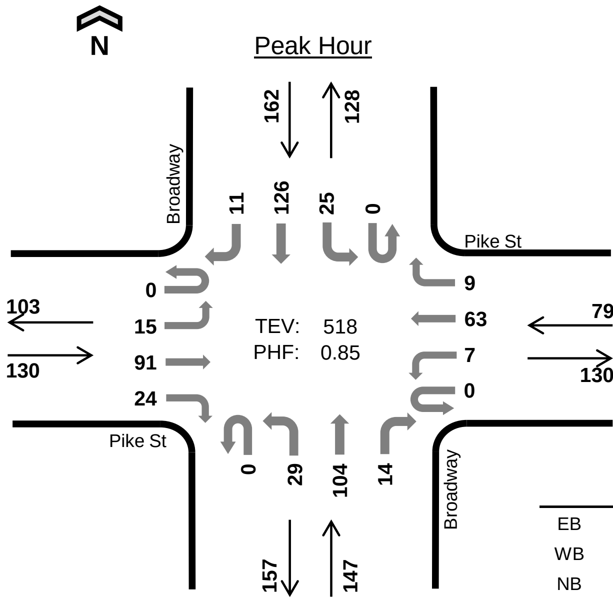
Interval Start	Pine St Eastbound LT	TH	RT	Pine St Westbound LT	TH	RT	Broadway Northbound LT	TH	RT	Broadway Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	2	0	0	7	1	0	1	0	0	2	0	13	0
4:15 PM	0	0	0	1	1	2	0	3	0	0	0	0	7	0
4:30 PM	0	2	1	0	3	1	0	5	0	1	2	0	15	0
4:45 PM	2	3	0	0	1	0	0	2	0	0	3	0	11	46
5:00 PM	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**1**	**1**	**0**	**9**	42
5:15 PM	**0**	**7**	**1**	**0**	**2**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**15**	50
5:30 PM	**0**	**6**	**1**	**1**	**3**	**1**	**0**	**3**	**1**	**0**	**2**	**0**	**18**	53
5:45 PM	**0**	**5**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**9**	**51**
Count Total	2	28	3	2	19	5	0	21	2	2	13	0	97	0
Peak Hour	**0**	**21**	**2**	**1**	**7**	**1**	**0**	**10**	**2**	**1**	**6**	**0**	**51**	**0**

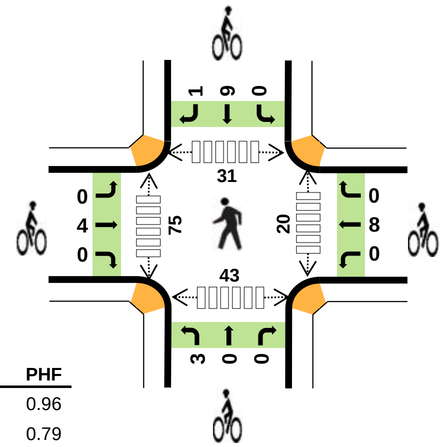
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

www.idaxdata.com

Broadway
Pike St

Date: 12-03-2020
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	2.3%	0.96
WB	6.3%	0.79
NB	8.8%	0.77
SB	5.6%	0.90
TOTAL	5.8%	0.85

Two-Hour Count Summaries

Interval Start	Pike St Eastbound				Pike St Westbound				Broadway Northbound				Broadway Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	16	3	0	2	9	2	0	4	18	0	0	4	33	0	94	0
7:15 AM	0	4	11	5	0	3	9	1	0	5	21	2	0	4	26	2	93	0
7:30 AM	0	6	18	5	0	4	12	2	0	2	20	4	0	8	28	1	110	0
7:45 AM	0	2	21	6	0	2	16	4	0	6	20	4	0	2	38	1	122	419
8:00 AM	**0**	**2**	**24**	**6**	**0**	**1**	**12**	**4**	**0**	**3**	**26**	**1**	**0**	**3**	**37**	**4**	**123**	448
8:15 AM	**0**	**3**	**24**	**5**	**0**	**3**	**15**	**2**	**0**	**7**	**25**	**3**	**0**	**5**	**25**	**1**	**118**	473
8:30 AM	**0**	**4**	**22**	**6**	**0**	**1**	**16**	**0**	**0**	**5**	**28**	**1**	**0**	**7**	**31**	**4**	**125**	488
8:45 AM	**0**	**6**	**21**	**7**	**0**	**2**	**20**	**3**	**0**	**14**	**25**	**9**	**0**	**10**	**33**	**2**	**152**	**518**
Count Total	0	30	157	43	0	18	109	18	0	46	183	24	0	43	251	15	937	0
Peak Hour All	**0**	**15**	**91**	**24**	**0**	**7**	**63**	**9**	**0**	**29**	**104**	**14**	**0**	**25**	**126**	**11**	**518**	**0**
Peak Hour HV	**0**	**1**	**2**	**0**	**0**	**0**	**4**	**1**	**0**	**1**	**12**	**0**	**0**	**2**	**7**	**0**	**30**	**0**
Peak Hour HV%	**-**	**7%**	**2%**	**0%**	**-**	**0%**	**6%**	**11%**	**-**	**3%**	**12%**	**0%**	**-**	**8%**	**6%**	**0%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	0	3	5	*11*	1	0	0	2	*3*	4	10	3	6	*23*
7:15 AM	2	2	3	1	*8*	0	0	1	2	*3*	4	19	5	10	*38*
7:30 AM	2	0	4	2	*8*	2	1	1	6	*10*	5	23	3	12	*43*
7:45 AM	0	1	7	1	*9*	1	2	2	4	*9*	3	29	4	19	*55*
8:00 AM	**0**	**4**	**4**	**3**	***11***	**0**	**0**	**1**	**3**	***4***	**4**	**12**	**2**	**12**	*30*
8:15 AM	**0**	**0**	**2**	**1**	***3***	**2**	**2**	**1**	**1**	***6***	**5**	**19**	**10**	**7**	*41*
8:30 AM	**2**	**0**	**3**	**1**	***6***	**1**	**3**	**0**	**2**	***6***	**4**	**21**	**13**	**14**	*52*
8:45 AM	**1**	**1**	**4**	**4**	***10***	**1**	**3**	**1**	**4**	***9***	**7**	**23**	**6**	**10**	***46***
Count Total	10	8	30	18	*66*	8	11	7	24	*50*	36	156	46	90	*328*
Peak Hour	**3**	**5**	**13**	**9**	***30***	**4**	**8**	**3**	**10**	***25***	**20**	**75**	**31**	**43**	***169***

project.manager.wa@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pike St Eastbound UT	LT	TH	RT	Pike St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	0	3	0	0	0	0	0	0	0	3	0	0	1	4	0	11	0
7:15 AM	0	1	1	0	0	0	2	0	0	1	2	0	0	0	1	0	8	0
7:30 AM	0	0	2	0	0	0	0	0	0	1	3	0	0	1	1	0	8	0
7:45 AM	0	0	0	0	0	0	1	0	0	2	4	1	0	0	1	0	9	36
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**3**	**0**	**11**	36
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**3**	31
8:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**6**	29
8:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**2**	**2**	**0**	**10**	**30**
Count Total	0	2	8	0	0	0	7	1	0	5	24	1	0	4	14	0	66	0
Peak Hour	**0**	**1**	**2**	**0**	**0**	**0**	**4**	**1**	**0**	**1**	**12**	**0**	**0**	**2**	**7**	**0**	**30**	**0**

Two-Hour Count Summaries - Bikes

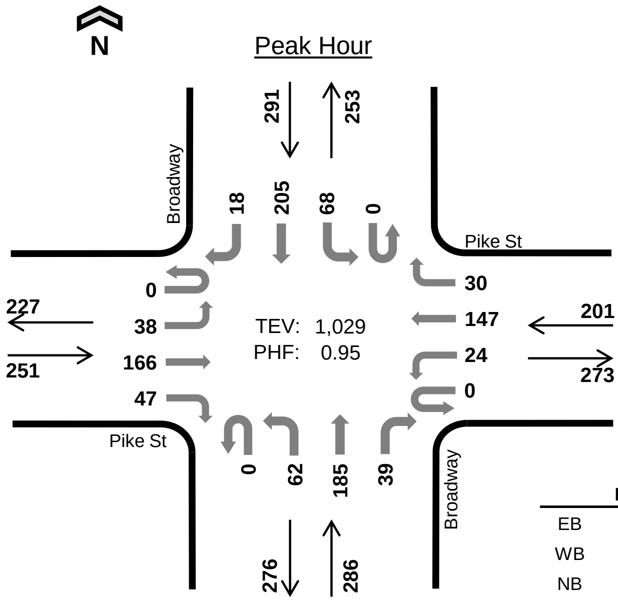
Interval Start	Pike St Eastbound LT	TH	RT	Pike St Westbound LT	TH	RT	Broadway Northbound LT	TH	RT	Broadway Southbound LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	1	0	0	0	0	0	0	0	0	1	1	3	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	0
7:30 AM	0	1	1	0	0	1	1	0	0	0	5	1	10	0
7:45 AM	0	1	0	0	2	0	0	2	0	0	4	0	9	25
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**4**	26
8:15 AM	**0**	**2**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**6**	29
8:30 AM	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	25
8:45 AM	**0**	**1**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**9**	**25**
Count Total	0	7	1	0	10	1	4	3	0	0	21	3	50	0
Peak Hour	**0**	**4**	**0**	**0**	**8**	**0**	**3**	**0**	**0**	**0**	**9**	**1**	**25**	**0**

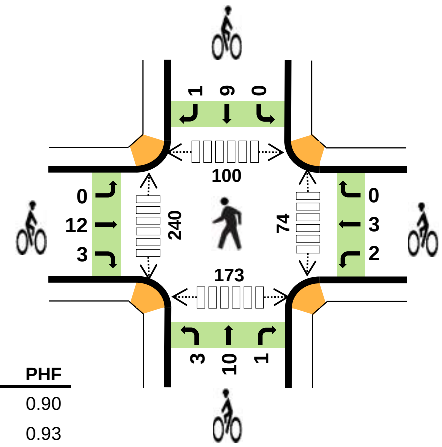
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Broadway
Pike St

Date: 12-03-2020
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:15 PM to 5:15 PM

Peak Hour





	HV %:	PHF
EB	2.8%	0.90
WB	1.0%	0.93
NB	2.1%	0.80
SB	3.1%	0.96
TOTAL	2.3%	0.95

Two-Hour Count Summaries

Interval Start	Pike St Eastbound UT	LT	TH	RT	Pike St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	7	50	14	0	6	35	5	0	14	40	8	0	22	43	9	253	0
4:15 PM	**0**	**11**	**45**	**14**	**0**	**2**	**37**	**4**	**0**	**15**	**48**	**13**	**0**	**21**	**47**	**2**	**259**	0
4:30 PM	**0**	**12**	**47**	**8**	**0**	**8**	**38**	**7**	**0**	**13**	**40**	**5**	**0**	**20**	**51**	**5**	**254**	0
4:45 PM	**0**	**6**	**42**	**11**	**0**	**4**	**35**	**12**	**0**	**11**	**43**	**9**	**0**	**8**	**57**	**7**	**245**	1,011
5:00 PM	**0**	**9**	**32**	**14**	**0**	**10**	**37**	**7**	**0**	**23**	**54**	**12**	**0**	**19**	**50**	**4**	**271**	**1,029**
5:15 PM	0	14	34	10	0	5	28	9	0	17	46	10	0	11	48	8	240	1,010
5:30 PM	0	10	46	7	0	8	41	10	0	16	37	9	0	19	56	6	265	1,021
5:45 PM	0	6	30	7	0	7	43	5	0	20	33	13	0	34	48	6	252	1,028
Count Total	0	75	326	85	0	50	294	59	0	129	341	79	0	154	400	47	2,039	0
Peak Hour All	**0**	**38**	**166**	**47**	**0**	**24**	**147**	**30**	**0**	**62**	**185**	**39**	**0**	**68**	**205**	**18**	**1,029**	**0**
Peak Hour HV	**0**	**3**	**3**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**9**	**0**	**24**	**0**
Peak Hour HV%	**-**	**8%**	**2%**	**2%**	**-**	**0%**	**1%**	**3%**	**-**	**0%**	**3%**	**0%**	**-**	**0%**	**4%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	4	0	3	3	*10*	2	2	0	3	*7*	21	59	27	54	*161*
4:15 PM	**3**	**2**	**2**	**1**	***8***	**4**	**2**	**4**	**1**	***11***	**16**	**49**	**21**	**36**	*122*
4:30 PM	**4**	**0**	**1**	**2**	***7***	**4**	**0**	**4**	**3**	***11***	**16**	**60**	**18**	**51**	*145*
4:45 PM	**0**	**0**	**2**	**1**	***3***	**1**	**2**	**3**	**3**	***9***	**19**	**72**	**33**	**41**	*165*
5:00 PM	**0**	**0**	**1**	**5**	***6***	**6**	**1**	**3**	**3**	***13***	**23**	**59**	**28**	**45**	***155***
5:15 PM	0	0	1	2	*3*	4	5	4	1	*14*	19	52	30	54	*155*
5:30 PM	0	0	2	2	*4*	4	1	3	3	*11*	23	73	28	57	*181*
5:45 PM	0	0	2	1	*3*	3	1	2	0	*6*	16	63	22	42	*143*
Count Total	11	2	14	17	*44*	28	14	23	17	*82*	153	487	207	380	*1,227*
Peak Hour	**7**	**2**	**6**	**9**	***24***	**15**	**5**	**14**	**10**	***44***	**74**	**240**	**100**	**173**	***587***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Pike St Eastbound UT	LT	TH	RT	Pike St Westbound UT	LT	TH	RT	Broadway Northbound UT	LT	TH	RT	Broadway Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	2	2	0	0	0	0	0	0	0	3	0	0	1	2	0	10	0
4:15 PM	**0**	**2**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**8**	0
4:30 PM	**0**	**1**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**7**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**3**	28
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**6**	**24**
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	19
5:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	4	16
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	3	16
Count Total	0	5	5	1	0	0	1	1	0	1	13	0	0	2	15	0	44	0
Peak Hour	**0**	**3**	**3**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**9**	**0**	**24**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Pike St Eastbound LT	TH	RT	Pike St Westbound LT	TH	RT	Broadway Northbound LT	TH	RT	Broadway Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	2	0	0	2	0	0	0	0	0	3	0	7	0
4:15 PM	**0**	**3**	**1**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**11**	0
4:30 PM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**3**	**0**	**11**	0
4:45 PM	**0**	**0**	**1**	**0**	**2**	**0**	**1**	**2**	**0**	**0**	**2**	**1**	**9**	38
5:00 PM	**0**	**5**	**1**	**0**	**1**	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**13**	**44**
5:15 PM	0	2	2	0	5	0	0	3	1	0	1	0	14	47
5:30 PM	0	4	0	1	0	0	0	2	1	0	3	0	11	47
5:45 PM	0	3	0	0	1	0	0	1	1	0	0	0	6	44
Count Total	0	23	5	3	11	0	3	16	4	0	16	1	82	0
Peak Hour	**0**	**12**	**3**	**2**	**3**	**0**	**3**	**10**	**1**	**0**	**9**	**1**	**44**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Counted by ::
Counter No ::
Weather ::
Comments ::

City of Seattle
700 Fifth Avenue
Suite 3764
Seattle, Washington, United States 98124
206-684-6816

Count Name: #17036 BROADWAY & E HOWELL ST
Site Code: 39072
Start Date: 03/21/2017

Turning Movement Peak Hour Data (8:00 AM)

Start Time	BROADWAY Southbound				E HOWELL ST Westbound				BROADWAY Northbound					
	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
8:00 AM	80	0	17	80	1	4	16	5	1	42	0	9	43	128
8:15 AM	88	0	13	88	0	1	18	1	6	41	0	5	47	136
8:30 AM	113	0	19	113	0	2	20	2	2	41	0	4	43	158
8:45 AM	107	0	15	107	0	0	19	0	4	43	0	6	47	154
Total	388	0	64	388	1	7	73	8	13	167	0	24	180	576
Approach %	100.0	0.0	-	-	12.5	87.5	-	-	7.2	92.8	0.0	-	-	-
Total %	67.4	0.0	-	67.4	0.2	1.2	-	1.4	2.3	29.0	0.0	-	31.3	-
PHF	0.858	0.000	-	0.858	0.250	0.438	-	0.400	0.542	0.971	0.000	-	0.957	0.911
Lights	354	0	-	354	1	7	-	8	13	136	0	-	149	511
% Lights	91.2	-	-	91.2	100.0	100.0	-	100.0	100.0	81.4	-	-	82.8	88.7
Other Vehicles	26	0	-	26	0	0	-	0	0	27	0	-	27	53
% Other Vehicles	6.7	-	-	6.7	0.0	0.0	-	0.0	0.0	16.2	-	-	15.0	9.2
Bicycles on Road	8	0	-	8	0	0	-	0	0	4	0	-	4	12
% Bicycles on Road	2.1	-	-	2.1	0.0	0.0	-	0.0	0.0	2.4	-	-	2.2	2.1
Bicycles on Crosswalk	-	-	0	-	-	-	17	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	0.0	-	-	-	23.3	-	-	-	-	0.0	-	-
Pedestrians	-	-	64	-	-	-	56	-	-	-	-	24	-	-
% Pedestrians	-	-	100.0	-	-	-	76.7	-	-	-	-	100.0	-	-

Counted by ::
Counter No ::
Weather ::
Comments ::

City of Seattle

700 Fifth Avenue
Suite 3764
Seattle, Washington, United States 98124
206-684-6816

Count Name: #17036 BROADWAY & E HOWELL ST
Site Code: 39072
Start Date: 03/21/2017

Peak Hour Data

03/21/2017 8:00 AM
Ending At
03/21/2017 9:00 AM

Lights
Other Vehicles
Bicycles on Road
Bicycles on Crosswalk
Pedestrians

BROADWAY [N]

Out	In	Total
137	354	491
27	26	53
4	8	12
0	0	0
0	0	0
168	**388**	**556**

T	L	P
354	0	0
26	0	0
8	0	0
0	0	0
0	0	64
388	**0**	**64**

Fake Approach [W]

Out	In	Total
0	0	0
0	0	0
0	0	0
0	0	0
0	0	0
0	**0**	**0**

E HOWELL ST [E]

Out	In	Total
13	8	21
0	0	0
0	0	0
0	0	0
0	0	0
13	**8**	**21**

R	L	P
1	7	0
0	0	0
0	0	0
0	0	17
0	0	56
1	**7**	**73**

L	T	R	P
0	136	13	0
0	27	0	0
0	4	0	0
0	0	0	0
0	0	0	24
0	**167**	**13**	**24**

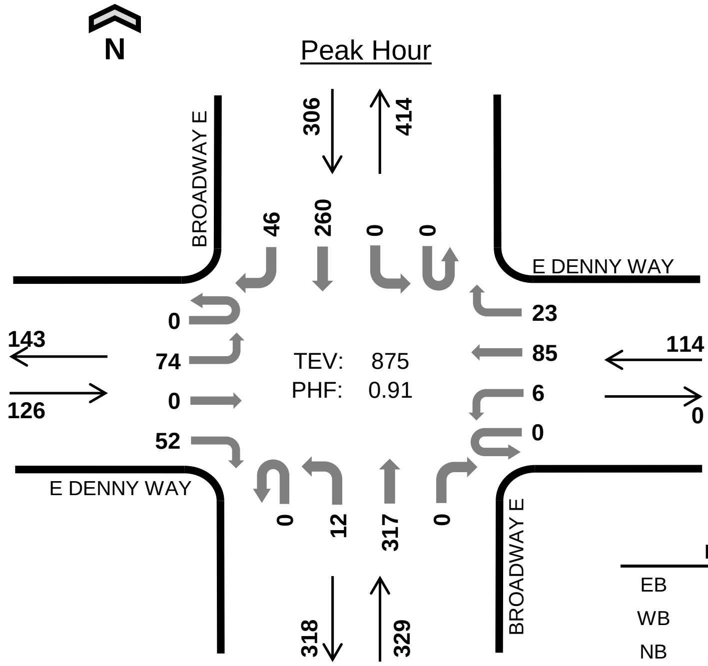
Out	In	Total
361	149	510
26	27	53
8	4	12
0	0	0
0	0	0
395	**180**	**575**

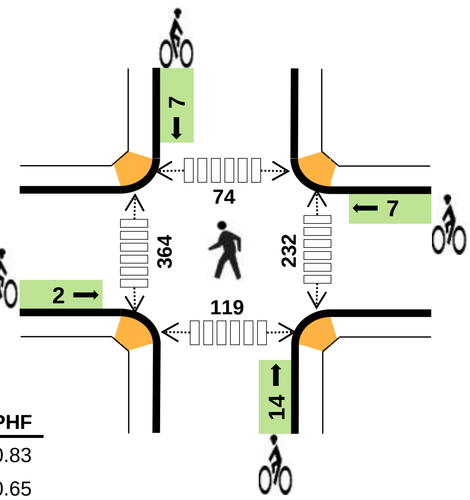
BROADWAY [S]

Turning Movement Peak Hour Data Plot (8:00 AM)

BROADWAY E
E DENNY WAY

Date: Thu, Feb 08, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	3.2%	0.83
WB	0.0%	0.65
NB	6.1%	0.88
SB	4.6%	0.89
TOTAL	4.3%	0.91

Two-Hour Count Summaries

Interval Start	E DENNY WAY				E DENNY WAY				BROADWAY E				BROADWAY E				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	19	0	11	0	1	21	8	0	3	61	0	0	0	59	6	189	0
4:15 PM	0	10	0	11	0	4	24	7	1	1	77	0	0	0	76	11	222	0
4:30 PM	**0**	**23**	**0**	**15**	**0**	**3**	**9**	**3**	**0**	**7**	**87**	**0**	**0**	**0**	**68**	**14**	**229**	0
4:45 PM	**0**	**16**	**0**	**15**	**0**	**2**	**20**	**5**	**0**	**2**	**73**	**0**	**0**	**0**	**71**	**7**	**211**	851
5:00 PM	**0**	**17**	**0**	**7**	**0**	**0**	**21**	**7**	**0**	**2**	**80**	**0**	**0**	**0**	**52**	**8**	**194**	856
5:15 PM	**0**	**18**	**0**	**15**	**0**	**1**	**35**	**8**	**0**	**1**	**77**	**0**	**0**	**0**	**69**	**17**	**241**	**875**
5:30 PM	0	8	0	16	0	2	20	5	0	3	74	0	0	0	55	7	190	836
5:45 PM	0	16	0	13	0	3	28	4	0	6	73	0	0	0	74	9	226	851
Count Total	0	127	0	103	0	16	178	47	1	25	602	0	0	0	524	79	1,702	0
Peak Hour	**0**	**74**	**0**	**52**	**0**	**6**	**85**	**23**	**0**	**12**	**317**	**0**	**0**	**0**	**260**	**46**	**875**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

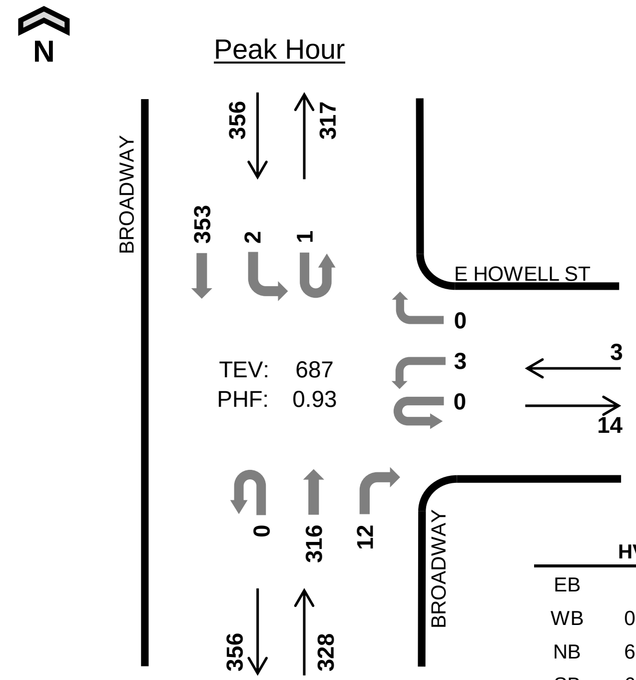
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	2	2	6	*11*	0	2	5	1	*8*	56	74	11	25	*166*
4:15 PM	0	2	5	3	*10*	2	0	4	0	*6*	49	77	10	22	*158*
4:30 PM	**1**	**0**	**9**	**4**	***14***	**1**	**1**	**3**	**1**	***6***	**39**	**71**	**16**	**29**	*155*
4:45 PM	**2**	**0**	**2**	**5**	***9***	**0**	**1**	**4**	**1**	***6***	**60**	**92**	**16**	**32**	*200*
5:00 PM	**0**	**0**	**5**	**3**	***8***	**0**	**3**	**4**	**0**	***7***	**50**	**92**	**20**	**27**	*189*
5:15 PM	**1**	**0**	**4**	**2**	***7***	**1**	**2**	**3**	**5**	***11***	**83**	**109**	**22**	**31**	***245***
5:30 PM	1	0	4	3	*8*	1	0	5	2	*8*	50	91	17	36	*194*
5:45 PM	0	0	2	5	*7*	1	1	4	2	*8*	66	84	6	39	*195*
Count Total	6	4	33	31	*74*	6	10	32	12	*60*	453	690	118	241	*1,502*
Peak Hour	**4**	**0**	**20**	**14**	***38***	**2**	**7**	**14**	**7**	***30***	**232**	**364**	**74**	**119**	***789***

Mark Skaggs: (425) 250-0777 mark.skaggs@idaxdata.com

BROADWAY
E HOWELL ST

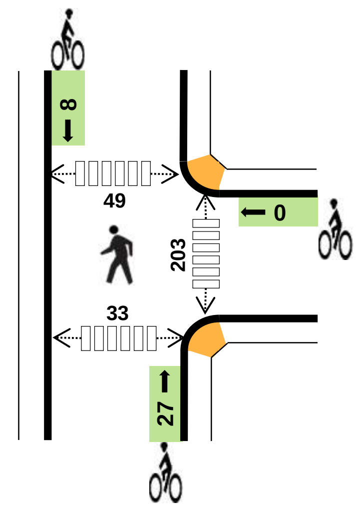
Date: Thu, Feb 08, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour



TEV: 687
PHF: 0.93

	HV %:	PHF
EB	-	-
WB	0.0%	0.38
NB	6.7%	0.91
SB	6.2%	0.91
TOTAL	6.4%	0.93



Two-Hour Count Summaries

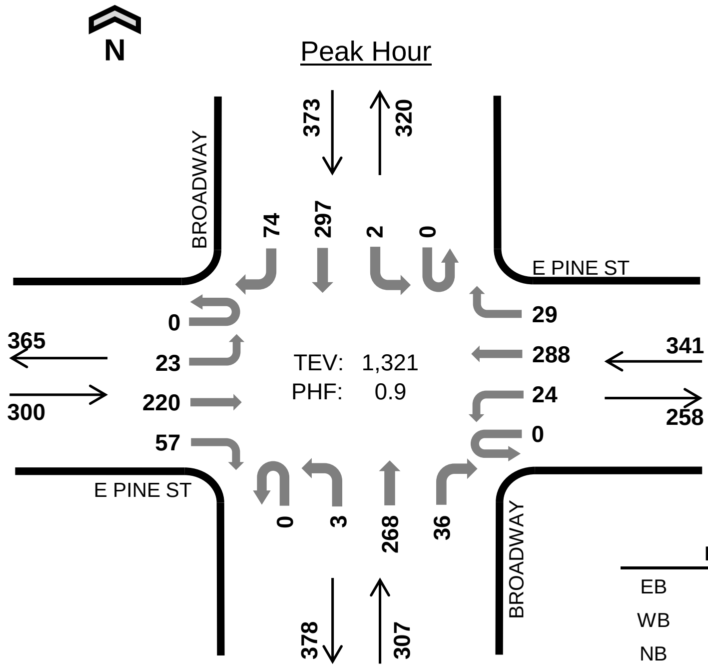
Interval Start	0				E HOWELL ST				BROADWAY				BROADWAY				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**71**	**6**	**0**	**0**	**73**	**0**	**152**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**82**	**3**	**0**	**0**	**98**	**0**	**184**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**89**	**1**	**0**	**1**	**90**	**0**	**181**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**74**	**2**	**1**	**1**	**92**	**0**	**170**	**687**
5:00 PM	0	0	0	0	0	1	0	1	0	0	75	3	0	1	59	0	140	675
5:15 PM	0	0	0	0	0	0	0	2	0	0	84	8	0	1	88	0	183	674
5:30 PM	0	0	0	0	0	2	0	2	0	0	81	9	0	0	76	0	170	663
5:45 PM	0	0	0	0	0	1	0	0	0	0	85	3	0	0	94	0	183	676
Count Total	0	0	0	0	0	7	0	5	0	0	641	35	1	4	670	0	1,363	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**316**	**12**	**1**	**2**	**353**	**0**	**687**	**0**

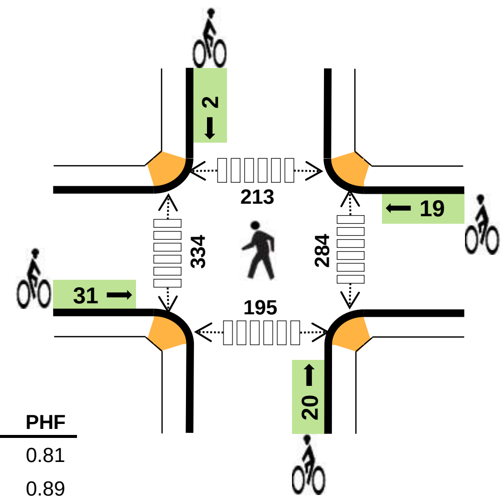
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**0**	**0**	**6**	**6**	***12***	**0**	**0**	**8**	**1**	***9***	**45**	**0**	**16**	**7**	*68*
4:15 PM	**0**	**0**	**5**	**4**	***9***	**0**	**0**	**5**	**1**	***6***	**44**	**0**	**10**	**4**	*58*
4:30 PM	**0**	**0**	**8**	**6**	***14***	**0**	**0**	**6**	**3**	***9***	**53**	**0**	**14**	**8**	*75*
4:45 PM	**0**	**0**	**3**	**6**	***9***	**0**	**0**	**8**	**3**	***11***	**61**	**0**	**9**	**14**	*84*
5:00 PM	0	0	6	4	*10*	0	1	2	1	*4*	45	0	20	10	*75*
5:15 PM	0	1	5	3	*9*	0	1	6	6	*13*	81	0	24	18	*123*
5:30 PM	0	0	5	4	*9*	0	0	8	1	*9*	57	0	11	6	*74*
5:45 PM	0	0	3	7	*10*	0	0	5	3	*8*	62	0	9	6	*77*
Count Total	0	1	41	40	*82*	0	2	48	19	*69*	448	0	113	73	*634*
Peak Hr	**0**	**0**	**22**	**22**	***44***	**0**	**0**	**27**	**8**	***35***	**203**	**0**	**49**	**33**	***285***

BROADWAY
E PINE ST

Date: Thu, Feb 08, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM





	HV %:	PHF
EB	6.7%	0.81
WB	2.9%	0.89
NB	5.5%	0.94
SB	5.4%	0.95
TOTAL	5.1%	0.90

Two-Hour Count Summaries

Interval Start	E PINE ST Eastbound UT	LT	TH	RT	E PINE ST Westbound UT	LT	TH	RT	BROADWAY Northbound UT	LT	TH	RT	BROADWAY Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	**0**	**4**	**45**	**18**	**0**	**4**	**73**	**6**	**0**	**1**	**59**	**7**	**0**	**0**	**83**	**15**	**315**	0
4:15 PM	**0**	**7**	**70**	**16**	**0**	**11**	**79**	**6**	**0**	**1**	**71**	**8**	**0**	**1**	**76**	**20**	**366**	0
4:30 PM	**0**	**7**	**68**	**12**	**0**	**5**	**74**	**12**	**0**	**1**	**70**	**11**	**0**	**0**	**75**	**18**	**353**	0
4:45 PM	**0**	**5**	**37**	**11**	**0**	**4**	**62**	**5**	**0**	**0**	**68**	**10**	**0**	**1**	**63**	**21**	**287**	**1,321**
5:00 PM	0	7	57	11	0	2	66	9	0	0	66	10	0	0	55	14	297	1,303
5:15 PM	0	7	58	6	0	7	80	8	0	0	75	13	0	0	74	6	334	1,271
5:30 PM	0	3	34	19	0	5	69	6	0	1	79	14	0	2	66	15	313	1,231
5:45 PM	0	5	42	15	0	7	80	8	0	2	86	9	0	0	76	20	350	1,294
Count Total	0	45	411	108	0	45	583	60	0	6	574	82	0	4	568	129	2,615	0
Peak Hour	**0**	**23**	**220**	**57**	**0**	**24**	**288**	**29**	**0**	**3**	**268**	**36**	**0**	**2**	**297**	**74**	**1,321**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

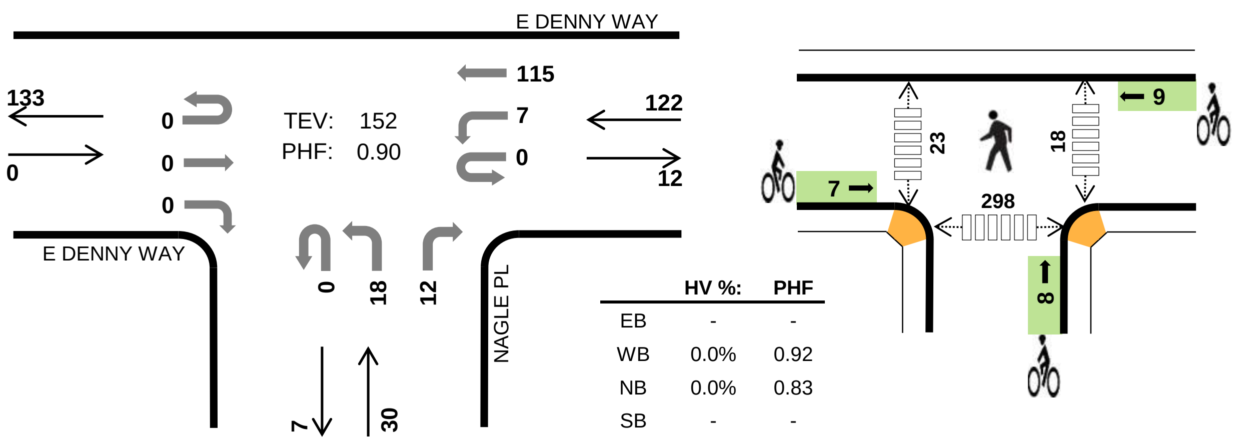
Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	**6**	**2**	**4**	**7**	***19***	**6**	**6**	**3**	**0**	***15***	**53**	**74**	**50**	**57**	*234*
4:15 PM	**6**	**5**	**4**	**3**	***18***	**7**	**4**	**3**	**0**	***14***	**73**	**77**	**39**	**42**	*231*
4:30 PM	**2**	**2**	**8**	**6**	***18***	**4**	**5**	**7**	**1**	***17***	**76**	**97**	**56**	**44**	*273*
4:45 PM	**6**	**1**	**1**	**4**	***12***	**14**	**4**	**7**	**1**	***26***	**82**	**86**	**68**	**52**	*288*
5:00 PM	5	1	6	6	*18*	11	3	3	3	*20*	56	112	60	73	*301*
5:15 PM	2	2	3	3	*10*	9	2	10	4	*25*	65	104	74	71	*314*
5:30 PM	1	1	5	3	*10*	13	4	5	1	*23*	89	97	57	100	*343*
5:45 PM	3	2	2	8	*15*	13	2	6	2	*23*	74	84	62	87	*307*
Count Total	31	16	33	40	*120*	77	30	44	12	*163*	568	731	466	526	*2,291*
Peak Hour	**20**	**10**	**17**	**20**	***67***	**31**	**19**	**20**	**2**	***72***	**284**	**334**	**213**	**195**	***1,026***

NAGLE PL
E DENNY WAY

N

Peak Hour

Date: Thu, Feb 08, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	-	-
WB	0.0%	0.92
NB	0.0%	0.83
SB	-	-
TOTAL	0.0%	0.90

Two-Hour Count Summaries

Interval Start	E DENNY WAY Eastbound UT	LT	TH	RT	E DENNY WAY Westbound UT	LT	TH	RT	NAGLE PL Northbound UT	LT	TH	RT	0 Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	2	29	0	0	2	0	2	0	0	0	0	35	0
4:15 PM	0	0	0	0	0	6	32	0	0	5	0	2	0	0	0	0	45	0
4:30 PM	0	0	0	0	0	1	18	0	0	1	0	4	0	0	0	0	24	0
4:45 PM	0	0	0	0	0	2	24	0	0	4	0	2	0	0	0	0	32	136
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**0**	**3**	**0**	**6**	**0**	**0**	**0**	**0**	**39**	140
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**32**	**0**	**0**	**8**	**0**	**1**	**0**	**0**	**0**	**0**	**42**	137
5:30 PM	**0**	**0**	**0**	**0**	**0**	**4**	**22**	**0**	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**33**	146
5:45 PM	**0**	**0**	**0**	**0**	**0**	**2**	**31**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**38**	**152**
Count Total	0	0	0	0	0	18	218	0	0	30	0	22	0	0	0	0	288	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**7**	**115**	**0**	**0**	**18**	**0**	**12**	**0**	**0**	**0**	**0**	**152**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

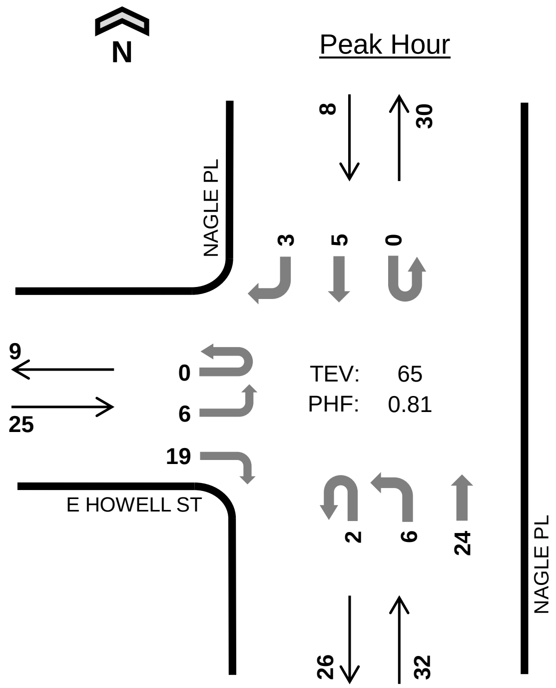
Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	0	2	0	0	*2*	4	0	3	0	*7*	0	2	0	48	*50*
4:15 PM	0	2	0	0	*2*	5	0	1	0	*6*	4	6	0	45	*55*
4:30 PM	0	0	0	0	*0*	1	1	5	0	*7*	2	7	0	53	*62*
4:45 PM	0	0	0	0	*0*	2	1	1	0	*4*	2	3	0	67	*72*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**1**	**0**	***5***	**4**	**8**	**0**	**58**	*70*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**1**	**4**	**3**	**0**	***8***	**6**	**5**	**0**	**77**	*88*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	***1***	**3**	**6**	**0**	**72**	*81*
5:45 PM	**0**	**0**	**0**	**0**	***0***	**5**	**1**	**4**	**0**	***10***	**5**	**4**	**0**	**91**	***100***
Count Total	0	4	0	0	*4*	19	11	18	0	*48*	26	41	0	511	*578*
Peak Hr	**0**	**0**	**0**	**0**	***0***	**7**	**9**	**8**	**0**	***24***	**18**	**23**	**0**	**298**	***339***

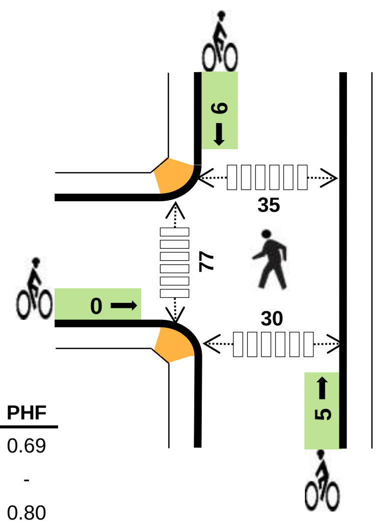
Mark Skaggs: (425) 250-0777 mark.skaggs@idaxdata.com

NAGLE PL
E HOWELL ST

idax

Date: Thu, Feb 08, 2018
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.0%	0.69
WB	-	-
NB	3.1%	0.80
SB	0.0%	0.50
TOTAL	1.5%	0.81

Two-Hour Count Summaries

Interval Start	E HOWELL ST Eastbound UT	LT	TH	RT	0 Westbound UT	LT	TH	RT	NAGLE PL Northbound UT	LT	TH	RT	NAGLE PL Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	1	0	5	0	0	0	0	0	1	3	0	0	0	2	1	13	0
4:15 PM	0	1	0	2	0	0	0	0	0	1	5	0	0	0	5	0	14	0
4:30 PM	0	0	0	2	0	0	0	0	0	0	5	0	0	0	1	0	8	0
4:45 PM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**1**	**1**	**12**	47
5:00 PM	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**1**	**0**	**14**	48
5:15 PM	**0**	**2**	**0**	**7**	**0**	**0**	**0**	**0**	**1**	**2**	**7**	**0**	**0**	**0**	**1**	**0**	**20**	54
5:30 PM	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**2**	**3**	**0**	**0**	**0**	**2**	**2**	**19**	**65**
5:45 PM	0	2	0	2	0	0	0	0	1	1	3	0	0	0	2	0	11	64
Count Total	0	10	0	30	0	0	0	0	3	9	40	0	0	0	15	4	111	0
Peak Hour	**0**	**6**	**0**	**19**	**0**	**0**	**0**	**0**	**2**	**6**	**24**	**0**	**0**	**0**	**5**	**3**	**65**	**0**

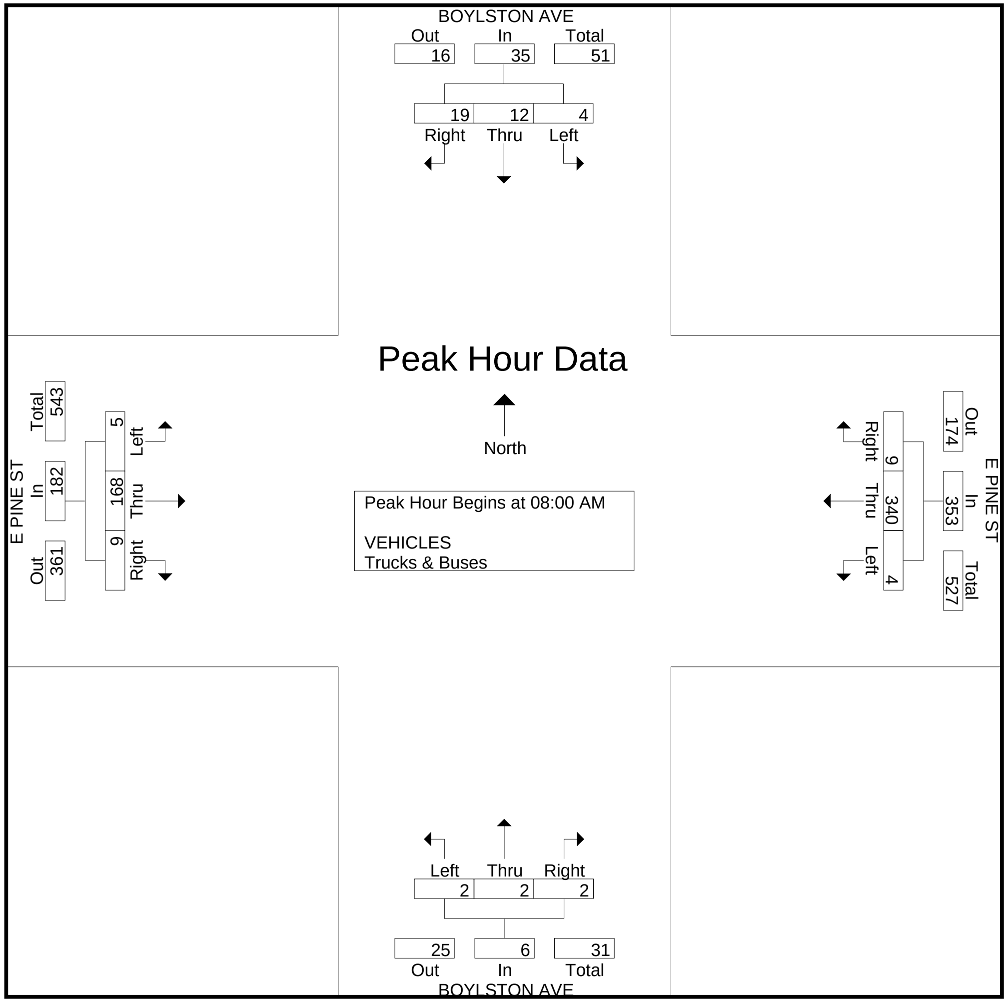
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	0	0	0	*1*	0	0	1	0	*1*	0	16	12	4	*32*
4:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	10	5	0	*15*
4:30 PM	0	0	0	0	*0*	0	0	4	1	*5*	0	7	7	8	*22*
4:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***	**0**	**9**	**7**	**9**	*25*
5:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**2**	***4***	**0**	**28**	**12**	**6**	*46*
5:15 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**2**	**3**	***5***	**0**	**27**	**8**	**9**	*44*
5:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***	**0**	**13**	**8**	**6**	*27*
5:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	29	11	2	*42*
Count Total	1	0	1	0	*2*	0	0	10	7	*17*	0	139	70	44	*253*
Peak Hr	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**5**	**6**	***11***	**0**	**77**	**35**	**30**	***142***

CITY OF SEATTLE
DEPT OF TRANSPORTATION

Counted by: JR
Counter No: 1024
Weather: SUNNY
Comments:

File Name : C_190a12
Site Code : 00071102
Start Date : 7/11/2012
Page No : 4



CITY OF SEATTLE
DEPARTMENT OF TRANSPORTATION

Counted By: BR
Counter No: 1023
Weather: SUNNY
Comments:

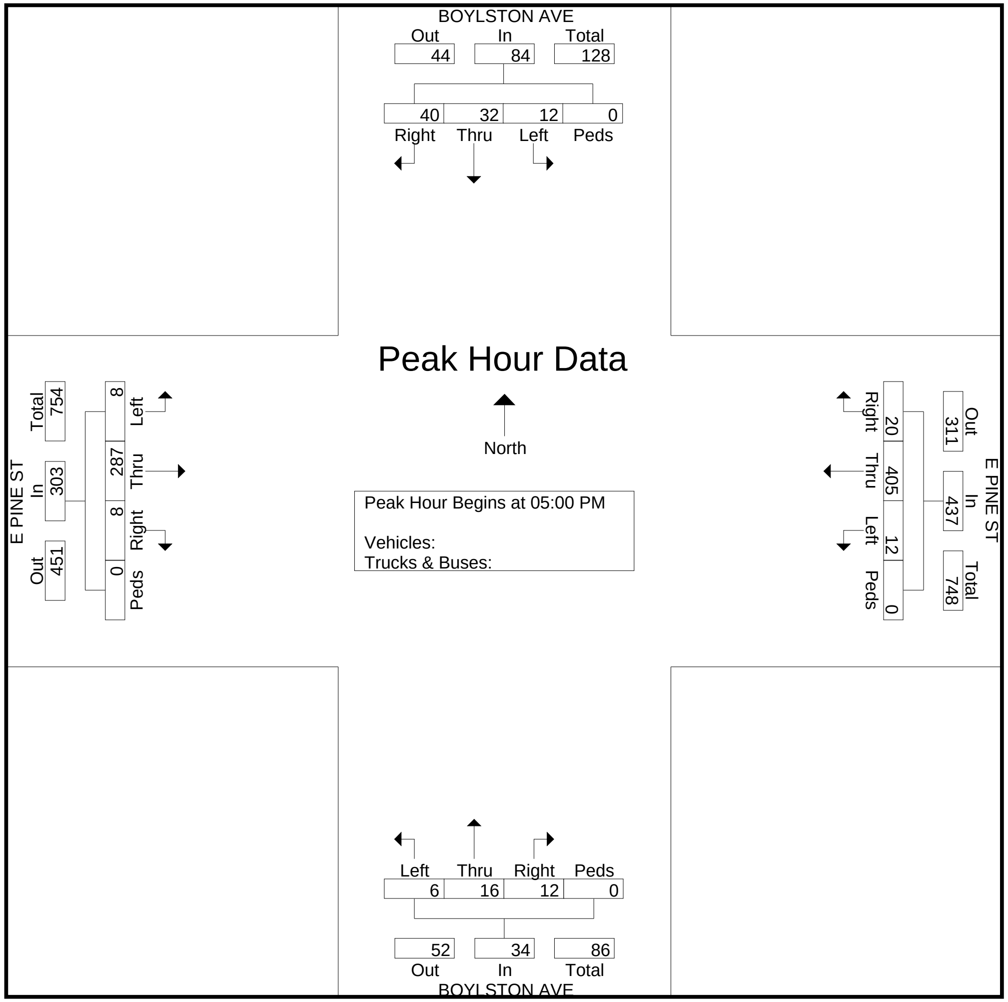
File Name : C190op12
Site Code : 00052403
Start Date : 5/24/2012
Page No : 3

	BOYLSTON AVE From North					E PINE ST From East					BOYLSTON AVE From South					E PINE ST From West					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 01:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	3	8	10	0	21	**5**	95	**7**	0	107	1	4	**3**	0	8	0	67	**2**	0	69	205
05:15 PM	**5**	8	10	0	**23**	3	101	5	0	109	1	4	3	0	8	2	65	2	0	69	209
05:30 PM	1	7	9	0	17	2	**105**	3	0	110	**2**	3	3	0	8	**3**	63	2	0	68	203
05:45 PM	3	**9**	**11**	0	23	2	104	5	0	**111**	2	**5**	3	0	**10**	3	**92**	2	0	**97**	**241**
Total Volume	12	32	40	0	84	12	405	20	0	437	6	16	12	0	34	8	287	8	0	303	858
% App. Total	14.3	38.1	47.6	0		2.7	92.7	4.6	0		17.6	47.1	35.3	0		2.6	94.7	2.6	0		
PHF	.600	.889	.909	.000	.913	.600	.964	.714	.000	.984	.750	.800	1.000	.000	.850	.667	.780	1.000	.000	.781	.890

CITY OF SEATTLE
DEPARTMENT OF TRANSPORTATION

Counted By: BR
Counter No: 1023
Weather: SUNNY
Comments:

File Name : C190op12
Site Code : 00052403
Start Date : 5/24/2012
Page No : 4



CITY OF SEATTLE

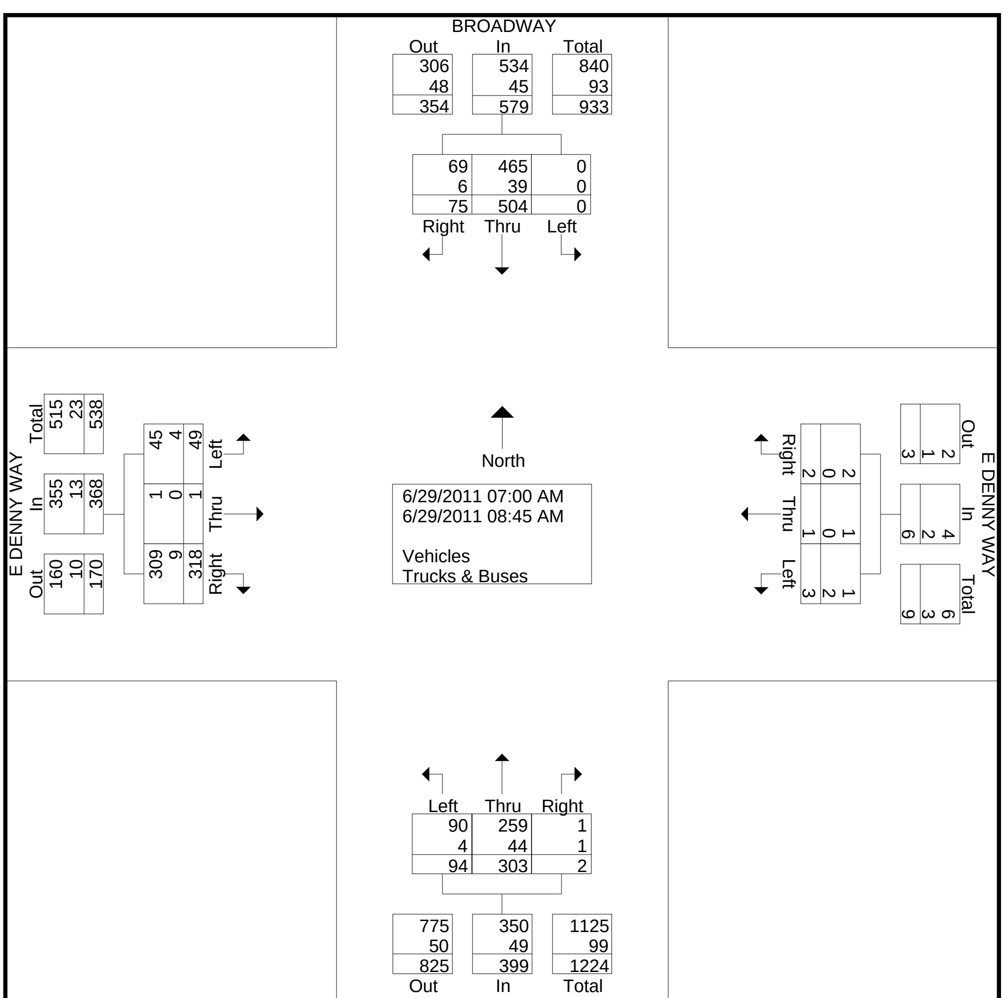
Dept of Transportation

Counted by: JH
Counter No: 1690
Weather: CLEAR
Comments:

File Name : C_023a11
Site Code : 00062901
Start Date : 6/29/2011
Page No : 1

Groups Printed- Vehicles - Trucks & Buses

	BROADWAY From North				E DENNY WAY From East				BROADWAY From South				E DENNY WAY From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
07:00 AM	6	39	0	45	0	0	1	1	1	22	7	30	33	0	2	35	111
07:15 AM	4	47	0	51	0	0	0	0	0	27	3	30	31	0	5	36	117
07:30 AM	8	56	0	64	0	0	1	1	0	31	9	40	43	0	9	52	157
07:45 AM	12	77	0	89	0	1	1	2	1	41	10	52	37	0	8	45	188
Total	30	219	0	249	0	1	3	4	2	121	29	152	144	0	24	168	573
08:00 AM	10	65	0	75	0	0	0	0	0	38	15	53	43	0	9	52	180
08:15 AM	8	74	0	82	0	0	0	0	0	42	20	62	45	0	5	50	194
08:30 AM	9	75	0	84	1	0	0	1	0	49	12	61	51	1	5	57	203
08:45 AM	18	71	0	89	1	0	0	1	0	53	18	71	35	0	6	41	202
Total	45	285	0	330	2	0	0	2	0	182	65	247	174	1	25	200	779
Grand Total	75	504	0	579	2	1	3	6	2	303	94	399	318	1	49	368	1352
Apprch %	13	87	0		33.3	16.7	50		0.5	75.9	23.6		86.4	0.3	13.3		
Total %	5.5	37.3	0	42.8	0.1	0.1	0.2	0.4	0.1	22.4	7	29.5	23.5	0.1	3.6	27.2	
Vehicles	69	465	0	534	2	1	1	4	1	259	90	350	309	1	45	355	1243
% Vehicles	92	92.3	0	92.2	100	100	33.3	66.7	50	85.5	95.7	87.7	97.2	100	91.8	96.5	91.9
Trucks & Buses	6	39	0	45	0	0	2	2	1	44	4	49	9	0	4	13	109
% Trucks & Buses	8	7.7	0	7.8	0	0	66.7	33.3	50	14.5	4.3	12.3	2.8	0	8.2	3.5	8.1



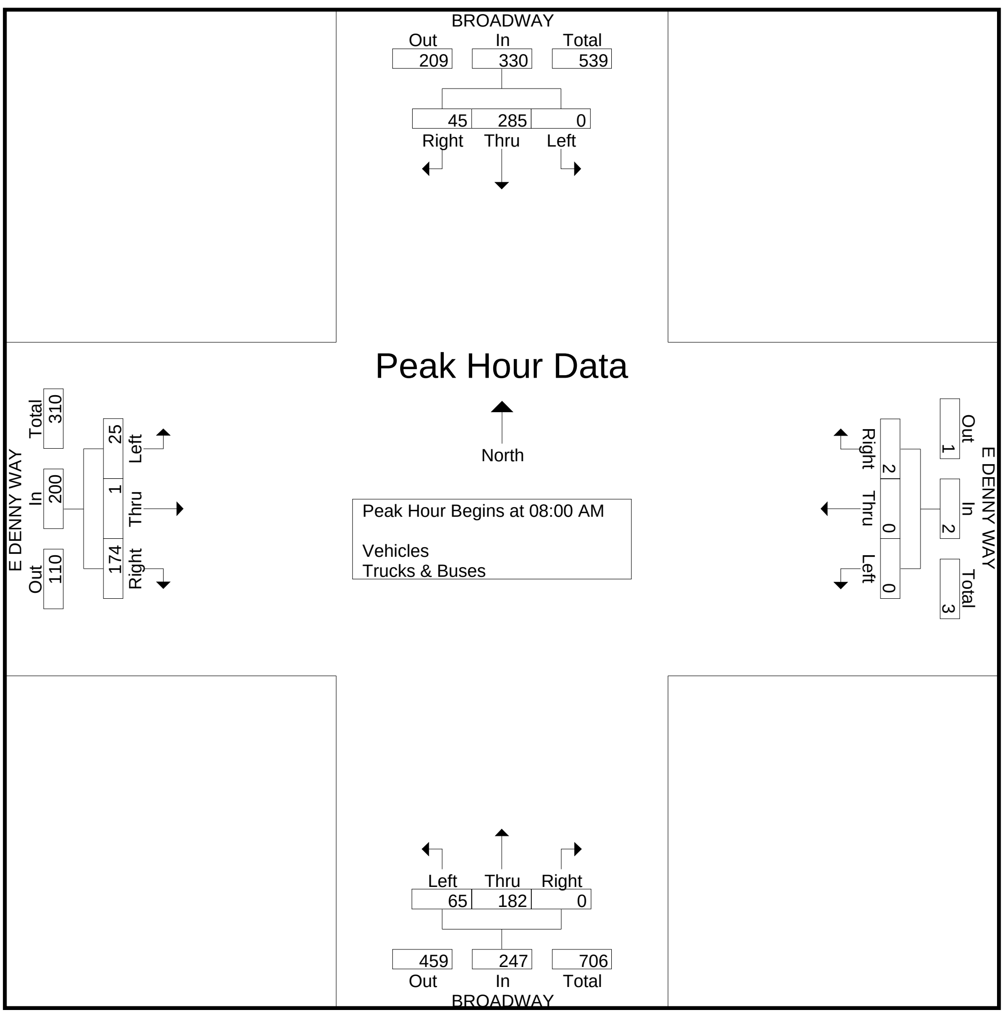
CITY OF SEATTLE

Dept of Transportation

Counted by: JH
Counter No: 1690
Weather: CLEAR
Comments:

File Name : C_023a11
Site Code : 00062901
Start Date : 6/29/2011
Page No : 2

	BROADWAY From North				E DENNY WAY From East				BROADWAY From South				E DENNY WAY From West				
Start Time	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Right	Thru	Left	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	10	65	0	75	0	0	0	0	0	38	15	53	43	0	**9**	52	180
08:15 AM	8	74	0	82	0	0	0	0	0	42	**20**	62	45	0	5	50	194
08:30 AM	9	**75**	0	84	**1**	0	0	**1**	0	49	12	61	**51**	**1**	5	**57**	**203**
08:45 AM	**18**	71	0	**89**	1	0	0	1	0	**53**	18	**71**	35	0	6	41	202
Total Volume	45	285	0	330	2	0	0	2	0	182	65	247	174	1	25	200	779
% App. Total	13.6	86.4	0		100	0	0		0	73.7	26.3		87	0.5	12.5		
PHF	.625	.950	.000	.927	.500	.000	.000	.500	.000	.858	.813	.870	.853	.250	.694	.877	.959



CITY OF SEATTLE

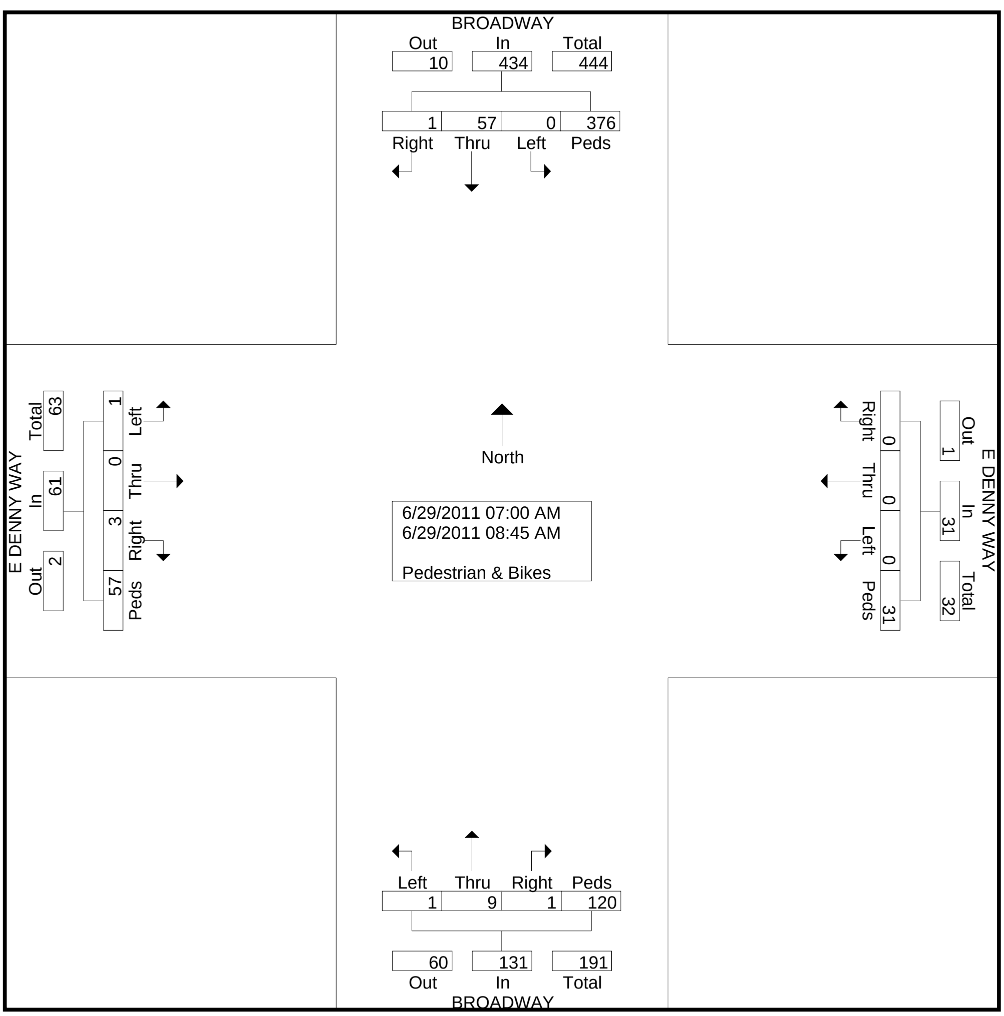
Dept of Transportation

Counted by: JH
Counter No: 1690
Weather: CLEAR
Comments:

File Name : C_023a11
Site Code : 00062901
Start Date : 6/29/2011
Page No : 1

Groups Printed- Pedestrian & Bikes

	BROADWAY From North					E DENNY WAY From East					BROADWAY From South					E DENNY WAY From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	10	0	21	31	0	0	0	2	2	0	1	0	6	7	0	0	0	1	1	41
07:15 AM	0	7	0	30	37	0	0	0	3	3	1	3	0	9	13	1	0	0	7	8	61
07:30 AM	0	7	0	40	47	0	0	0	3	3	0	0	0	16	16	0	0	0	4	4	70
07:45 AM	1	5	0	81	87	0	0	0	5	5	0	1	1	22	24	0	0	0	10	10	126
Total	1	29	0	172	202	0	0	0	13	13	1	5	1	53	60	1	0	0	22	23	298
08:00 AM	0	9	0	53	62	0	0	0	1	1	0	2	0	7	9	0	0	0	5	5	77
08:15 AM	0	3	0	43	46	0	0	0	5	5	0	0	0	35	35	0	0	0	10	10	96
08:30 AM	0	10	0	53	63	0	0	0	6	6	0	0	0	15	15	1	0	1	4	6	90
08:45 AM	0	6	0	55	61	0	0	0	6	6	0	2	0	10	12	1	0	0	16	17	96
Total	0	28	0	204	232	0	0	0	18	18	0	4	0	67	71	2	0	1	35	38	359
Grand Total	1	57	0	376	434	0	0	0	31	31	1	9	1	120	131	3	0	1	57	61	657
Apprch %	0.2	13.1	0	86.6		0	0	0	100		0.8	6.9	0.8	91.6		4.9	0	1.6	93.4		
Total %	0.2	8.7	0	57.2	66.1	0	0	0	4.7	4.7	0.2	1.4	0.2	18.3	19.9	0.5	0	0.2	8.7	9.3	



Prepared for: **Transpo Group**

Traffic Count Consultants, Inc.

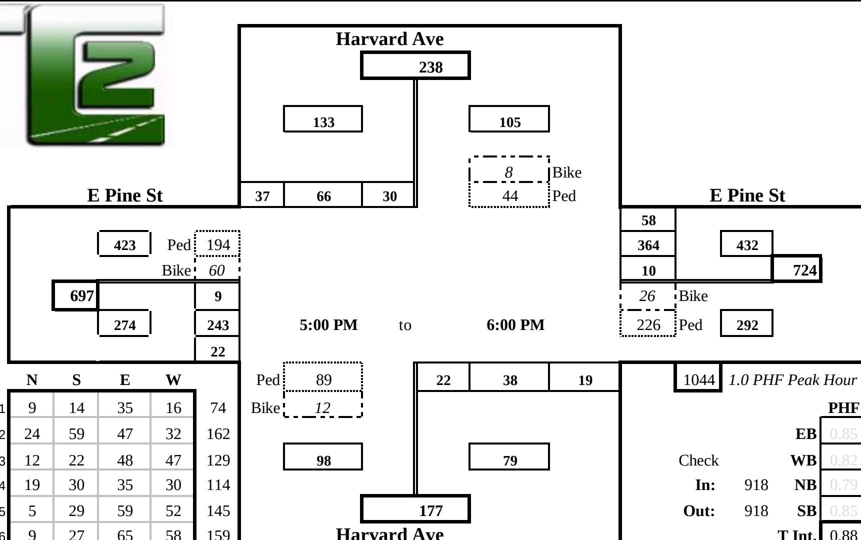
Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Harvard Ave & E Pine St — **Date of Count:** Thurs 6/28/2012

Location: Capitol Hill, Washington — **Checked By:** Jess

Time Interval Ending at	From North on (SB) Harvard Ave T	L	S	R	From South on (NB) Harvard Ave T	L	S	R	From East on (WB) E Pine St T	L	S	R	From West on (EB) E Pine St T	L	S	R	Interval Total
4:15 P	0	14	17	5	1	5	15	5	7	2	89	7	5	4	32	1	196
4:30 P	0	10	20	9	0	8	3	3	4	1	102	11	4	4	44	4	219
4:45 P	0	3	14	13	0	3	14	8	4	3	94	7	4	1	50	3	213
5:00 P	1	6	11	12	0	5	12	7	6	1	83	15	4	4	42	3	201
5:15 P	0	9	13	4	0	4	10	7	5	1	93	15	4	3	62	4	225
5:30 P	0	5	16	14	0	7	9	2	6	5	86	11	3	3	54	2	214
5:45 P	0	10	18	11	2	5	14	6	7	2	104	26	4	2	60	3	261
6:00 P	0	6	19	8	0	6	5	4	4	2	81	6	5	1	67	13	218
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	1	63	128	76	3	43	82	42	43	17	732	98	33	22	411	33	1747
	Peak Hour: 5:00 PM to 6:00 PM																
Total	0	30	66	37	2	22	38	19	22	10	364	58	16	9	243	22	918
Approach	133				79				432				274				918
%HV	n/a				2.5%				5.1%				5.8%				4.4%
PHF	0.85				0.79				0.82				0.85				0.88



1044 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	Total
INT 01	9	14	35	16	74
INT 02	24	59	47	32	162
INT 03	12	22	48	47	129
INT 04	19	30	35	30	114
INT 05	5	29	59	52	145
INT 06	9	27	65	58	159
INT 07	19	22	55	38	134
INT 08	11	11	47	46	115
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	108	214	391	319	1032

Bicycles From:	N	S	E	W	Total
INT 01		2	5	3	10
INT 02	3	2	7	8	20
INT 03			8	9	17
INT 04		1	7	14	22
INT 05	1	4	7	13	25
INT 06	2	4	6	17	29
INT 07	2	2	7	18	29
INT 08	3	2	6	12	23
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	11	17	53	94	175

	PHF	%HV
EB	0.85	5.8%
WB	0.82	5.1%
NB	0.79	2.5%
SB	0.85	n/a
T Int.	0.88	4.4%

Check — **In:** 918 — **Out:** 918

Conditions:

Special Notes

TPG12077M_02p

Prepared for: **Transpo Group**

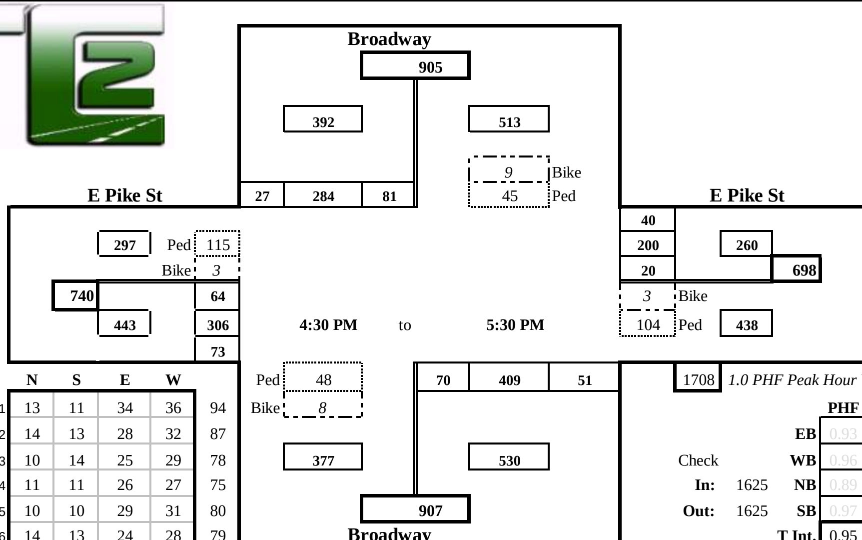
Traffic Count Consultants, Inc.

Phone: (253) 926-6009 FAX: (253) 922-7211 E-Mail: Team@TC2inc.com

WBE/DBE

Intersection: Broadway & E Pike St
Location: Capitol Hill, Washington
Date of Count: Thurs 6/28/2012
Checked By: Jess

Time Interval Ending at	From North on (SB) Broadway				From South on (NB) Broadway				From East on (WB) E Pike St				From West on (EB) E Pike St				Interval Total
	T	L	S	R	T	L	S	R	T	L	S	R	T	L	S	R	
4:15 P	3	24	82	4	4	18	93	13	1	6	42	16	3	12	87	28	425
4:30 P	3	17	69	11	2	10	105	5	0	5	54	13	1	6	77	25	397
4:45 P	4	22	69	6	2	12	94	11	2	5	46	14	1	18	81	20	398
5:00 P	3	25	64	10	2	14	95	13	3	6	53	9	1	18	73	14	394
5:15 P	3	16	75	4	3	23	115	11	0	4	49	8	1	9	78	14	406
5:30 P	4	18	76	7	3	21	105	16	1	5	52	9	2	19	74	25	427
5:45 P	0	14	62	3	6	9	120	10	1	6	47	13	0	13	71	16	384
6:00 P	2	12	67	14	1	11	76	10	1	2	44	13	2	16	97	14	376
6:15 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Survey	22	148	564	59	23	118	803	89	9	39	387	95	11	111	638	156	3207
	Peak Hour: 4:30 PM to 5:30 PM																
Total	14	81	284	27	10	70	409	51	6	20	200	40	5	64	306	73	1625
Approach	392				530				260				443				1625
%HV	3.6%				1.9%				2.3%				1.1%				2.2%
PHF	0.97				0.89				0.96				0.93				0.95



1708 *1.0 PHF Peak Hour Volume*

PEDs Across:	N	S	E	W	
INT 01	13	11	34	36	94
INT 02	14	13	28	32	87
INT 03	10	14	25	29	78
INT 04	11	11	26	27	75
INT 05	10	10	29	31	80
INT 06	14	13	24	28	79
INT 07	12	9	25	27	73
INT 08	11	10	23	29	73
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	95	91	214	239	639

Special Notes

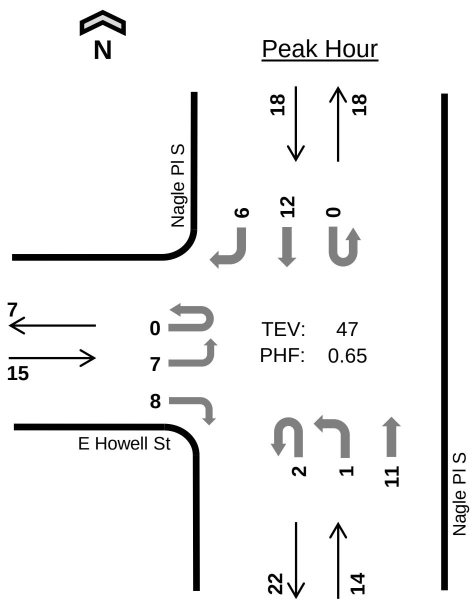
Bicycles From:	N	S	E	W	
INT 01	5	2	1	2	10
INT 02	3		1	1	5
INT 03	3	2		1	6
INT 04	2	1	2		5
INT 05	3	1			4
INT 06	1	4	1	2	8
INT 07	1		2	2	5
INT 08	2	1		1	4
INT 09					0
INT 10					0
INT 11					0
INT 12					0
	20	11	7	9	47

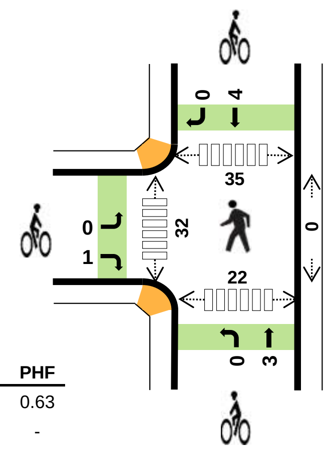
		PHF	%HV
	EB	0.93	1.1%
Check	WB	0.96	2.3%
In: 1625	NB	0.89	1.9%
Out: 1625	SB	0.97	3.6%
	T Int.	0.95	2.2%

Conditions:

Nagle Pl S
E Howell St

Date: 10/03/2023
Count Period: 8:00 AM to 2:00 PM
Peak Hour: 10:00 AM to 11:00 AM





	HV %:	PHF
EB	6.7%	0.63
WB	-	-
NB	7.1%	0.70
SB	5.6%	0.50
TOTAL	6.4%	0.65

Six-Hour Count Summaries

Interval Start		E Howell St Eastbound UT	LT	TH	RT	0 Westbound UT	LT	TH	RT	Nagle Pl S Northbound UT	LT	TH	RT	Nagle Pl S Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
10:00 AM		0	1	0	3	0	0	0	0	0	0	2	0	0	0	2	1	9	0
10:15 AM		0	0	0	2	0	0	0	0	0	0	5	0	0	0	1	0	8	0
10:30 AM		0	1	0	2	0	0	0	0	2	0	2	0	0	0	1	4	12	0
10:45 AM		0	5	0	1	0	0	0	0	0	1	2	0	0	0	8	1	18	47
Peak Hour	All	0	7	0	8	0	0	0	0	2	1	11	0	0	0	12	6	47	0
	HV	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	3	0
	HV%	-	14%	-	0%	-	-	-	-	0%	0%	9%	-	-	-	8%	0%	6%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
10:00 AM	0	0	0	0	*0*	0	0	0	2	*2*	0	9	5	4	*18*
10:15 AM	0	0	0	0	*0*	0	0	0	1	*1*	0	7	7	7	*21*
10:30 AM	0	0	0	0	*0*	0	0	1	0	*1*	0	7	7	7	*21*
10:45 AM	1	0	1	1	*3*	1	0	2	1	*4*	0	9	16	4	*29*
Peak Hour	1	0	1	1	*3*	1	0	3	4	*8*	0	32	35	22	*89*

Six-Hour Count Summaries

Interval Start	E Howell St				0				Nagle Pl S				Nagle Pl S				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	0	0	1	0	0	0	0	0	3	2	0	0	0	1	1	8	0
8:15 AM	0	2	0	1	0	0	0	0	0	0	1	0	0	0	4	1	9	0
8:30 AM	0	1	0	1	0	0	0	0	0	0	3	0	0	0	2	1	8	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	2	0	0	0	0	0	3	28
9:00 AM	0	2	0	7	0	0	0	0	0	1	2	0	0	0	3	1	16	36
9:15 AM	0	0	0	3	0	0	0	0	0	2	0	0	0	0	2	2	9	36
9:30 AM	0	0	0	2	0	0	0	0	0	1	3	0	0	0	2	2	10	38
9:45 AM	0	2	0	1	0	0	0	0	0	0	2	0	0	0	3	0	8	43
10:00 AM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**1**	**9**	36
10:15 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**8**	35
10:30 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**1**	**4**	**12**	37
10:45 AM	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**8**	**1**	**18**	**47**
11:00 AM	0	0	0	2	0	0	0	0	0	2	2	0	0	0	1	0	7	45
11:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	2	39
11:30 AM	0	0	0	6	0	0	0	0	0	0	2	0	0	0	2	1	11	38
11:45 AM	0	1	0	4	0	0	0	0	0	0	0	0	0	0	1	1	7	27
12:00 PM	0	1	0	3	0	0	0	0	0	0	3	0	0	0	4	1	12	32
12:15 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	3	1	6	36
12:30 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	4	2	9	34
12:45 PM	1	2	0	0	0	0	0	0	0	0	2	0	0	0	2	1	8	35
1:00 PM	1	2	0	3	0	0	0	0	0	0	0	0	0	0	3	0	9	32
1:15 PM	0	0	0	1	0	0	0	0	0	2	2	0	0	0	2	2	9	35
1:30 PM	0	0	0	0	0	0	0	0	0	1	2	0	0	0	5	0	8	34
1:45 PM	0	1	0	0	0	0	0	0	0	2	5	0	0	0	3	1	12	38
Count Total	2	23	0	46	0	0	0	0	2	15	46	0	1	0	59	24	218	0
Peak Hour All	**0**	**7**	**0**	**8**	**0**	**0**	**0**	**0**	**2**	**1**	**11**	**0**	**0**	**0**	**12**	**6**	**47**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**0**
Peak Hour HV%	**-**	**14%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**9%**	**-**	**-**	**-**	**8%**	**0%**	**6%**	**0**

Note: Six-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	0	0	0	0	*0*	0	0	2	2	*4*	0	13	12	3	*28*
8:15 AM	0	0	1	0	*1*	0	0	1	2	*3*	0	6	6	2	*14*
8:30 AM	0	0	0	1	*1*	0	0	0	2	*2*	0	3	9	1	*13*
8:45 AM	0	0	0	0	*0*	0	0	0	3	*3*	0	6	8	3	*17*
9:00 AM	0	0	1	0	*1*	0	0	0	1	*1*	0	7	9	3	*19*
9:15 AM	0	0	0	1	*1*	0	0	0	0	*0*	0	11	9	4	*24*
9:30 AM	0	0	0	0	*0*	0	0	1	0	*1*	0	13	6	2	*21*
9:45 AM	1	0	0	0	*1*	0	0	1	2	*3*	0	7	7	1	*15*
10:00 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**2**	***2***	**0**	**9**	**5**	**4**	*18*
10:15 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	***1***	**0**	**7**	**7**	**7**	*21*
10:30 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***	**0**	**7**	**7**	**7**	*21*
10:45 AM	**1**	**0**	**1**	**1**	***3***	**1**	**0**	**2**	**1**	***4***	**0**	**9**	**16**	**4**	***29***
11:00 AM	1	0	0	0	*1*	0	0	0	0	*0*	0	13	6	4	*23*
11:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	6	5	3	*14*
11:30 AM	2	0	0	1	*3*	0	0	1	0	*1*	0	6	11	4	*21*
11:45 AM	0	0	0	0	*0*	0	0	3	1	*4*	0	7	19	6	*32*
12:00 PM	2	0	0	0	*2*	0	0	0	0	*0*	0	17	5	11	*33*
12:15 PM	0	0	0	0	*0*	0	0	2	0	*2*	0	17	9	4	*30*
12:30 PM	0	0	0	0	*0*	0	0	0	1	*1*	0	8	17	7	*32*
12:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	17	16	6	*39*
1:00 PM	0	0	0	0	*0*	0	0	0	2	*2*	0	17	15	7	*39*
1:15 PM	0	0	1	1	*2*	0	0	0	0	*0*	0	6	16	12	*34*
1:30 PM	0	0	0	0	*0*	0	0	1	1	*2*	0	20	11	3	*34*
1:45 PM	0	0	1	0	*1*	0	0	0	2	*2*	0	5	13	9	*27*
Count Total	7	0	5	5	*17*	1	0	15	23	*39*	0	237	244	117	*598*
Peak Hr	**1**	**0**	**1**	**1**	***3***	**1**	**0**	**3**	**4**	***8***	**0**	**32**	**35**	**22**	***89***

Six-Hour Count Summaries - Heavy Vehicles

Interval Start	E Howell St				0				Nagle Pl S				Nagle Pl S				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
9:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
9:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
10:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
10:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
10:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
10:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**3**
11:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	4
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
11:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	3	7
11:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
12:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	5
12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
12:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	2
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
1:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
Count Total	0	2	0	5	0	0	0	0	0	2	3	0	0	0	4	1	17	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**0**

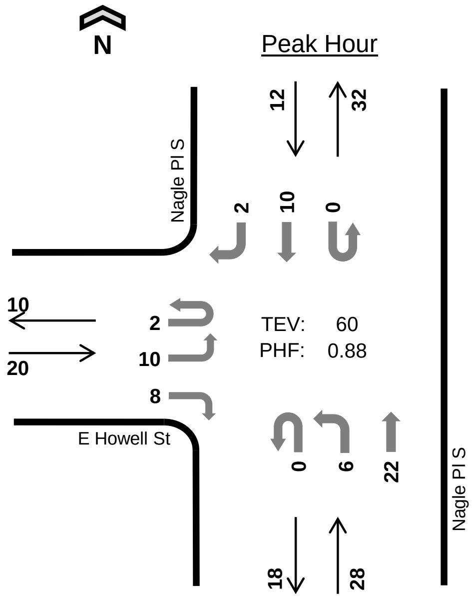
Six-Hour Count Summaries - Bikes

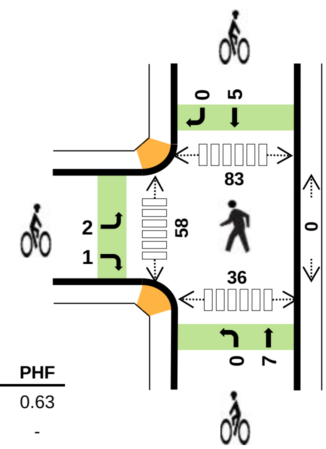
Interval Start	E Howell St			0			Nagle Pl S			Nagle Pl S			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
8:00 AM	0	0	0	0	0	0	1	1	0	0	1	1	4	0
8:15 AM	0	0	0	0	0	0	0	1	0	0	1	1	3	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	12
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	9
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
9:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	5
9:45 AM	0	0	0	0	0	0	1	0	0	0	2	0	3	5
10:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	6
10:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	7
10:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	7
10:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**4**	**8**
11:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
11:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
11:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	5
11:45 AM	0	0	0	0	0	0	2	1	0	0	1	0	4	5
12:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
12:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	2	7
12:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	5
1:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
1:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	4
1:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	6
Count Total	0	0	1	0	0	0	5	10	0	0	21	2	39	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**0**	**8**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Nagle Pl S
E Howell St

Date: 10/03/2023
Count Period: 2:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	0.0%	0.63
WB	-	-
NB	7.1%	0.78
SB	0.0%	0.60
TOTAL	3.3%	0.88

Four-Hour Count Summaries

Interval Start		E Howell St Eastbound UT	LT	TH	RT	0 Westbound UT	LT	TH	RT	Nagle Pl S Northbound UT	LT	TH	RT	Nagle Pl S Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
5:00 PM		0	3	0	2	0	0	0	0	0	2	7	0	0	0	2	1	17	0
5:15 PM		1	2	0	1	0	0	0	0	0	1	5	0	0	0	2	0	12	0
5:30 PM		1	2	0	0	0	0	0	0	0	2	4	0	0	0	5	0	14	0
5:45 PM		0	3	0	5	0	0	0	0	0	1	6	0	0	0	1	1	17	60
Peak Hour	All	2	10	0	8	0	0	0	0	0	6	22	0	0	0	10	2	60	0
	HV	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	0
	HV%	0%	0%	-	0%	-	-	-	-	-	17%	5%	-	-	-	0%	0%	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
5:00 PM	0	0	1	0	*1*	3	0	2	0	*5*	0	20	25	9	*54*
5:15 PM	0	0	0	0	*0*	0	0	1	3	*4*	0	10	20	8	*38*
5:30 PM	0	0	1	0	*1*	0	0	2	0	*2*	0	9	16	7	*32*
5:45 PM	0	0	0	0	*0*	0	0	2	2	*4*	0	19	22	12	*53*
Peak Hour	0	0	2	0	*2*	3	0	7	5	*15*	0	58	83	36	*177*

Four-Hour Count Summaries

Interval Start	E Howell St				0				Nagle Pl S				Nagle Pl S				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	0	1	0	0	0	0	0	1	5	0	0	0	0	2	9	0
2:15 PM	0	0	0	4	0	0	0	0	0	0	0	0	0	0	3	1	8	0
2:30 PM	0	3	0	3	0	0	0	0	0	0	7	0	0	0	2	1	16	0
2:45 PM	0	1	0	2	0	0	0	0	0	2	0	0	0	0	1	0	6	39
3:00 PM	0	2	0	1	0	0	0	0	0	1	3	0	0	0	1	2	10	40
3:15 PM	0	2	0	0	0	0	0	0	0	0	4	0	0	0	3	0	9	41
3:30 PM	0	2	0	2	0	0	0	0	0	0	4	0	1	0	1	1	11	36
3:45 PM	0	3	0	4	0	0	0	0	0	1	1	0	0	0	2	1	12	42
4:00 PM	0	2	0	3	0	0	0	0	0	0	6	0	0	0	3	0	14	46
4:15 PM	0	2	0	1	0	0	0	0	1	0	2	0	0	0	3	0	9	46
4:30 PM	1	3	0	0	0	0	0	0	0	1	4	0	0	0	4	1	14	49
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	0	4	41
5:00 PM	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**7**	**0**	**0**	**0**	**2**	**1**	**17**	44
5:15 PM	**1**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**0**	**2**	**0**	**12**	47
5:30 PM	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**0**	**0**	**0**	**5**	**0**	**14**	47
5:45 PM	**0**	**3**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**1**	**1**	**17**	**60**
Count Total	3	31	0	30	0	0	0	0	1	12	58	0	1	0	35	11	182	0
Peak Hour All	**2**	**10**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**6**	**22**	**0**	**0**	**0**	**10**	**2**	**60**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**
Peak Hour HV%	**0%**	**0%**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**17%**	**5%**	**-**	**-**	**-**	**0%**	**0%**	**3%**	**0**

Note: Four-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	0	0	*0*	1	0	0	0	*1*	0	10	12	2	*24*
2:15 PM	0	0	0	0	*0*	1	0	0	0	*1*	0	5	8	4	*17*
2:30 PM	0	0	0	0	*0*	1	0	0	2	*3*	0	9	9	7	*25*
2:45 PM	0	0	1	1	*2*	1	0	1	0	*2*	0	5	10	5	*20*
3:00 PM	1	0	0	0	*1*	0	0	0	3	*3*	0	12	15	7	*34*
3:15 PM	0	0	0	0	*0*	0	0	1	0	*1*	0	16	19	8	*43*
3:30 PM	0	0	0	0	*0*	0	0	0	1	*1*	0	11	11	9	*31*
3:45 PM	0	0	0	0	*0*	2	0	1	0	*3*	0	29	15	5	*49*
4:00 PM	0	0	0	0	*0*	1	0	1	3	*5*	0	19	17	3	*39*
4:15 PM	0	0	0	0	*0*	1	0	2	2	*5*	0	19	15	7	*41*
4:30 PM	0	0	0	0	*0*	1	0	0	0	*1*	0	14	11	8	*33*
4:45 PM	0	0	0	0	*0*	3	0	1	0	*4*	0	18	25	9	*52*
5:00 PM	**0**	**0**	**1**	**0**	***1***	**3**	**0**	**2**	**0**	***5***	**0**	**20**	**25**	**9**	*54*
5:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**3**	***4***	**0**	**10**	**20**	**8**	*38*
5:30 PM	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**2**	**0**	***2***	**0**	**9**	**16**	**7**	*32*
5:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**2**	***4***	**0**	**19**	**22**	**12**	***53***
Count Total	1	0	3	1	*5*	15	0	14	16	*45*	0	225	250	110	*585*
Peak Hr	**0**	**0**	**2**	**0**	***2***	**3**	**0**	**7**	**5**	***15***	**0**	**58**	**83**	**36**	***177***

Four-Hour Count Summaries - Heavy Vehicles

Interval Start	E Howell St				0				Nagle Pl S				Nagle Pl S				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	2	2
3:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	3
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
Count Total	0	1	0	0	0	0	0	0	0	2	1	0	0	0	1	0	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**

Four-Hour Count Summaries - Bikes

Interval Start	E Howell St			0			Nagle Pl S			Nagle Pl S			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
2:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
2:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
2:30 PM	1	0	0	0	0	0	0	0	0	0	2	0	3	0
2:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	2	7
3:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	3	9
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	9
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
3:45 PM	2	0	0	0	0	0	0	1	0	0	0	0	3	8
4:00 PM	1	0	0	0	0	0	0	1	0	0	3	0	5	10
4:15 PM	1	0	0	0	0	0	2	0	0	0	1	1	5	14
4:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	14
4:45 PM	2	0	1	0	0	0	0	1	0	0	0	0	4	15
5:00 PM	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	15
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**4**	14
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	15
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	**15**
Count Total	11	0	4	0	0	0	2	12	0	0	15	1	45	0
Peak Hour	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**5**	**0**	**15**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

PROJECT Capitol Hill - Nagle Pl Counts
DATE Tuesday, October 3, 2023
DURATION 8AM-6PM
SITE Nagle Pl Crossing to South Stairs

	Pedestrians			Bicycles	
TIME	EB	WB	TIME	EB	WB
8:00	0	0	8:00	0	0
8:15	0	0	8:15	0	0
8:30	0	0	8:30	0	0
8:45	0	0	8:45	0	0
9:00	0	1	9:00	0	0
9:15	0	0	9:15	0	0
9:30	1	1	9:30	0	0
9:45	0	0	9:45	0	0
10:00	0	0	10:00	0	0
10:15	3	0	10:15	0	0
10:30	2	0	10:30	0	0
10:45	0	0	10:45	0	0
11:00	0	0	11:00	0	0
11:15	0	1	11:15	0	0
11:30	1	0	11:30	0	0
11:45	5	0	11:45	0	0
12:00	1	1	12:00	0	0
12:15	1	1	12:15	0	0
12:30	3	1	12:30	0	0
12:45	3	1	12:45	0	0
13:00	0	0	13:00	0	0
13:15	0	0	13:15	0	0
13:30	3	0	13:30	0	0
13:45	0	4	13:45	0	0
14:00	2	1	14:00	0	0
14:15	0	0	14:15	0	0
14:30	1	1	14:30	0	0
14:45	2	0	14:45	0	0
15:00	4	1	15:00	0	0
15:15	0	0	15:15	0	0
15:30	1	0	15:30	0	0
15:45	1	0	15:45	0	0
16:00	0	1	16:00	0	0
16:15	0	1	16:15	0	0
16:30	0	0	16:30	0	0
16:45	3	3	16:45	0	0
17:00	0	0	17:00	0	0
17:15	1	2	17:15	0	0
17:30	1	0	17:30	0	0
17:45	0	0	17:45	0	0
TOTAL	39	21	**TOTAL**	0	0

Appendix G LOS Definitions

Highway Capacity Manual 2010/6th Edition

Signalized intersection level of service (LOS) is defined in terms of a weighted average control delay for the entire intersection. Control delay quantifies the increase in travel time that a vehicle experiences due to the traffic signal control as well as provides a surrogate measure for driver discomfort and fuel consumption. Signalized intersection LOS is stated in terms of average control delay per vehicle (in seconds) during a specified time period (e.g., weekday PM peak hour). Control delay is a complex measure based on many variables, including signal phasing and coordination (i.e., progression of movements through the intersection and along the corridor), signal cycle length, and traffic volumes with respect to intersection capacity and resulting queues. Table 1 summarizes the LOS criteria for signalized intersections, as described in the *Highway Capacity Manual 2010* and 6th Edition (Transportation Research Board, 2010 and 2016, respectively).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)	General Description
A	≤10	Free Flow
B	>10 – 20	Stable Flow (slight delays)
C	>20 – 35	Stable flow (acceptable delays)
D	>35 – 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 – 80	Unstable flow (intolerable delay)
F[1]	>80	Forced flow (congested and queues fail to clear)

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.
1. If the volume-to-capacity (v/c) ratio for a lane group exceeds 1.0 LOS F is assigned to the individual lane group. LOS for overall approach or intersection is determined solely by the control delay.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop and two-way stop control. All-way stop control intersection LOS is expressed in terms of the weighted average control delay of the overall intersection or by approach. Two-way stop-controlled intersection LOS is defined in terms of the average control delay for each minor-street movement (or shared movement) as well as major-street left-turns. This approach is because major-street through vehicles are assumed to experience zero delay, a weighted average of all movements results in very low overall average delay, and this calculated low delay could mask deficiencies of minor movements. Table 2 shows LOS criteria for unsignalized intersections.

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (seconds/vehicle)
A	0 – 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F[1]	>50

Source: *Highway Capacity Manual 2010 and 6th Edition*, Transportation Research Board, 2010 and 2016, respectively.
1. If the volume-to-capacity (v/c) ratio exceeds 1.0, LOS F is assigned an individual lane group for all unsignalized intersections, or minor street approach at two-way stop-controlled intersections. Overall intersection LOS is determined solely by control delay.

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Source: *Highway Capacity Manual*, Transportation Research Board, Special Report 209, 2000.

Appendix H LOS Summary & Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	0	150	0	50	5	45	135	0	0	260	50
Future Volume (vph)	30	0	150	0	50	5	45	135	0	0	260	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.88			0.96			1.00			0.98	
Flpb, ped/bikes		0.94			1.00			0.99			1.00	
Frt		0.88			0.98			1.00			0.97	
Flt Protected		0.99			1.00			0.98			1.00	
Satd. Flow (prot)		1256			1780			1652			1684	
Flt Permitted		0.95			1.00			0.86			1.00	
Satd. Flow (perm)		1204			1780			1451			1684	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	0	156	0	52	5	47	141	0	0	271	52
RTOR Reduction (vph)	0	112	0	0	4	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	75	0	0	53	0	0	188	0	0	316	0
Confl. Peds. (#/hr)	204		67	67		204	35		18	18		35
Confl. Bikes (#/hr)			3						4			28
Heavy Vehicles (%)	11%	11%	11%	2%	2%	2%	13%	13%	13%	9%	9%	9%
Turn Type	Perm	NA			NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		22.5			22.5			38.5			38.5	
Effective Green, g (s)		22.5			22.5			38.5			38.5	
Actuated g/C Ratio		0.28			0.28			0.48			0.48	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		338			500			698			810	
v/s Ratio Prot					0.03						c0.19	
v/s Ratio Perm		c0.06						0.13				
v/c Ratio		0.22			0.10			0.26			0.39	
Uniform Delay, d1		22.0			21.3			12.3			13.2	
Progression Factor		1.00			1.00			0.30			1.00	
Incremental Delay, d2		1.5			0.4			0.9			1.4	
Delay (s)		23.5			21.7			4.7			14.6	
Level of Service		C			C			A			B	
Approach Delay (s/veh)		23.5			21.7			4.7			14.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	175	15	0	405
Future Volume (vph)	5	5	175	15	0	405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.92		0.99			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.93		0.98			1.00
Flt Protected	0.97		1.00			1.00
Satd. Flow (prot)	1597		1623			1776
Flt Permitted	0.97		1.00			1.00
Satd. Flow (perm)	1597		1623			1776
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	5	5	192	16	0	445
RTOR Reduction (vph)	4	0	4	0	0	0
Lane Group Flow (vph)	6	0	204	0	0	445
Confl. Peds. (#/hr)	24	64		73	73	
Confl. Bikes (#/hr)				4		
Heavy Vehicles (%)	0%	0%	15%	15%	7%	7%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		40.5			50.5
Effective Green, g (s)	19.0		40.5			50.5
Actuated g/C Ratio	0.24		0.51			0.63
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	379		821			1121
v/s Ratio Prot	c0.00		0.13			c0.25
v/s Ratio Perm						
v/c Ratio	0.01		0.24			0.39
Uniform Delay, d1	23.3		11.1			7.2
Progression Factor	1.00		0.56			0.80
Incremental Delay, d2	0.0		0.7			0.9
Delay (s)	23.3		6.9			6.8
Level of Service	C		A			A
Approach Delay (s/veh)	23.3		6.9			6.8
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	45.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	5.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	5	5	5	5	5	15	5	5	25	5
Future Vol, veh/h	5	10	5	5	5	5	5	15	5	5	25	5
Conflicting Peds, #/hr	120	0	120	107	0	107	120	0	107	107	0	120
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	18	18	18	18	18	18	14	14	14	7	7	7
Mvmt Flow	6	13	6	6	6	6	6	19	6	6	32	6

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	327	311	275	318	311	249	158	0	0	132	0	0
Stage 1	167	167	-	141	141	-	-	-	-	-	-	-
Stage 2	160	144	-	177	170	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.68	6.38	7.28	6.68	6.38	4.24	-	-	4.17	-	-
Critical Hdwy Stg 1	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4.162	3.462	3.662	4.162	3.462	2.326	-	-	2.263	-	-
Pot Cap-1 Maneuver	597	578	727	605	578	752	1352	-	-	1423	-	-
Stage 1	799	731	-	825	750	-	-	-	-	-	-	-
Stage 2	806	748	-	789	729	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	455	455	570	462	455	598	1197	-	-	1278	-	-
Mov Cap-2 Maneuver	455	455	-	462	455	-	-	-	-	-	-	-
Stage 1	704	645	-	738	671	-	-	-	-	-	-	-
Stage 2	696	669	-	674	643	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	12.9	12.5	1.6	1.1
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1197	-	-	479	497	1278	-	-
HCM Lane V/C Ratio	0.005	-	-	0.054	0.039	0.005	-	-
HCM Control Delay (s/veh)	8	0	-	12.9	12.5	7.8	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.2	0.1	0	-	-

Intersection						
Int Delay, s/veh	2.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	5	45	50	5
Future Vol, veh/h	10	10	5	45	50	5
Conflicting Peds, #/hr	71	97	97	0	0	71
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	9	9	0	0	3	3
Mvmt Flow	14	14	7	64	71	7

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	321	269	175	0	-	0
Stage 1	172	-	-	-	-	-
Stage 2	149	-	-	-	-	-
Critical Hdwy	6.49	6.29	4.1	-	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	2.2	-	-	-
Pot Cap-1 Maneuver	658	753	1414	-	-	-
Stage 1	841	-	-	-	-	-
Stage 2	862	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	540	620	1283	-	-	-
Mov Cap-2 Maneuver	540	-	-	-	-	-
Stage 1	759	-	-	-	-	-
Stage 2	783	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	11.6	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1283	-	577	-	-
HCM Lane V/C Ratio	0.006	-	0.05	-	-
HCM Control Delay (s/veh)	7.8	0	11.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	2.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	190	10	5	370	10	5	5	5	5	15	20
Future Vol, veh/h	5	190	10	5	370	10	5	5	5	5	15	20
Conflicting Peds, #/hr	222	0	157	120	0	185	157	0	120	185	0	222
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	13	13	13	8	8	8	7	7	7	7	7	7
Mvmt Flow	5	204	11	5	398	11	5	5	5	5	16	22

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	631	0	0	372	0	0	1032	1018	552	1046	1018	848
Stage 1	-	-	-	-	-	-	377	377	-	636	636	-
Stage 2	-	-	-	-	-	-	655	641	-	410	382	-
Critical Hdwy	4.23	-	-	4.18	-	-	7.17	6.57	6.27	7.17	6.57	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Follow-up Hdwy	2.317	-	-	2.272	-	-	3.563	4.063	3.363	3.563	4.063	3.363
Pot Cap-1 Maneuver	901	-	-	1154	-	-	206	233	524	202	233	354
Stage 1	-	-	-	-	-	-	634	607	-	458	464	-
Stage 2	-	-	-	-	-	-	447	462	-	609	604	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	711	-	-	981	-	-	113	154	367	124	154	220
Mov Cap-2 Maneuver	-	-	-	-	-	-	113	154	-	124	154	-
Stage 1	-	-	-	-	-	-	535	512	-	358	363	-
Stage 2	-	-	-	-	-	-	302	362	-	485	509	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.2	0.1	29	32.1
HCM LOS			D	D

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	166	711	-	-	981	-	-	175
HCM Lane V/C Ratio	0.097	0.008	-	-	0.005	-	-	0.246
HCM Control Delay (s/veh)	29	10.1	0	-	8.7	0	-	32.1
HCM Lane LOS	D	B	A	-	A	A	-	D
HCM 95th %tile Q (veh)	0.3	0	-	-	0	-	-	0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	50	135	15	0	345	20	20	25	5	15	25	20
Future Volume (veh/h)	50	135	15	0	345	20	20	25	5	15	25	20
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.95		0.90	1.00		0.88	0.81		0.75	0.79		0.73
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1767	1767	1767	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	56	152	17	0	388	22	22	28	6	17	28	22
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	11	11	11	9	9	9	0	0	0	3	3	3
Cap, veh/h	278	721	77	0	1198	68	130	145	25	89	118	74
Arrive On Green	0.73	0.73	0.73	0.00	1.00	1.00	0.16	0.16	0.16	0.16	0.16	0.16
Sat Flow, veh/h	304	988	106	0	1642	93	426	917	161	207	748	467
Grp Volume(v), veh/h	225	0	0	0	0	410	56	0	0	67	0	0
Grp Sat Flow(s),veh/h/ln	1397	0	0	0	0	1735	1504	0	0	1421	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	0.0	0.0	0.0	0.0	2.2	0.0	0.0	3.1	0.0	0.0
Prop In Lane	0.25		0.08	0.00		0.05	0.39		0.11	0.25		0.33
Lane Grp Cap(c), veh/h	1076	0	0	0	0	1266	300	0	0	281	0	0
V/C Ratio(X)	0.21	0.00	0.00	0.00	0.00	0.32	0.19	0.00	0.00	0.24	0.00	0.00
Avail Cap(c_a), veh/h	1076	0	0	0	0	1266	422	0	0	396	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.81	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.4	0.0	0.0	0.0	0.0	0.0	29.3	0.0	0.0	29.7	0.0	0.0
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	0.0	0.0	0.0	0.0	0.2	0.9	0.0	0.0	1.1	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	3.8	0.0	0.0	0.0	0.0	0.6	29.4	0.0	0.0	29.8	0.0	0.0
LnGrp LOS	A					A	C			C		
Approach Vol, veh/h		225			410			56			67	
Approach Delay, s/veh		3.8			0.6			29.4			29.8	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		62.9		17.1		62.9		17.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		51.5		19.5		51.5		19.5				
Max Q Clear Time (g_c+I1), s		5.3		4.2		2.0		5.1				
Green Ext Time (p_c), s		0.3		0.1		0.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			6.2									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	100	45	15	320	15	5	155	15	5	365	40
Future Volume (vph)	15	100	45	15	320	15	5	155	15	5	365	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.91		1.00	0.98			0.98			1.00	0.65
Flpb, ped/bikes	0.95	1.00		0.86	1.00			0.99			0.99	1.00
Frt	1.00	0.95		1.00	0.99			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1566	1502		1489	1771			1656			1740	977
Flt Permitted	0.38	1.00		0.65	1.00			0.98			0.99	1.00
Satd. Flow (perm)	636	1502		1033	1771			1641			1736	977
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	16	106	48	16	340	16	5	165	16	5	388	43
RTOR Reduction (vph)	0	17	0	0	2	0	0	5	0	0	0	23
Lane Group Flow (vph)	16	137	0	16	354	0	0	181	0	0	393	20
Confl. Peds. (#/hr)	126		110	110		126	165		91	91		165
Confl. Bikes (#/hr)			11			38			3			24
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	11%	11%	11%	9%	9%	9%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	33.1	29.9		29.1	27.9			24.9			33.9	37.1
Effective Green, g (s)	33.1	29.9		29.1	27.9			24.9			33.9	37.1
Actuated g/C Ratio	0.41	0.37		0.36	0.35			0.31			0.42	0.46
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	300	561		382	617			510			735	508
v/s Ratio Prot	0.00	0.09		0.00	c0.20							c0.00
v/s Ratio Perm	0.02			0.01				0.11			c0.23	0.02
v/c Ratio	0.05	0.24		0.04	0.57			0.35			0.53	0.03
Uniform Delay, d1	14.3	17.2		16.3	21.2			21.3			17.1	11.7
Progression Factor	0.87	0.79		1.00	1.00			0.54			1.47	0.97
Incremental Delay, d2	0.0	1.0		0.0	3.8			1.8			2.6	0.0
Delay (s)	12.5	14.6		16.3	25.0			13.5			27.8	11.4
Level of Service	B	B		B	C			B			C	B
Approach Delay (s/veh)		14.4			24.6			13.5			26.2	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	135	35	10	95	15	45	140	20	65	325	30
Future Volume (vph)	25	135	35	10	95	15	45	140	20	65	325	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.94			0.96		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.98		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1664			1672		1656	1684		1703	1692	
Flt Permitted		0.95			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1595			1628		1656	1684		1703	1692	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	29	159	41	12	112	18	53	165	24	76	382	35
RTOR Reduction (vph)	0	10	0	0	6	0	0	6	0	0	4	0
Lane Group Flow (vph)	0	219	0	0	136	0	53	183	0	76	413	0
Confl. Peds. (#/hr)	100		139	139		100	243		65	65		243
Confl. Bikes (#/hr)			9			18			8			22
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	9%	9%	9%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		22.5			22.5		7.2	27.6		7.9	36.8	
Effective Green, g (s)		22.5			22.5		7.2	27.6		7.9	36.8	
Actuated g/C Ratio		0.28			0.28		0.09	0.35		0.10	0.46	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		448			457		149	580		168	778	
v/s Ratio Prot							0.03	0.11		c0.04	c0.24	
v/s Ratio Perm		c0.14			0.08							
v/c Ratio		0.48			0.29		0.35	0.31		0.45	0.53	
Uniform Delay, d1		23.9			22.5		34.2	19.2		34.0	15.4	
Progression Factor		1.00			1.00		1.00	1.00		0.89	1.64	
Incremental Delay, d2		3.7			1.6		0.5	1.4		0.6	2.4	
Delay (s)		27.7			24.1		34.7	20.6		31.0	27.7	
Level of Service		C			C		C	C		C	C	
Approach Delay (s/veh)		27.7			24.1			23.7			28.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	20	0	0	40
Future Vol, veh/h	0	0	20	0	0	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	14	7	7
Mvmt Flow	0	0	22	0	0	43

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	65	22	0	0	22	0
Stage 1	22	-	-	-	-	-
Stage 2	43	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263	-
Pot Cap-1 Maneuver	946	1061	-	-	1562	-
Stage 1	1006	-	-	-	-	-
Stage 2	985	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	946	1061	-	-	1562	-
Mov Cap-2 Maneuver	946	-	-	-	-	-
Stage 1	1006	-	-	-	-	-
Stage 2	985	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1562	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	7	28	73	95	60	61
Future Vol, veh/h	7	28	73	95	60	61
Conflicting Peds, #/hr	66	66	66	0	0	66
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	8	31	82	107	67	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	505	234	202	0	-	0
Stage 1	168	-	-	-	-	-
Stage 2	337	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	530	810	1382	-	-	-
Stage 1	867	-	-	-	-	-
Stage 2	728	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	434	711	1295	-	-	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	758	-	-	-	-	-
Stage 2	682	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s/v	11.1		3.5		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1295	-	631	-	-
HCM Lane V/C Ratio	0.063	-	0.062	-	-
HCM Control Delay (s/veh)	8	0	11.1	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0.2	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	54	1	8	54
Future Vol, veh/h	1	1	54	1	8	54
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	1	1	77	1	11	77

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	177	78	0	0	78	0
Stage 1	78	-	-	-	-	-
Stage 2	99	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	817	988	-	-	1514	-
Stage 1	950	-	-	-	-	-
Stage 2	930	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	810	988	-	-	1514	-
Mov Cap-2 Maneuver	810	-	-	-	-	-
Stage 1	950	-	-	-	-	-
Stage 2	923	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.1	0	1
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	890	1514	-
HCM Lane V/C Ratio	-	-	0.003	0.008	-
HCM Control Delay (s/veh)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	3	180	405	7
Future Vol, veh/h	2	1	3	180	405	7
Conflicting Peds, #/hr	35	35	35	0	0	35
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	13	9	9
Mvmt Flow	2	1	3	200	450	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	730	524	493	0	-	0
Stage 1	489	-	-	-	-	-
Stage 2	241	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.23	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.317	-	-	-
Pot Cap-1 Maneuver	392	557	1016	-	-	-
Stage 1	621	-	-	-	-	-
Stage 2	804	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	365	520	982	-	-	-
Mov Cap-2 Maneuver	365	-	-	-	-	-
Stage 1	599	-	-	-	-	-
Stage 2	777	-	-	-	-	-

Approach	EB		NB		SB	
HCM Control Delay, s/v	14		0.1		0	
HCM LOS	B					

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	982	-	405	-	-
HCM Lane V/C Ratio	0.003	-	0.008	-	-
HCM Control Delay (s/veh)	8.7	0	14	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection	
Int Delay, s/veh	0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	1	175	1	6	425
Future Vol, veh/h	1	1	175	1	6	425
Conflicting Peds, #/hr	78	78	0	78	78	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	1	1	186	1	6	452

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	807	343	0	0	265	0
Stage 1	265	-	-	-	-	-
Stage 2	542	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.19	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.281	-
Pot Cap-1 Maneuver	354	704	-	-	1259	-
Stage 1	784	-	-	-	-	-
Stage 2	587	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	301	603	-	-	1165	-
Mov Cap-2 Maneuver	301	-	-	-	-	-
Stage 1	726	-	-	-	-	-
Stage 2	539	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	14	0	0.1
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	402	1165	-
HCM Lane V/C Ratio	-	-	0.005	0.005	-
HCM Control Delay (s/veh)	-	-	14	8.1	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	1	175	425	5
Future Vol, veh/h	1	1	1	175	425	5
Conflicting Peds, #/hr	204	204	204	0	0	204
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	1	1	1	186	452	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1051	863	661	0	-	0
Stage 1	659	-	-	-	-	-
Stage 2	392	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	253	357	886	-	-	-
Stage 1	518	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	164	232	714	-	-	-
Mov Cap-2 Maneuver	164	-	-	-	-	-
Stage 1	416	-	-	-	-	-
Stage 2	554	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	24	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	714	-	192	-	-
HCM Lane V/C Ratio	0.001	-	0.011	-	-
HCM Control Delay (s/veh)	10.1	0	24	-	-
HCM Lane LOS	B	A	C	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	0	55	5	90	25	10	330	0	0	270	45
Future Volume (vph)	75	0	55	5	90	25	10	330	0	0	270	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.87			0.95			1.00			0.94	
Flpb, ped/bikes		0.92			0.99			0.99			1.00	
Frt		0.94			0.97			1.00			0.98	
Flt Protected		0.97			0.99			0.99			1.00	
Satd. Flow (prot)		1361			1752			1779			1683	
Flt Permitted		0.74			0.98			0.98			1.00	
Satd. Flow (perm)		1046			1736			1762			1683	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	82	0	60	5	99	27	11	363	0	0	297	49
RTOR Reduction (vph)	0	56	0	0	13	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	87	0	0	118	0	0	374	0	0	340	0
Confl. Peds. (#/hr)	74		119	119		74	364		232	232		364
Confl. Bikes (#/hr)			2			7			14			7
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		14.5			14.5			36.5			36.5	
Effective Green, g (s)		14.5			14.5			36.5			36.5	
Actuated g/C Ratio		0.21			0.21			0.52			0.52	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		216			359			918			877	
v/s Ratio Prot											0.20	
v/s Ratio Perm		c0.08			0.07			c0.21				
v/c Ratio		0.40			0.32			0.40			0.38	
Uniform Delay, d1		23.9			23.6			10.1			10.0	
Progression Factor		1.00			1.00			1.72			1.00	
Incremental Delay, d2		5.4			2.4			1.2			1.2	
Delay (s)		29.4			26.0			18.7			11.3	
Level of Service		C			C			B			B	
Approach Delay (s/veh)		29.4			26.0			18.7			11.3	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	5	5	330	10	5	365
Future Volume (vph)	5	5	330	10	5	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.94		0.99			1.00
Flpb, ped/bikes	1.00		1.00			0.99
Frt	0.93		0.99			1.00
Flt Protected	0.97		1.00			0.99
Satd. Flow (prot)	1635		1754			1789
Flt Permitted	0.97		1.00			0.99
Satd. Flow (perm)	1635		1754			1783
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	5	5	355	11	5	392
RTOR Reduction (vph)	4	0	2	0	0	0
Lane Group Flow (vph)	6	0	364	0	0	397
Confl. Peds. (#/hr)	33	49		203	203	
Confl. Bikes (#/hr)				27		
Heavy Vehicles (%)	0%	0%	7%	7%	6%	6%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		30.5			40.5
Effective Green, g (s)	19.0		30.5			40.5
Actuated g/C Ratio	0.27		0.44			0.58
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	443		764			1031
v/s Ratio Prot	c0.00		c0.21			
v/s Ratio Perm						c0.22
v/c Ratio	0.01		0.47			0.38
Uniform Delay, d1	18.6		14.0			7.9
Progression Factor	1.00		1.00			1.47
Incremental Delay, d2	0.0		2.1			1.0
Delay (s)	18.6		16.1			12.8
Level of Service	B		B			B
Approach Delay (s/veh)	18.6		16.1			12.8
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	5	10	25	10	5	5	5	35	5	10	60	15
Future Vol, veh/h	5	10	25	10	5	5	5	35	5	10	60	15
Conflicting Peds, #/hr	151	0	165	187	0	173	165	0	187	173	0	151
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	62	62	62	62	62	62	62	62	62	62	62	62
Heavy Vehicles, %	4	4	4	0	0	0	0	0	0	2	2	2
Mvmt Flow	8	16	40	16	8	8	8	56	8	16	97	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	563	573	461	619	581	420	286	0	0	251	0	0
Stage 1	306	306	-	263	263	-	-	-	-	-	-	-
Stage 2	257	267	-	356	318	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	434	427	596	404	428	638	1288	-	-	1314	-	-
Stage 1	699	658	-	747	694	-	-	-	-	-	-	-
Stage 2	743	684	-	666	657	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	288	289	413	231	289	438	1086	-	-	1080	-	-
Mov Cap-2 Maneuver	288	289	-	231	289	-	-	-	-	-	-	-
Stage 1	584	546	-	609	566	-	-	-	-	-	-	-
Stage 2	596	557	-	472	545	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.3	19.6	0.9	1
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1086	-	-	356	278	1080	-	-
HCM Lane V/C Ratio	0.007	-	-	0.181	0.116	0.015	-	-
HCM Control Delay (s/veh)	8.3	0	-	17.3	19.6	8.4	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.7	0.4	0	-	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	15	10	90	125	10
Future Vol, veh/h	15	15	10	90	125	10
Conflicting Peds, #/hr	120	122	122	0	0	120
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	18	18	12	106	147	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	525	397	281	0	-	0
Stage 1	275	-	-	-	-	-
Stage 2	250	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	516	657	1282	-	-	-
Stage 1	776	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	399	513	1133	-	-	-
Mov Cap-2 Maneuver	399	-	-	-	-	-
Stage 1	678	-	-	-	-	-
Stage 2	704	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.7	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1133	-	449	-	-
HCM Lane V/C Ratio	0.01	-	0.079	-	-
HCM Control Delay (s/veh)	8.2	0	13.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	140.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	10	315	10	10	375	20	5	15	15	15	35	45
Future Vol, veh/h	10	315	10	10	375	20	5	15	15	15	35	45
Conflicting Peds, #/hr	382	0	245	276	0	413	245	0	276	413	0	382
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	4	4	4	4	4	0	0	0	2	2	2
Mvmt Flow	12	366	12	12	436	23	6	17	17	17	41	52

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	872	0	0	654	0	0	1572	1568	1061	1711	1563	1243
Stage 1	-	-	-	-	-	-	672	672	-	885	885	-
Stage 2	-	-	-	-	-	-	900	896	-	826	678	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	765	-	-	923	-	-	90	112	274	71	112	213
Stage 1	-	-	-	-	-	-	449	458	-	340	363	-
Stage 2	-	-	-	-	-	-	336	362	-	366	452	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	464	-	-	680	-	-	~ 4	47	123	~ 15	47	82
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 4	47	-	~ 15	47	-
Stage 1	-	-	-	-	-	-	320	327	-	200	215	-
Stage 2	-	-	-	-	-	-	61	214	-	174	322	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.4	0.3	$ 828	$ 975.8
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	21	464	-	-	680	-	-	41
HCM Lane V/C Ratio	1.938	0.025	-	-	0.017	-	-	2.694
HCM Control Delay (s/veh)	$ 828	13	0	-	10.4	0	-	$ 975.8
HCM Lane LOS	F	B	A	-	B	A	-	F
HCM 95th %tile Q (veh)	5.3	0.1	-	-	0.1	-	-	12.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	10	270	25	10	335	55	25	40	20	35	70	40
Future Volume (veh/h)	10	270	25	10	335	55	25	40	20	35	70	40
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.89	0.98		0.91	0.71		0.45	0.61		0.46
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1826	1826	1826	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	11	307	28	11	381	62	28	45	23	40	80	45
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	6	6	5	5	5	3	3	3	0	0	0
Cap, veh/h	54	1154	103	48	1089	174	92	121	53	80	120	58
Arrive On Green	0.73	0.73	0.73	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	23	1578	141	15	1489	238	257	677	294	197	671	326
Grp Volume(v), veh/h	346	0	0	454	0	0	96	0	0	165	0	0
Grp Sat Flow(s),veh/h/ln	1742	0	0	1742	0	0	1228	0	0	1194	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0
Cycle Q Clear(g_c), s	6.6	0.0	0.0	0.0	0.0	0.0	6.5	0.0	0.0	12.6	0.0	0.0
Prop In Lane	0.03		0.08	0.02		0.14	0.29		0.24	0.24		0.27
Lane Grp Cap(c), veh/h	1311	0	0	1311	0	0	266	0	0	258	0	0
V/C Ratio(X)	0.26	0.00	0.00	0.35	0.00	0.00	0.36	0.00	0.00	0.64	0.00	0.00
Avail Cap(c_a), veh/h	1311	0	0	1311	0	0	295	0	0	287	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.76	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.5	0.0	0.0	0.0	0.0	0.0	36.3	0.0	0.0	38.6	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.0	0.6	0.0	0.0	0.3	0.0	0.0	2.7	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	0.0	0.2	0.0	0.0	2.1	0.0	0.0	4.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.0	0.0	0.0	0.6	0.0	0.0	36.7	0.0	0.0	41.3	0.0	0.0
LnGrp LOS	A			A			D			D		
Approach Vol, veh/h		346			454			96			165	
Approach Delay, s/veh		5.0			0.6			36.7			41.3	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		77.6		22.4		77.6		22.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		70.5		20.5		70.5		20.5				
Max Q Clear Time (g_c+I1), s		8.6		8.5		2.0		14.6				
Green Ext Time (p_c), s		0.4		0.3		0.5		0.4				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			11.6									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	230	60	30	300	30	5	275	40	5	305	75
Future Volume (vph)	25	230	60	30	300	30	5	275	40	5	305	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.88		1.00	0.95			0.95			1.00	0.46
Flpb, ped/bikes	0.94	1.00		0.90	1.00			0.99			1.00	1.00
Frt	1.00	0.96		1.00	0.98			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1588	1527		1583	1731			1670			1808	716
Flt Permitted	0.32	1.00		0.41	1.00			0.99			0.99	1.00
Satd. Flow (perm)	544	1527		693	1731			1662			1799	716
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	256	67	33	333	33	6	306	44	6	339	83
RTOR Reduction (vph)	0	9	0	0	3	0	0	5	0	0	0	15
Lane Group Flow (vph)	28	314	0	33	363	0	0	351	0	0	345	68
Confl. Peds. (#/hr)	213		195	195		213	334		284	284		334
Confl. Bikes (#/hr)			31			19			20			2
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	6%	6%	6%	5%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	36.2	31.5		34.4	30.6			40.7			49.7	54.4
Effective Green, g (s)	36.2	31.5		34.4	30.6			40.7			49.7	54.4
Actuated g/C Ratio	0.36	0.32		0.34	0.31			0.41			0.50	0.54
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	245	481		272	529			676			894	421
v/s Ratio Prot	0.01	0.21		0.00	c0.21							c0.01
v/s Ratio Perm	0.04			0.04				c0.21			c0.19	0.09
v/c Ratio	0.11	0.65		0.12	0.68			0.51			0.38	0.16
Uniform Delay, d1	21.5	29.5		22.3	30.4			22.2			15.6	11.3
Progression Factor	0.83	0.87		1.00	1.00			0.70			1.00	1.00
Incremental Delay, d2	0.0	6.5		0.0	7.0			2.4			1.2	0.0
Delay (s)	18.1	32.2		22.3	37.5			18.1			16.9	11.4
Level of Service	B	C		C	D			B			B	B
Approach Delay (s/veh)		31.1			36.2			18.1			15.8	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	335	80	20	220	30	75	290	55	80	290	25
Future Volume (vph)	45	335	80	20	220	30	75	290	55	80	290	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.97			0.98		1.00	0.97		1.00	0.97	
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770			1798		1770	1774		1736	1758	
Flt Permitted		0.92			0.91		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1636			1651		1770	1774		1736	1758	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	47	353	84	21	232	32	79	305	58	84	305	26
RTOR Reduction (vph)	0	8	0	0	4	0	0	7	0	0	3	0
Lane Group Flow (vph)	0	476	0	0	281	0	79	356	0	84	328	0
Confl. Peds. (#/hr)	45		48	48		45	115		104	104		115
Confl. Bikes (#/hr)			3			3			8			9
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		28.5			28.5		8.8	40.3		9.2	49.2	
Effective Green, g (s)		28.5			28.5		8.8	40.3		9.2	49.2	
Actuated g/C Ratio		0.28			0.28		0.09	0.40		0.09	0.49	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		466			470		155	714		159	864	
v/s Ratio Prot							0.04	c0.20		c0.05	c0.19	
v/s Ratio Perm		c0.29			0.17							
v/c Ratio		1.02			0.59		0.50	0.49		0.52	0.38	
Uniform Delay, d1		35.7			30.8		43.5	22.3		43.3	15.8	
Progression Factor		1.00			1.00		1.00	1.00		1.02	0.76	
Incremental Delay, d2		47.3			5.5		0.9	2.4		1.3	1.1	
Delay (s)		83.0			36.3		44.5	24.7		45.7	13.2	
Level of Service		F			D		D	C		D	B	
Approach Delay (s/veh)		83.0			36.3			28.3			19.8	
Approach LOS		F			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	43.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	45	0	0	95
Future Vol, veh/h	0	0	45	0	0	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	0	0	52	0	0	110

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	162	52	0	0	52	0
Stage 1	52	-	-	-	-	-
Stage 2	110	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	834	1021	-	-	1554	-
Stage 1	976	-	-	-	-	-
Stage 2	920	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	834	1021	-	-	1554	-
Mov Cap-2 Maneuver	834	-	-	-	-	-
Stage 1	976	-	-	-	-	-
Stage 2	920	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1554	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	4.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰↑	↑↱	
Traffic Vol, veh/h	21	82	25	105	145	58
Future Vol, veh/h	21	82	25	105	145	58
Conflicting Peds, #/hr	142	142	142	0	0	142
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	3	3
Mvmt Flow	25	98	30	125	173	69

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	677	492	384	0	-	0
Stage 1	350	-	-	-	-	-
Stage 2	327	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	421	581	1180	-	-	-
Stage 1	718	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	305	434	1020	-	-	-
Mov Cap-2 Maneuver	305	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	636	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	17.9	1.7	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1020	-	400	-	-
HCM Lane V/C Ratio	0.029	-	0.307	-	-
HCM Control Delay (s/veh)	8.6	0	17.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0.1	-	1.3	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	5	104	1	5	133
Future Vol, veh/h	2	5	104	1	5	133
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	2	6	122	1	6	156

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	291	123	0	0	123	0
Stage 1	123	-	-	-	-	-
Stage 2	168	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	704	933	-	-	1477	-
Stage 1	907	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	701	933	-	-	1477	-
Mov Cap-2 Maneuver	701	-	-	-	-	-
Stage 1	907	-	-	-	-	-
Stage 2	864	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.3	0	0.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	852	1477	-
HCM Lane V/C Ratio	-	-	0.01	0.004	-
HCM Control Delay (s/veh)	-	-	9.3	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰↑	↑↱	
Traffic Vol, veh/h	5	2	2	335	370	4
Future Vol, veh/h	5	2	2	335	370	4
Conflicting Peds, #/hr	364	364	364	0	0	364
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	3	3	5	5
Mvmt Flow	5	2	2	338	374	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1446	1104	742	0	-	0
Stage 1	740	-	-	-	-	-
Stage 2	706	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	147	259	861	-	-	-
Stage 1	475	-	-	-	-	-
Stage 2	493	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	62	111	563	-	-	-
Mov Cap-2 Maneuver	62	-	-	-	-	-
Stage 1	309	-	-	-	-	-
Stage 2	322	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	61.2	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	563	-	71	-	-
HCM Lane V/C Ratio	0.004	-	0.1	-	-
HCM Control Delay (s/veh)	11.4	0	61.2	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q (veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	0.2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	3	2	320	1	3	395
Future Vol, veh/h	3	2	320	1	3	395
Conflicting Peds, #/hr	194	194	0	194	194	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	3	2	333	1	3	411

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1139	722	0	0	528	0
Stage 1	528	-	-	-	-	-
Stage 2	611	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.16	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.254	-
Pot Cap-1 Maneuver	225	430	-	-	1019	-
Stage 1	596	-	-	-	-	-
Stage 2	546	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	149	286	-	-	831	-
Mov Cap-2 Maneuver	149	-	-	-	-	-
Stage 1	486	-	-	-	-	-
Stage 2	443	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s/v	25.1		0		0.1	
HCM LOS	D					

Minor Lane/Major Mvmt		NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)		-	-	184	831	-
HCM Lane V/C Ratio		-	-	0.028	0.004	-
HCM Control Delay (s/veh)		-	-	25.1	9.3	0
HCM Lane LOS		-	-	D	A	A
HCM 95th %tile Q (veh)		-	-	0.1	0	-

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	3	4	0	320	395	2
Future Vol, veh/h	3	4	0	320	395	2
Conflicting Peds, #/hr	225	225	225	0	0	225
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	3	4	0	333	411	2

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1195	862	638	0	-	0
Stage 1	637	-	-	-	-	-
Stage 2	558	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	208	358	946	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	129	221	743	-	-	-
Mov Cap-2 Maneuver	129	-	-	-	-	-
Stage 1	417	-	-	-	-	-
Stage 2	454	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	27.3	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	743	-	169	-	-
HCM Lane V/C Ratio	-	-	0.043	-	-
HCM Control Delay (s/veh)	0	-	27.3	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	174	4	94	12	52	171	0	0	305	62
Future Volume (vph)	48	0	174	4	94	12	52	171	0	0	305	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.84			0.94			1.00			0.98	
Flpb, ped/bikes		0.91			0.99			0.99			1.00	
Frt		0.89			0.98			1.00			0.97	
Flt Protected		0.98			0.99			0.98			1.00	
Satd. Flow (prot)		1165			1718			1651			1674	
Flt Permitted		0.91			0.99			0.85			1.00	
Satd. Flow (perm)		1077			1705			1430			1674	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	50	0	181	4	98	12	54	178	0	0	318	65
RTOR Reduction (vph)	0	130	0	0	6	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	101	0	0	109	0	0	232	0	0	376	0
Confl. Peds. (#/hr)	295		100	100		295	50		30	30		50
Confl. Bikes (#/hr)			5						10			40
Heavy Vehicles (%)	11%	11%	11%	2%	2%	2%	13%	13%	13%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		22.5			22.5			38.5			38.5	
Effective Green, g (s)		22.5			22.5			38.5			38.5	
Actuated g/C Ratio		0.28			0.28			0.48			0.48	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		302			479			688			805	
v/s Ratio Prot											c0.22	
v/s Ratio Perm		c0.09			0.06			0.16				
v/c Ratio		0.33			0.22			0.33			0.46	
Uniform Delay, d1		22.8			22.0			12.8			13.8	
Progression Factor		1.00			1.00			0.36			1.00	
Incremental Delay, d2		2.9			1.1			1.2			1.9	
Delay (s)		25.7			23.1			5.9			15.8	
Level of Service		C			C			A			B	
Approach Delay (s/veh)		25.7			23.1			5.9			15.8	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	6	217	18	0	478
Future Volume (vph)	23	6	217	18	0	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.95		0.99			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.97		0.98			1.00
Flt Protected	0.96		1.00			1.00
Satd. Flow (prot)	1691		1619			1776
Flt Permitted	0.96		1.00			1.00
Satd. Flow (perm)	1691		1619			1776
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	25	7	238	20	0	525
RTOR Reduction (vph)	5	0	4	0	0	0
Lane Group Flow (vph)	27	0	254	0	0	525
Confl. Peds. (#/hr)	35	95		105	105	
Confl. Bikes (#/hr)				10		
Heavy Vehicles (%)	0%	0%	15%	15%	7%	7%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		40.5			50.5
Effective Green, g (s)	19.0		40.5			50.5
Actuated g/C Ratio	0.24		0.51			0.63
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	401		819			1121
v/s Ratio Prot	c0.02		0.16			c0.30
v/s Ratio Perm						
v/c Ratio	0.06		0.31			0.46
Uniform Delay, d1	23.6		11.5			7.7
Progression Factor	1.00		0.63			0.77
Incremental Delay, d2	0.0		0.9			1.2
Delay (s)	23.6		8.3			7.2
Level of Service	C		A			A
Approach Delay (s/veh)	23.6		8.3			7.2
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	6	6	6	6	6	17	6	6	29	6
Future Vol, veh/h	6	11	6	6	6	6	6	17	6	6	29	6
Conflicting Peds, #/hr	180	0	180	160	0	160	180	0	160	160	0	180
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	18	18	18	18	18	18	14	14	14	7	7	7
Mvmt Flow	8	14	8	8	8	8	8	22	8	8	38	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	468	444	402	451	444	366	226	0	0	190	0	0
Stage 1	238	238	-	202	202	-	-	-	-	-	-	-
Stage 2	230	206	-	249	242	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.68	6.38	7.28	6.68	6.38	4.24	-	-	4.17	-	-
Critical Hdwy Stg 1	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4.162	3.462	3.662	4.162	3.462	2.326	-	-	2.263	-	-
Pot Cap-1 Maneuver	480	485	615	492	485	645	1275	-	-	1354	-	-
Stage 1	731	680	-	765	705	-	-	-	-	-	-	-
Stage 2	738	702	-	721	677	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	314	336	422	324	336	453	1056	-	-	1148	-	-
Mov Cap-2 Maneuver	314	336	-	324	336	-	-	-	-	-	-	-
Stage 1	601	560	-	643	593	-	-	-	-	-	-	-
Stage 2	588	590	-	567	557	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	16.3	15.6	1.7	1.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1056	-	-	348	363	1148	-	-
HCM Lane V/C Ratio	0.007	-	-	0.086	0.064	0.007	-	-
HCM Control Delay (s/veh)	8.4	0	-	16.3	15.6	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.3	0.2	0	-	-

Intersection						
Int Delay, s/veh	2.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	11	6	57	68	6
Future Vol, veh/h	11	11	6	57	68	6
Conflicting Peds, #/hr	105	145	145	0	0	105
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	9	9	0	0	3	3
Mvmt Flow	16	16	9	81	97	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	451	392	251	0	-	0
Stage 1	247	-	-	-	-	-
Stage 2	204	-	-	-	-	-
Critical Hdwy	6.49	6.29	4.1	-	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	2.2	-	-	-
Pot Cap-1 Maneuver	553	642	1326	-	-	-
Stage 1	778	-	-	-	-	-
Stage 2	814	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	408	477	1143	-	-	-
Mov Cap-2 Maneuver	408	-	-	-	-	-
Stage 1	665	-	-	-	-	-
Stage 2	702	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	13.8	0.8	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1143	-	440	-	-
HCM Lane V/C Ratio	0.007	-	0.071	-	-
HCM Control Delay (s/veh)	8.2	0	13.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	6.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	238	11	6	448	11	6	6	6	6	17	23
Future Vol, veh/h	6	238	11	6	448	11	6	6	6	6	17	23
Conflicting Peds, #/hr	320	0	225	175	0	270	225	0	175	270	0	320
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	13	13	13	8	8	8	7	7	7	7	7	7
Mvmt Flow	6	256	12	6	482	12	6	6	6	6	18	25

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	814	0	0	493	0	0	1341	1325	757	1370	1325	1128
Stage 1	-	-	-	-	-	-	499	499	-	820	820	-
Stage 2	-	-	-	-	-	-	842	826	-	550	505	-
Critical Hdwy	4.23	-	-	4.18	-	-	7.17	6.57	6.27	7.17	6.57	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Follow-up Hdwy	2.317	-	-	2.272	-	-	3.563	4.063	3.363	3.563	4.063	3.363
Pot Cap-1 Maneuver	767	-	-	1040	-	-	126	152	400	121	152	243
Stage 1	-	-	-	-	-	-	544	535	-	362	382	-
Stage 2	-	-	-	-	-	-	352	380	-	510	532	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	533	-	-	817	-	-	44	81	233	56	81	117
Mov Cap-2 Maneuver	-	-	-	-	-	-	44	81	-	56	81	-
Stage 1	-	-	-	-	-	-	422	415	-	248	263	-
Stage 2	-	-	-	-	-	-	178	261	-	358	413	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.3	0.1	67.8	85.7
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	76	533	-	-	817	-	-	90
HCM Lane V/C Ratio	0.255	0.012	-	-	0.008	-	-	0.55
HCM Control Delay (s/veh)	67.8	11.8	0	-	9.4	0	-	85.7
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q (veh)	0.9	0	-	-	0	-	-	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	63	169	17	0	414	27	23	30	6	22	29	28
Future Volume (veh/h)	63	169	17	0	414	27	23	30	6	22	29	28
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.86	1.00		0.83	0.76		0.68	0.74		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1767	1767	1767	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	71	190	19	0	465	30	26	34	7	25	33	31
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	11	11	11	9	9	9	0	0	0	3	3	3
Cap, veh/h	266	676	64	0	1142	74	140	162	28	100	112	83
Arrive On Green	0.71	0.71	0.71	0.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	297	958	91	0	1619	104	425	889	153	235	614	453
Grp Volume(v), veh/h	280	0	0	0	0	495	67	0	0	89	0	0
Grp Sat Flow(s),veh/h/ln	1346	0	0	0	0	1723	1467	0	0	1302	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.7	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	4.3	0.0	0.0
Prop In Lane	0.25		0.07	0.00		0.06	0.39		0.10	0.28		0.35
Lane Grp Cap(c), veh/h	1006	0	0	0	0	1216	329	0	0	295	0	0
V/C Ratio(X)	0.28	0.00	0.00	0.00	0.00	0.41	0.20	0.00	0.00	0.30	0.00	0.00
Avail Cap(c_a), veh/h	1006	0	0	0	0	1216	413	0	0	370	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.64	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	4.2	0.0	0.0	0.0	0.0	0.0	27.8	0.0	0.0	28.5	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	0.0	0.0	0.0	0.2	1.1	0.0	0.0	1.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.8	0.0	0.0	0.0	0.0	0.6	27.9	0.0	0.0	28.7	0.0	0.0
LnGrp LOS	A					A	C			C		
Approach Vol, veh/h		280			495			67			89	
Approach Delay, s/veh		4.8			0.6			27.9			28.7	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		60.9		19.1		60.9		19.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		51.5		19.5		51.5		19.5				
Max Q Clear Time (g_c+I1), s		6.7		4.6		2.0		6.3				
Green Ext Time (p_c), s		0.5		0.2		0.6		0.3				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			6.6									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	124	58	24	376	19	8	191	18	6	438	57
Future Volume (vph)	19	124	58	24	376	19	8	191	18	6	438	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.87		1.00	0.97			0.98			1.00	0.53
Flpb, ped/bikes	0.96	1.00		0.82	1.00			0.99			0.99	1.00
Frt	1.00	0.95		1.00	0.99			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1581	1433		1414	1758			1643			1739	790
Flt Permitted	0.28	1.00		0.63	1.00			0.97			0.99	1.00
Satd. Flow (perm)	478	1433		946	1758			1613			1735	790
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	20	132	62	26	400	20	9	203	19	6	466	61
RTOR Reduction (vph)	0	18	0	0	2	0	0	4	0	0	0	21
Lane Group Flow (vph)	20	176	0	26	418	0	0	227	0	0	472	40
Confl. Peds. (#/hr)	180		160	160		180	240		130	130		240
Confl. Bikes (#/hr)			20			55			5			35
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	11%	11%	11%	9%	9%	9%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	32.1	27.8		28.3	25.9			25.8			34.8	39.1
Effective Green, g (s)	32.1	27.8		28.3	25.9			25.8			34.8	39.1
Actuated g/C Ratio	0.40	0.35		0.35	0.32			0.32			0.43	0.49
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	251	497		348	569			520			754	430
v/s Ratio Prot	0.00	0.12		0.00	c0.24							c0.00
v/s Ratio Perm	0.03			0.02				0.14			c0.27	0.05
v/c Ratio	0.07	0.35		0.07	0.73			0.43			0.62	0.09
Uniform Delay, d1	15.5	19.4		17.0	24.0			21.3			17.5	10.9
Progression Factor	0.83	0.78		1.00	1.00			0.60			1.42	1.07
Incremental Delay, d2	0.0	1.8		0.0	8.1			2.4			3.5	0.0
Delay (s)	13.0	17.1		17.0	32.1			15.3			28.5	11.7
Level of Service	B	B		B	C			B			C	B
Approach Delay (s/veh)		16.7			31.3			15.3			26.6	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	34	170	56	11	108	17	52	174	23	75	401	35
Future Volume (vph)	34	170	56	11	108	17	52	174	23	75	401	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.89			0.95		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.98		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1569			1648		1656	1679		1703	1689	
Flt Permitted		0.94			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489			1595		1656	1679		1703	1689	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	40	200	66	13	127	20	61	205	27	88	472	41
RTOR Reduction (vph)	0	12	0	0	6	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	294	0	0	154	0	61	226	0	88	510	0
Confl. Peds. (#/hr)	145		200	200		145	350		95	95		350
Confl. Bikes (#/hr)			15			30			15			35
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	9%	9%	9%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		22.5			22.5		7.5	27.3		8.2	36.5	
Effective Green, g (s)		22.5			22.5		7.5	27.3		8.2	36.5	
Actuated g/C Ratio		0.28			0.28		0.09	0.34		0.10	0.46	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		418			448		155	572		174	770	
v/s Ratio Prot							0.04	0.13		c0.05	c0.30	
v/s Ratio Perm		c0.20			0.10							
v/c Ratio		0.70			0.34		0.39	0.39		0.50	0.66	
Uniform Delay, d1		25.7			22.8		34.1	20.0		33.9	16.9	
Progression Factor		1.00			1.00		1.00	1.00		0.87	1.59	
Incremental Delay, d2		9.5			2.0		0.6	2.0		0.7	3.9	
Delay (s)		35.2			24.9		34.7	22.1		30.4	31.0	
Level of Service		D			C		C	C		C	C	
Approach Delay (s/veh)		35.2			24.9			24.7			30.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	23	0	0	46
Future Vol, veh/h	0	0	23	0	0	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	14	7	7
Mvmt Flow	0	0	25	0	0	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	74	25	0	0	25	0
Stage 1	25	-	-	-	-	-
Stage 2	49	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263	-
Pot Cap-1 Maneuver	935	1057	-	-	1558	-
Stage 1	1003	-	-	-	-	-
Stage 2	979	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	935	1057	-	-	1558	-
Mov Cap-2 Maneuver	935	-	-	-	-	-
Stage 1	1003	-	-	-	-	-
Stage 2	979	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1558	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	8	31	79	120	79	66
Future Vol, veh/h	8	31	79	120	79	66
Conflicting Peds, #/hr	95	95	95	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	9	35	89	135	89	74

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	629	316	258	0	-	0
Stage 1	221	-	-	-	-	-
Stage 2	408	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	449	729	1318	-	-	-
Stage 1	821	-	-	-	-	-
Stage 2	676	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	342	603	1199	-	-	-
Mov Cap-2 Maneuver	342	-	-	-	-	-
Stage 1	687	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.5	3.3	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1199	-	521	-	-
HCM Lane V/C Ratio	0.074	-	0.084	-	-
HCM Control Delay (s/veh)	8.2	0	12.5	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0.2	-	0.3	-	-

Intersection						
Int Delay, s/veh	0.5					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	1	2	68	2	8	74
Future Vol, veh/h	1	2	68	2	8	74
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	1	3	97	3	11	106

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	227	99	0	0	100	0
Stage 1	99	-	-	-	-	-
Stage 2	128	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	766	962	-	-	1486	-
Stage 1	930	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	760	962	-	-	1486	-
Mov Cap-2 Maneuver	760	-	-	-	-	-
Stage 1	930	-	-	-	-	-
Stage 2	896	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.1	0	0.7
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	884	1486	-
HCM Lane V/C Ratio	-	-	0.005	0.008	-
HCM Control Delay (s/veh)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	1	3	223	478	7
Future Vol, veh/h	2	1	3	223	478	7
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	13	9	9
Mvmt Flow	2	1	3	248	531	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	889	635	589	0	-	0
Stage 1	585	-	-	-	-	-
Stage 2	304	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.23	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.317	-	-	-
Pot Cap-1 Maneuver	316	482	934	-	-	-
Stage 1	561	-	-	-	-	-
Stage 2	753	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	285	437	890	-	-	-
Mov Cap-2 Maneuver	285	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	717	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16.3	0.1	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	890	-	322	-	-
HCM Lane V/C Ratio	0.004	-	0.01	-	-
HCM Control Delay (s/veh)	9.1	0	16.3	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	**WBL**	**WBR**	**NBT**	**NBR**	**SBL**	**SBT**
Lane Configurations						
Traffic Vol, veh/h	1	1	217	1	6	520
Future Vol, veh/h	1	1	217	1	6	520
Conflicting Peds, #/hr	115	115	0	115	115	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	1	1	231	1	6	553

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1027	462	0	0	347	0
Stage 1	347	-	-	-	-	-
Stage 2	680	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.19	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.281	-
Pot Cap-1 Maneuver	262	604	-	-	1174	-
Stage 1	720	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	206	479	-	-	1045	-
Mov Cap-2 Maneuver	206	-	-	-	-	-
Stage 1	641	-	-	-	-	-
Stage 2	448	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	17.6	0	0.1
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	288	1045	-
HCM Lane V/C Ratio	-	-	0.007	0.006	-
HCM Control Delay (s/veh)	-	-	17.6	8.5	0
HCM Lane LOS	-	-	C	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	1	2	217	520	5
Future Vol, veh/h	0	1	2	217	520	5
Conflicting Peds, #/hr	295	295	295	0	0	295
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	0	1	2	231	553	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1381	1146	853	0	-	0
Stage 1	851	-	-	-	-	-
Stage 2	530	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	160	245	749	-	-	-
Stage 1	422	-	-	-	-	-
Stage 2	594	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	82	127	539	-	-	-
Mov Cap-2 Maneuver	82	-	-	-	-	-
Stage 1	302	-	-	-	-	-
Stage 2	427	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	33.6	0.1	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	539	-	127	-	-
HCM Lane V/C Ratio	0.004	-	0.008	-	-
HCM Control Delay (s/veh)	11.7	0	33.6	-	-
HCM Lane LOS	B	A	D	-	-
HCM 95th %tile Q (veh)	0	-	0	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	0	65	9	135	33	14	398	0	0	321	63
Future Volume (vph)	106	0	65	9	135	33	14	398	0	0	321	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.83			0.94			1.00			0.91	
Flpb, ped/bikes		0.90			0.98			0.99			1.00	
Frt		0.94			0.97			1.00			0.97	
Flt Protected		0.96			0.99			0.99			1.00	
Satd. Flow (prot)		1281			1724			1774			1621	
Flt Permitted		0.59			0.98			0.98			1.00	
Satd. Flow (perm)		790			1695			1748			1621	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	116	0	71	10	148	36	15	437	0	0	353	69
RTOR Reduction (vph)	0	56	0	0	12	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	132	0	0	182	0	0	452	0	0	415	0
Confl. Peds. (#/hr)	110		170	170		110	520		335	335		520
Confl. Bikes (#/hr)			5			10			20			10
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		14.5			14.5			36.5			36.5	
Effective Green, g (s)		14.5			14.5			36.5			36.5	
Actuated g/C Ratio		0.21			0.21			0.52			0.52	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		163			351			911			845	
v/s Ratio Prot											0.26	
v/s Ratio Perm		c0.17			0.11			c0.26				
v/c Ratio		0.80			0.51			0.49			0.49	
Uniform Delay, d1		26.4			24.6			10.8			10.7	
Progression Factor		1.00			1.00			1.59			1.00	
Incremental Delay, d2		33.3			5.3			1.6			2.0	
Delay (s)		59.7			30.0			18.9			12.8	
Level of Service		E			C			B			B	
Approach Delay (s/veh)		59.7			30.0			18.9			12.8	
Approach LOS		E			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	15	390	42	6	435
Future Volume (vph)	16	15	390	42	6	435
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.92		0.96			1.00
Flpb, ped/bikes	1.00		1.00			0.99
Frt	0.93		0.98			1.00
Flt Protected	0.97		1.00			0.99
Satd. Flow (prot)	1608		1690			1789
Flt Permitted	0.97		1.00			0.99
Satd. Flow (perm)	1608		1690			1781
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	16	419	45	6	468
RTOR Reduction (vph)	12	0	6	0	0	0
Lane Group Flow (vph)	21	0	458	0	0	474
Confl. Peds. (#/hr)	50	70		290	290	
Confl. Bikes (#/hr)				40		
Heavy Vehicles (%)	0%	0%	7%	7%	6%	6%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		30.5			40.5
Effective Green, g (s)	19.0		30.5			40.5
Actuated g/C Ratio	0.27		0.44			0.58
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	436		736			1030
v/s Ratio Prot	c0.01		c0.27			
v/s Ratio Perm						c0.27
v/c Ratio	0.04		0.62			0.46
Uniform Delay, d1	18.8		15.2			8.4
Progression Factor	1.00		1.00			1.41
Incremental Delay, d2	0.0		3.9			1.2
Delay (s)	18.8		19.2			13.2
Level of Service	B		B			B
Approach Delay (s/veh)	18.8		19.2			13.2
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	52.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	8.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	29	11	6	6	6	40	6	11	69	17
Future Vol, veh/h	6	11	29	11	6	6	6	40	6	11	69	17
Conflicting Peds, #/hr	215	0	235	270	0	250	235	0	270	250	0	215
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	4	4	4	0	0	0	0	0	0	2	2	2
Mvmt Flow	7	13	35	13	7	7	7	49	7	13	84	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	680	696	600	752	703	573	340	0	0	326	0	0
Stage 1	356	356	-	337	337	-	-	-	-	-	-	-
Stage 2	324	340	-	415	366	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	362	363	497	329	364	523	1230	-	-	1234	-	-
Stage 1	657	625	-	681	645	-	-	-	-	-	-	-
Stage 2	684	636	-	619	626	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	199	204	287	149	205	296	955	-	-	917	-	-
Mov Cap-2 Maneuver	199	204	-	149	205	-	-	-	-	-	-	-
Stage 1	506	478	-	502	475	-	-	-	-	-	-	-
Stage 2	496	469	-	386	478	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	23.7	27.8	1	1
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	955	-	-	248	186	917	-	-
HCM Lane V/C Ratio	0.008	-	-	0.226	0.151	0.015	-	-
HCM Control Delay (s/veh)	8.8	0	-	23.7	27.8	9	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.8	0.5	0	-	-

Intersection						
Int Delay, s/veh	2.2					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	17	11	112	154	11
Future Vol, veh/h	17	17	11	112	154	11
Conflicting Peds, #/hr	175	180	180	0	0	175
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	20	20	13	132	181	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	701	548	374	0	-	0
Stage 1	368	-	-	-	-	-
Stage 2	333	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	408	540	1184	-	-	-
Stage 1	704	-	-	-	-	-
Stage 2	731	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	277	371	981	-	-	-
Mov Cap-2 Maneuver	277	-	-	-	-	-
Stage 1	575	-	-	-	-	-
Stage 2	606	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	18	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	981	-	317	-	-
HCM Lane V/C Ratio	0.013	-	0.126	-	-
HCM Control Delay (s/veh)	8.7	0	18	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0	-	0.4	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	11	388	11	11	451	23	6	17	17	17	40	52
Future Vol, veh/h	11	388	11	11	451	23	6	17	17	17	40	52
Conflicting Peds, #/hr	550	0	355	400	0	595	355	0	400	595	0	550
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	4	4	4	4	4	0	0	0	2	2	2
Mvmt Flow	13	451	13	13	524	27	7	20	20	20	47	60

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1146	0	0	864	0	0	2051	2056	1453	2258	2049	1683
Stage 1	-	-	-	-	-	-	884	884	-	1159	1159	-
Stage 2	-	-	-	-	-	-	1167	1172	-	1099	890	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	602	-	-	770	-	-	42	56	162	29	56	117
Stage 1	-	-	-	-	-	-	343	366	-	238	270	-
Stage 2	-	-	-	-	-	-	238	269	-	258	361	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	261	-	-	477	-	-	-	~ 13	43	-	~ 13	~ 24
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 13	-	-	~ 13	-
Stage 1	-	-	-	-	-	-	198	212	-	96	112	-
Stage 2	-	-	-	-	-	-	-	112	-	51	209	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.5	0.3		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	261	-	-	477	-	-	-
HCM Lane V/C Ratio	-	0.049	-	-	0.027	-	-	-
HCM Control Delay (s/veh)	-	19.5	0	-	12.8	0	-	-
HCM Lane LOS	-	C	A	-	B	A	-	-
HCM 95th %tile Q (veh)	-	0.2	-	-	0.1	-	-	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	12	335	29	12	399	69	29	49	23	47	80	52
Future Volume (veh/h)	12	335	29	12	399	69	29	49	23	47	80	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.96		0.85	0.99		0.87	0.81		0.41	0.62		0.42
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1826	1826	1826	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	14	381	33	14	453	78	33	56	26	53	91	59
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	6	6	5	5	5	3	3	3	0	0	0
Cap, veh/h	54	1139	97	50	1056	179	93	127	51	90	113	64
Arrive On Green	0.72	0.72	0.72	1.00	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	24	1573	133	18	1458	247	252	685	274	237	607	346
Grp Volume(v), veh/h	428	0	0	545	0	0	115	0	0	203	0	0
Grp Sat Flow(s),veh/h/ln	1730	0	0	1723	0	0	1211	0	0	1190	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0
Cycle Q Clear(g_c), s	8.9	0.0	0.0	0.0	0.0	0.0	8.2	0.0	0.0	16.4	0.0	0.0
Prop In Lane	0.03		0.08	0.03		0.14	0.29		0.23	0.26		0.29
Lane Grp Cap(c), veh/h	1290	0	0	1284	0	0	271	0	0	267	0	0
V/C Ratio(X)	0.33	0.00	0.00	0.42	0.00	0.00	0.42	0.00	0.00	0.76	0.00	0.00
Avail Cap(c_a), veh/h	1290	0	0	1284	0	0	293	0	0	286	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.59	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.0	0.0	0.0	0.0	0.0	0.0	36.4	0.0	0.0	39.3	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.0	0.6	0.0	0.0	0.4	0.0	0.0	9.2	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	0.0	0.0	0.2	0.0	0.0	2.5	0.0	0.0	5.5	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	5.7	0.0	0.0	0.6	0.0	0.0	36.8	0.0	0.0	48.5	0.0	0.0
LnGrp LOS	A			A			D			D		
Approach Vol, veh/h		428			545			115			203	
Approach Delay, s/veh		5.7			0.6			36.8			48.5	
Approach LOS		A			A			D			D	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		76.9		23.1		76.9		23.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		70.5		20.5		70.5		20.5				
Max Q Clear Time (g_c+I1), s		10.9		10.2		2.0		18.4				
Green Ext Time (p_c), s		0.5		0.4		0.7		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			13.1									
HCM 6th LOS			B									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	275	76	37	352	36	12	342	51	7	369	92
Future Volume (vph)	43	275	76	37	352	36	12	342	51	7	369	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.87		1.00	0.94			0.93			1.00	0.40
Flpb, ped/bikes	0.96	1.00		0.93	1.00			0.98			1.00	1.00
Frt	1.00	0.96		1.00	0.98			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1635	1498		1644	1719			1627			1808	618
Flt Permitted	0.23	1.00		0.32	1.00			0.98			0.99	1.00
Satd. Flow (perm)	396	1498		559	1719			1605			1794	618
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	306	84	41	391	40	13	380	57	8	410	102
RTOR Reduction (vph)	0	9	0	0	3	0	0	5	0	0	0	15
Lane Group Flow (vph)	48	381	0	41	428	0	0	445	0	0	418	87
Confl. Peds. (#/hr)	305		280	280		305	480		405	405		480
Confl. Bikes (#/hr)			45			30			30			5
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	6%	6%	6%	5%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	36.5	31.3		34.1	30.1			40.7			49.7	54.9
Effective Green, g (s)	36.5	31.3		34.1	30.1			40.7			49.7	54.9
Actuated g/C Ratio	0.37	0.31		0.34	0.30			0.41			0.50	0.55
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	208	468		234	517			653			891	367
v/s Ratio Prot	0.01	c0.25		0.01	0.25							c0.01
v/s Ratio Perm	0.07			0.05				c0.28			c0.23	0.13
v/c Ratio	0.23	0.81		0.17	0.82			0.68			0.46	0.23
Uniform Delay, d1	22.3	31.6		22.9	32.5			24.3			16.4	11.6
Progression Factor	0.83	0.85		1.00	1.00			0.70			1.00	1.00
Incremental Delay, d2	0.1	13.4		0.1	14.0			4.1			1.7	0.1
Delay (s)	18.8	40.5		23.1	46.6			21.2			18.2	11.8
Level of Service	B	D		C	D			C			B	B
Approach Delay (s/veh)		38.1			44.5			21.2			17.0	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	390	102	23	253	34	88	366	63	92	356	34
Future Volume (vph)	56	390	102	23	253	34	88	366	63	92	356	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.97		1.00	0.96		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739			1787		1770	1764		1736	1728	
Flt Permitted		0.87			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1523			1559		1770	1764		1736	1728	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	411	107	24	266	36	93	385	66	97	375	36
RTOR Reduction (vph)	0	8	0	0	4	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	569	0	0	322	0	93	445	0	97	408	0
Confl. Peds. (#/hr)	65		70	70		65	165		150	150		165
Confl. Bikes (#/hr)			5			5			15			15
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		28.5			28.5		9.6	39.7		9.8	48.4	
Effective Green, g (s)		28.5			28.5		9.6	39.7		9.8	48.4	
Actuated g/C Ratio		0.28			0.28		0.10	0.40		0.10	0.48	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		434			444		169	700		170	836	
v/s Ratio Prot							0.05	c0.25		c0.06	c0.24	
v/s Ratio Perm		c0.37			0.21							
v/c Ratio		1.31			0.72		0.55	0.63		0.57	0.48	
Uniform Delay, d1		35.7			32.2		43.1	24.3		43.0	17.4	
Progression Factor		1.00			1.00		1.00	1.00		1.01	0.84	
Incremental Delay, d2		155.8			9.8		2.1	4.3		2.5	1.8	
Delay (s)		191.5			42.0		45.3	28.6		46.3	16.4	
Level of Service		F			D		D	C		D	B	
Approach Delay (s/veh)		191.5			42.0			31.5			22.1	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	78.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	51	0	0	109
Future Vol, veh/h	0	0	51	0	0	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	0	0	59	0	0	127

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	186	59	0	0	59	0
Stage 1	59	-	-	-	-	-
Stage 2	127	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	808	1012	-	-	1545	-
Stage 1	969	-	-	-	-	-
Stage 2	904	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	808	1012	-	-	1545	-
Mov Cap-2 Maneuver	808	-	-	-	-	-
Stage 1	969	-	-	-	-	-
Stage 2	904	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s/v	0		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1545	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	7.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	22	90	27	130	179	63
Future Vol, veh/h	22	90	27	130	179	63
Conflicting Peds, #/hr	205	205	205	0	0	205
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	3	3
Mvmt Flow	26	107	32	155	213	75

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	880	661	493	0	-	0
Stage 1	456	-	-	-	-	-
Stage 2	424	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	320	466	1076	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	664	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	199	302	866	-	-	-
Mov Cap-2 Maneuver	199	-	-	-	-	-
Stage 1	497	-	-	-	-	-
Stage 2	535	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	30	1.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	866	-	274	-	-
HCM Lane V/C Ratio	0.037	-	0.487	-	-
HCM Control Delay (s/veh)	9.3	0	30	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q (veh)	0.1	-	2.5	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	2	6	129	1	5	165
Future Vol, veh/h	2	6	129	1	5	165
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	2	7	152	1	6	194

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	359	153	0	0	153	0
Stage 1	153	-	-	-	-	-
Stage 2	206	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	644	898	-	-	1440	-
Stage 1	880	-	-	-	-	-
Stage 2	833	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	641	898	-	-	1440	-
Mov Cap-2 Maneuver	641	-	-	-	-	-
Stage 1	880	-	-	-	-	-
Stage 2	829	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.5	0	0.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	816	1440	-
HCM Lane V/C Ratio	-	-	0.012	0.004	-
HCM Control Delay (s/veh)	-	-	9.5	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0	0	-

Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	2	2	405	441	4
Future Vol, veh/h	6	2	2	405	441	4
Conflicting Peds, #/hr	520	520	520	0	0	520
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	3	3	5	5
Mvmt Flow	6	2	2	409	445	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1900	1487	969	0	-	0
Stage 1	967	-	-	-	-	-
Stage 2	933	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	77	154	707	-	-	-
Stage 1	372	-	-	-	-	-
Stage 2	386	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	19	39	357	-	-	-
Mov Cap-2 Maneuver	19	-	-	-	-	-
Stage 1	186	-	-	-	-	-
Stage 2	195	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	243.8	0.1	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	357	-	22	-	-
HCM Lane V/C Ratio	0.006	-	0.367	-	-
HCM Control Delay (s/veh)	15.1	0	243.8	-	-
HCM Lane LOS	C	A	F	-	-
HCM 95th %tile Q (veh)	0	-	1.1	-	-

Intersection	
Int Delay, s/veh	0.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	4	2	405	1	3	482
Future Vol, veh/h	4	2	405	1	3	482
Conflicting Peds, #/hr	280	280	0	280	280	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	4	2	422	1	3	502

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1491	983	0	0	703	0
Stage 1	703	-	-	-	-	-
Stage 2	788	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.16	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.254	-
Pot Cap-1 Maneuver	138	305	-	-	876	-
Stage 1	495	-	-	-	-	-
Stage 2	452	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	164	-	-	642	-
Mov Cap-2 Maneuver	74	-	-	-	-	-
Stage 1	363	-	-	-	-	-
Stage 2	330	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	47.5	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	91	642	-
HCM Lane V/C Ratio	-	-	0.069	0.005	-
HCM Control Delay (s/veh)	-	-	47.5	10.6	0
HCM Lane LOS	-	-	E	B	A
HCM 95th %tile Q (veh)	-	-	0.2	0	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↰	↱	
Traffic Vol, veh/h	2	3	1	405	482	4
Future Vol, veh/h	2	3	1	405	482	4
Conflicting Peds, #/hr	320	320	320	0	0	320
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	2	3	1	422	502	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1568	1144	826	0	-	0
Stage 1	824	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	123	246	805	-	-	-
Stage 1	434	-	-	-	-	-
Stage 2	473	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	59	119	560	-	-	-
Mov Cap-2 Maneuver	59	-	-	-	-	-
Stage 1	301	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	50.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	560	-	85	-	-
HCM Lane V/C Ratio	0.002	-	0.061	-	-
HCM Control Delay (s/veh)	11.4	0	50.1	-	-
HCM Lane LOS	B	A	F	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	0	170	3	94	12	52	169	0	0	302	62
Future Volume (vph)	48	0	170	3	94	12	52	169	0	0	302	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.84			0.94			1.00			0.98	
Flpb, ped/bikes		0.91			0.99			0.99			1.00	
Frt		0.89			0.98			1.00			0.97	
Flt Protected		0.98			0.99			0.98			1.00	
Satd. Flow (prot)		1165			1719			1651			1674	
Flt Permitted		0.91			0.99			0.85			1.00	
Satd. Flow (perm)		1075			1710			1429			1674	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	50	0	177	3	98	12	54	176	0	0	315	65
RTOR Reduction (vph)	0	127	0	0	6	0	0	0	0	0	7	0
Lane Group Flow (vph)	0	100	0	0	108	0	0	230	0	0	373	0
Confl. Peds. (#/hr)	295		100	100		295	50		30	30		50
Confl. Bikes (#/hr)			5						10			40
Heavy Vehicles (%)	11%	11%	11%	2%	2%	2%	13%	13%	13%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		22.5			22.5			38.5			38.5	
Effective Green, g (s)		22.5			22.5			38.5			38.5	
Actuated g/C Ratio		0.28			0.28			0.48			0.48	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		302			480			687			805	
v/s Ratio Prot											c0.22	
v/s Ratio Perm		c0.09			0.06			0.16				
v/c Ratio		0.33			0.22			0.33			0.46	
Uniform Delay, d1		22.7			22.0			12.8			13.8	
Progression Factor		1.00			1.00			0.35			1.00	
Incremental Delay, d2		2.9			1.0			1.2			1.9	
Delay (s)		25.6			23.1			5.8			15.7	
Level of Service		C			C			A			B	
Approach Delay (s/veh)		25.6			23.1			5.8			15.7	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	6	214	18	0	476
Future Volume (vph)	23	6	214	18	0	476
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.95		0.98			1.00
Flpb, ped/bikes	1.00		1.00			1.00
Frt	0.97		0.98			1.00
Flt Protected	0.96		1.00			1.00
Satd. Flow (prot)	1691		1618			1776
Flt Permitted	0.96		1.00			1.00
Satd. Flow (perm)	1691		1618			1776
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	25	7	235	20	0	523
RTOR Reduction (vph)	5	0	4	0	0	0
Lane Group Flow (vph)	27	0	251	0	0	523
Confl. Peds. (#/hr)	35	95		105	105	
Confl. Bikes (#/hr)				10		
Heavy Vehicles (%)	0%	0%	15%	15%	7%	7%
Turn Type	Prot		NA			NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		40.5			50.5
Effective Green, g (s)	19.0		40.5			50.5
Actuated g/C Ratio	0.24		0.51			0.63
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	401		819			1121
v/s Ratio Prot	c0.02		0.16			c0.29
v/s Ratio Perm						
v/c Ratio	0.06		0.30			0.46
Uniform Delay, d1	23.6		11.5			7.7
Progression Factor	1.00		0.63			0.76
Incremental Delay, d2	0.0		0.9			1.2
Delay (s)	23.6		8.2			7.1
Level of Service	C		A			A
Approach Delay (s/veh)	23.6		8.2			7.1
Approach LOS	C		A			A

Intersection Summary			
HCM 2000 Control Delay (s/veh)	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	49.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	6	6	6	6	6	19	11	6	63	6
Future Vol, veh/h	6	11	6	6	6	6	6	19	11	6	63	6
Conflicting Peds, #/hr	180	0	180	160	0	160	180	0	160	160	0	180
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	77	77	77	77	77	77	77	77	77	77	77	77
Heavy Vehicles, %	18	18	18	18	18	18	14	14	14	7	7	7
Mvmt Flow	8	14	8	8	8	8	8	25	14	8	82	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	518	497	446	501	494	372	270	0	0	199	0	0
Stage 1	282	282	-	208	208	-	-	-	-	-	-	-
Stage 2	236	215	-	293	286	-	-	-	-	-	-	-
Critical Hdwy	7.28	6.68	6.38	7.28	6.68	6.38	4.24	-	-	4.17	-	-
Critical Hdwy Stg 1	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.28	5.68	-	6.28	5.68	-	-	-	-	-	-	-
Follow-up Hdwy	3.662	4.162	3.462	3.662	4.162	3.462	2.326	-	-	2.263	-	-
Pot Cap-1 Maneuver	444	452	580	456	454	640	1227	-	-	1344	-	-
Stage 1	691	650	-	759	701	-	-	-	-	-	-	-
Stage 2	733	696	-	682	647	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	290	313	398	300	314	449	1017	-	-	1139	-	-
Mov Cap-2 Maneuver	290	313	-	300	314	-	-	-	-	-	-	-
Stage 1	568	535	-	638	590	-	-	-	-	-	-	-
Stage 2	584	585	-	535	532	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	17.2	16.3	1.4	0.7
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1017	-	-	324	343	1139	-	-
HCM Lane V/C Ratio	0.008	-	-	0.092	0.068	0.007	-	-
HCM Control Delay (s/veh)	8.6	0	-	17.2	16.3	8.2	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.3	0.2	0	-	-

Intersection						
Int Delay, s/veh	3.7					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	11	16	6	60	7	6
Future Vol, veh/h	11	16	6	60	7	6
Conflicting Peds, #/hr	105	145	145	0	0	105
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	9	9	0	0	3	3
Mvmt Flow	16	23	9	86	10	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	369	305	164	0	-	0
Stage 1	160	-	-	-	-	-
Stage 2	209	-	-	-	-	-
Critical Hdwy	6.49	6.29	4.1	-	-	-
Critical Hdwy Stg 1	5.49	-	-	-	-	-
Critical Hdwy Stg 2	5.49	-	-	-	-	-
Follow-up Hdwy	3.581	3.381	2.2	-	-	-
Pot Cap-1 Maneuver	618	719	1427	-	-	-
Stage 1	852	-	-	-	-	-
Stage 2	810	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	455	534	1230	-	-	-
Mov Cap-2 Maneuver	455	-	-	-	-	-
Stage 1	728	-	-	-	-	-
Stage 2	698	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	12.8	0.7	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1230	-	499	-	-
HCM Lane V/C Ratio	0.007	-	0.077	-	-
HCM Control Delay (s/veh)	7.9	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q (veh)	0	-	0.3	-	-

Intersection	
Int Delay, s/veh	11.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	40	180	11	6	432	18	6	6	6	7	17	38
Future Vol, veh/h	40	180	11	6	432	18	6	6	6	7	17	38
Conflicting Peds, #/hr	320	0	225	175	0	270	225	0	175	270	0	320
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	13	13	13	8	8	8	7	7	7	7	7	7
Mvmt Flow	43	194	12	6	465	19	6	6	6	8	18	41

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	804	0	0	431	0	0	1347	1327	695	1369	1324	1115
Stage 1	-	-	-	-	-	-	511	511	-	807	807	-
Stage 2	-	-	-	-	-	-	836	816	-	562	517	-
Critical Hdwy	4.23	-	-	4.18	-	-	7.17	6.57	6.27	7.17	6.57	6.27
Critical Hdwy Stg 1	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.17	5.57	-	6.17	5.57	-
Follow-up Hdwy	2.317	-	-	2.272	-	-	3.563	4.063	3.363	3.563	4.063	3.363
Pot Cap-1 Maneuver	774	-	-	1097	-	-	125	152	434	121	152	247
Stage 1	-	-	-	-	-	-	536	529	-	368	387	-
Stage 2	-	-	-	-	-	-	354	384	-	503	526	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	538	-	-	862	-	-	34	75	253	53	75	119
Mov Cap-2 Maneuver	-	-	-	-	-	-	34	75	-	53	75	-
Stage 1	-	-	-	-	-	-	383	378	-	233	266	-
Stage 2	-	-	-	-	-	-	149	264	-	326	376	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	2.1	0.1	84	113.5
HCM LOS			F	F

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	64	538	-	-	862	-	-	91
HCM Lane V/C Ratio	0.302	0.08	-	-	0.007	-	-	0.733
HCM Control Delay (s/veh)	84	12.3	0	-	9.2	0	-	113.5
HCM Lane LOS	F	B	A	-	A	A	-	F
HCM 95th %tile Q (veh)	1.1	0.3	-	-	0	-	-	3.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	9	166	17	0	421	12	23	30	6	16	29	12
Future Volume (veh/h)	9	166	17	0	421	12	23	30	6	16	29	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.86	1.00		0.83	0.74		0.67	0.74		0.66
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1737	1737	1737	1767	1767	1767	1900	1900	1900	1856	1856	1856
Adj Flow Rate, veh/h	10	187	19	0	473	13	26	34	7	18	33	13
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Percent Heavy Veh, %	11	11	11	9	9	9	0	0	0	3	3	3
Cap, veh/h	71	1036	102	0	1203	33	136	157	27	103	157	52
Arrive On Green	0.71	0.71	0.71	0.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	34	1464	144	0	1700	47	411	873	150	252	873	287
Grp Volume(v), veh/h	216	0	0	0	0	486	67	0	0	64	0	0
Grp Sat Flow(s),veh/h/ln	1643	0	0	0	0	1747	1434	0	0	1412	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.4	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0	2.7	0.0	0.0
Prop In Lane	0.05		0.09	0.00		0.03	0.39		0.10	0.28		0.20
Lane Grp Cap(c), veh/h	1210	0	0	0	0	1237	320	0	0	312	0	0
V/C Ratio(X)	0.18	0.00	0.00	0.00	0.00	0.39	0.21	0.00	0.00	0.21	0.00	0.00
Avail Cap(c_a), veh/h	1210	0	0	0	0	1237	406	0	0	396	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	0.66	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	3.9	0.0	0.0	0.0	0.0	0.0	28.0	0.0	0.0	28.0	0.0	0.0
Incr Delay (d2), s/veh	0.3	0.0	0.0	0.0	0.0	0.6	0.1	0.0	0.0	0.1	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.2	1.1	0.0	0.0	1.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	4.2	0.0	0.0	0.0	0.0	0.6	28.1	0.0	0.0	28.2	0.0	0.0
LnGrp LOS	A					A	C			C		
Approach Vol, veh/h		216			486			67			64	
Approach Delay, s/veh		4.2			0.6			28.1			28.2	
Approach LOS		A			A			C			C	
Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		61.1		18.9		61.1		18.9				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		51.5		19.5		51.5		19.5				
Max Q Clear Time (g_c+I1), s		5.4		4.6		2.0		4.7				
Green Ext Time (p_c), s		0.3		0.2		0.5		0.2				
Intersection Summary												
HCM 6th Ctrl Delay, s/veh			5.9									
HCM 6th LOS			A									

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	19	119	54	24	368	18	8	189	18	6	436	57
Future Volume (vph)	19	119	54	24	368	18	8	189	18	6	436	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.87		1.00	0.97			0.98			1.00	0.53
Flpb, ped/bikes	0.96	1.00		0.81	1.00			0.99			0.99	1.00
Frt	1.00	0.95		1.00	0.99			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1576	1442		1407	1759			1642			1739	790
Flt Permitted	0.29	1.00		0.64	1.00			0.97			0.99	1.00
Satd. Flow (perm)	496	1442		950	1759			1612			1735	790
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	20	127	57	26	391	19	9	201	19	6	464	61
RTOR Reduction (vph)	0	18	0	0	2	0	0	4	0	0	0	21
Lane Group Flow (vph)	20	166	0	26	408	0	0	225	0	0	470	40
Confl. Peds. (#/hr)	180		160	160		180	240		130	130		240
Confl. Bikes (#/hr)			20			55			5			35
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	11%	11%	11%	9%	9%	9%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	32.1	27.8		28.3	25.9			25.8			34.8	39.1
Effective Green, g (s)	32.1	27.8		28.3	25.9			25.8			34.8	39.1
Actuated g/C Ratio	0.40	0.35		0.35	0.32			0.32			0.43	0.49
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	257	501		349	569			519			754	430
v/s Ratio Prot	0.00	0.12		0.00	c0.23							c0.00
v/s Ratio Perm	0.03			0.02				0.14			c0.27	0.05
v/c Ratio	0.07	0.33		0.07	0.71			0.43			0.62	0.09
Uniform Delay, d1	15.4	19.2		17.0	23.8			21.3			17.5	10.9
Progression Factor	0.85	0.80		1.00	1.00			0.60			1.43	1.07
Incremental Delay, d2	0.0	1.7		0.0	7.5			2.4			3.5	0.0
Delay (s)	13.2	17.2		17.0	31.3			15.2			28.6	11.7
Level of Service	B	B		B	C			B			C	B
Approach Delay (s/veh)		16.8			30.5			15.2			26.7	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	170	56	11	108	17	52	171	23	75	399	35
Future Volume (vph)	33	170	56	11	108	17	52	171	23	75	399	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.89			0.95		1.00	0.97		1.00	0.95	
Flpb, ped/bikes		0.97			0.98		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.98		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1569			1647		1656	1678		1703	1689	
Flt Permitted		0.94			0.96		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1492			1595		1656	1678		1703	1689	
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	39	200	66	13	127	20	61	201	27	88	469	41
RTOR Reduction (vph)	0	12	0	0	6	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	293	0	0	154	0	61	222	0	88	507	0
Confl. Peds. (#/hr)	145		200	200		145	350		95	95		350
Confl. Bikes (#/hr)			15			30			15			35
Heavy Vehicles (%)	2%	2%	2%	6%	6%	6%	9%	9%	9%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		22.5			22.5		7.5	27.3		8.2	36.5	
Effective Green, g (s)		22.5			22.5		7.5	27.3		8.2	36.5	
Actuated g/C Ratio		0.28			0.28		0.09	0.34		0.10	0.46	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		419			448		155	572		174	770	
v/s Ratio Prot							0.04	0.13		c0.05	c0.30	
v/s Ratio Perm		c0.20			0.10							
v/c Ratio		0.69			0.34		0.39	0.38		0.50	0.65	
Uniform Delay, d1		25.7			22.8		34.1	20.0		33.9	16.9	
Progression Factor		1.00			1.00		1.00	1.00		0.87	1.60	
Incremental Delay, d2		9.3			2.0		0.6	1.9		0.7	3.9	
Delay (s)		35.0			24.9		34.7	21.9		30.5	31.0	
Level of Service		D			C		C	C		C	C	
Approach Delay (s/veh)		35.0			24.9			24.6			30.9	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	16	7	23	42	34	46
Future Vol, veh/h	16	7	23	42	34	46
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	0	14	14	7	7
Mvmt Flow	17	8	25	45	37	49

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	171	48	0	0	70	0
Stage 1	48	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.17	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.263	-
Pot Cap-1 Maneuver	824	1027	-	-	1499	-
Stage 1	980	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	803	1027	-	-	1499	-
Mov Cap-2 Maneuver	803	-	-	-	-	-
Stage 1	980	-	-	-	-	-
Stage 2	884	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.3	0	3.2
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	860	1499	-
HCM Lane V/C Ratio	-	-	0.029	0.024	-
HCM Control Delay (s/veh)	-	-	9.3	7.5	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0.1	0.1	-

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	6	18	60	13	75	8
Future Vol, veh/h	6	18	60	13	75	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	9	26	86	19	107	11

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	321	96	0	0	105	0
Stage 1	96	-	-	-	-	-
Stage 2	225	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.13	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.227	-
Pot Cap-1 Maneuver	677	966	-	-	1480	-
Stage 1	933	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	628	966	-	-	1480	-
Mov Cap-2 Maneuver	628	-	-	-	-	-
Stage 1	933	-	-	-	-	-
Stage 2	757	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s/v	9.4		0		6.9	
HCM LOS	A					

Minor Lane/Major Mvmt		NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)		-	-	851	1480	-
HCM Lane V/C Ratio		-	-	0.04	0.072	-
HCM Control Delay (s/veh)		-	-	9.4	7.6	0
HCM Lane LOS		-	-	A	A	A
HCM 95th %tile Q (veh)		-	-	0.1	0.2	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	131	84	0
Future Vol, veh/h	0	0	0	131	84	0
Conflicting Peds, #/hr	95	95	95	0	0	95
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	3	3
Mvmt Flow	0	0	0	147	94	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	431	284	189	0	-	0
Stage 1	189	-	-	-	-	-
Stage 2	242	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	585	760	1397	-	-	-
Stage 1	848	-	-	-	-	-
Stage 2	803	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	484	629	1271	-	-	-
Mov Cap-2 Maneuver	484	-	-	-	-	-
Stage 1	772	-	-	-	-	-
Stage 2	731	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1271	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	222	476	0
Future Vol, veh/h	0	0	0	222	476	0
Conflicting Peds, #/hr	50	50	50	0	0	50
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	0	0	13	13	9	9
Mvmt Flow	0	0	0	247	529	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	876	629	579	0	-	0
Stage 1	579	-	-	-	-	-
Stage 2	297	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.23	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.317	-	-	-
Pot Cap-1 Maneuver	322	486	943	-	-	-
Stage 1	564	-	-	-	-	-
Stage 2	758	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	292	441	898	-	-	-
Mov Cap-2 Maneuver	292	-	-	-	-	-
Stage 1	537	-	-	-	-	-
Stage 2	722	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	898	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	215	0	0	509
Future Vol, veh/h	0	0	215	0	0	509
Conflicting Peds, #/hr	115	115	0	115	115	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	0	0	229	0	0	541

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1000	459	0	0	344	0
Stage 1	344	-	-	-	-	-
Stage 2	656	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.19	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.281	-
Pot Cap-1 Maneuver	272	606	-	-	1177	-
Stage 1	722	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	215	481	-	-	1048	-
Mov Cap-2 Maneuver	215	-	-	-	-	-
Stage 1	643	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	1048	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	0.1					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	1	1	2	214	514	6
Future Vol, veh/h	1	1	2	214	514	6
Conflicting Peds, #/hr	295	295	295	0	0	295
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	0	11	11	9	9
Mvmt Flow	1	1	2	228	547	6

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1372	1140	848	0	-	0
Stage 1	845	-	-	-	-	-
Stage 2	527	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.21	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.299	-	-	-
Pot Cap-1 Maneuver	163	247	752	-	-	-
Stage 1	425	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	84	128	541	-	-	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	304	-	-	-	-	-
Stage 2	429	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	41.4	0.1	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	541	-	101	-	-
HCM Lane V/C Ratio	0.004	-	0.021	-	-
HCM Control Delay (s/veh)	11.7	0	41.4	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q (veh)	0	-	0.1	-	-

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	0	62	9	135	33	14	390	0	0	319	63
Future Volume (vph)	106	0	62	9	135	33	14	390	0	0	319	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frpb, ped/bikes		0.84			0.94			1.00			0.91	
Flpb, ped/bikes		0.89			0.98			0.99			1.00	
Frt		0.95			0.97			1.00			0.97	
Flt Protected		0.96			0.99			0.99			1.00	
Satd. Flow (prot)		1286			1724			1774			1620	
Flt Permitted		0.59			0.98			0.98			1.00	
Satd. Flow (perm)		789			1695			1748			1620	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	116	0	68	10	148	36	15	429	0	0	351	69
RTOR Reduction (vph)	0	56	0	0	12	0	0	0	0	0	8	0
Lane Group Flow (vph)	0	129	0	0	182	0	0	444	0	0	412	0
Confl. Peds. (#/hr)	110		170	170		110	520		335	335		520
Confl. Bikes (#/hr)			5			10			20			10
Heavy Vehicles (%)	3%	3%	3%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2					
Actuated Green, G (s)		14.5			14.5			36.5			36.5	
Effective Green, g (s)		14.5			14.5			36.5			36.5	
Actuated g/C Ratio		0.21			0.21			0.52			0.52	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			0.2			0.2	
Lane Grp Cap (vph)		163			351			911			844	
v/s Ratio Prot											c0.25	
v/s Ratio Perm		c0.16			0.11			0.25				
v/c Ratio		0.78			0.51			0.48			0.48	
Uniform Delay, d1		26.2			24.6			10.7			10.7	
Progression Factor		1.00			1.00			1.60			1.00	
Incremental Delay, d2		31.0			5.3			1.5			2.0	
Delay (s)		57.3			30.0			18.8			12.7	
Level of Service		E			C			B			B	
Approach Delay (s/veh)		57.3			30.0			18.8			12.7	
Approach LOS		E			C			B			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	24.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	16	15	386	42	6	432
Future Volume (vph)	16	15	386	42	6	432
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.5			5.5
Lane Util. Factor	1.00		1.00			1.00
Frpb, ped/bikes	0.92		0.96			1.00
Flpb, ped/bikes	1.00		1.00			0.99
Frt	0.93		0.98			1.00
Flt Protected	0.97		1.00			0.99
Satd. Flow (prot)	1608		1689			1789
Flt Permitted	0.97		1.00			0.99
Satd. Flow (perm)	1608		1689			1781
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	17	16	415	45	6	465
RTOR Reduction (vph)	12	0	6	0	0	0
Lane Group Flow (vph)	21	0	454	0	0	471
Confl. Peds. (#/hr)	50	70		290	290	
Confl. Bikes (#/hr)				40		
Heavy Vehicles (%)	0%	0%	7%	7%	6%	6%
Turn Type	Prot		NA		Perm	NA
Protected Phases	4		2			6
Permitted Phases					6	
Actuated Green, G (s)	19.0		30.5			40.5
Effective Green, g (s)	19.0		30.5			40.5
Actuated g/C Ratio	0.27		0.44			0.58
Clearance Time (s)	5.0		5.5			5.5
Vehicle Extension (s)	2.0		0.2			0.2
Lane Grp Cap (vph)	436		735			1030
v/s Ratio Prot	c0.01		c0.27			
v/s Ratio Perm						c0.26
v/c Ratio	0.04		0.61			0.45
Uniform Delay, d1	18.8		15.2			8.4
Progression Factor	1.00		1.00			1.42
Incremental Delay, d2	0.0		3.8			1.2
Delay (s)	18.8		19.1			13.3
Level of Service	B		B			B
Approach Delay (s/veh)	18.8		19.1			13.3
Approach LOS	B		B			B

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	21.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	7.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	6	11	29	11	6	6	6	46	21	11	93	17
Future Vol, veh/h	6	11	29	11	6	6	6	46	21	11	93	17
Conflicting Peds, #/hr	215	0	235	270	0	250	235	0	270	250	0	215
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	82	82	82	82	82	82	82	82	82
Heavy Vehicles, %	4	4	4	0	0	0	0	0	0	2	2	2
Mvmt Flow	7	13	35	13	7	7	7	56	26	13	113	21

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	725	751	629	797	748	589	369	0	0	352	0	0
Stage 1	385	385	-	353	353	-	-	-	-	-	-	-
Stage 2	340	366	-	444	395	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.1	6.5	6.2	4.1	-	-	4.12	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.5	4	3.3	2.2	-	-	2.218	-	-
Pot Cap-1 Maneuver	338	337	479	307	343	512	1201	-	-	1207	-	-
Stage 1	634	607	-	668	634	-	-	-	-	-	-	-
Stage 2	671	619	-	597	608	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	186	190	276	137	193	290	932	-	-	897	-	-
Mov Cap-2 Maneuver	186	190	-	137	193	-	-	-	-	-	-	-
Stage 1	488	464	-	492	467	-	-	-	-	-	-	-
Stage 2	487	456	-	369	465	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	24.9	29.6	0.7	0.8
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	932	-	-	236	174	897	-	-
HCM Lane V/C Ratio	0.008	-	-	0.238	0.161	0.015	-	-
HCM Control Delay (s/veh)	8.9	0	-	24.9	29.6	9.1	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q (veh)	0	-	-	0.9	0.6	0	-	-

Intersection						
Int Delay, s/veh	3.4					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	17	32	11	97	106	11
Future Vol, veh/h	17	32	11	97	106	11
Conflicting Peds, #/hr	175	180	180	0	0	175
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	20	38	13	114	125	13

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	627	492	318	0	-	0
Stage 1	312	-	-	-	-	-
Stage 2	315	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	451	581	1242	-	-	-
Stage 1	747	-	-	-	-	-
Stage 2	744	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	306	399	1029	-	-	-
Mov Cap-2 Maneuver	306	-	-	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	617	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	16.9	0.9	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1029	-	361	-	-
HCM Lane V/C Ratio	0.013	-	0.16	-	-
HCM Control Delay (s/veh)	8.5	0	16.9	-	-
HCM Lane LOS	A	A	C	-	-
HCM 95th %tile Q (veh)	0	-	0.6	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	374	11	11	406	29	6	17	17	19	40	96
Future Vol, veh/h	33	374	11	11	406	29	6	17	17	19	40	96
Conflicting Peds, #/hr	550	0	355	400	0	595	355	0	400	595	0	550
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	86	86	86	86	86	86	86	86	86	86	86	86
Heavy Vehicles, %	4	4	4	4	4	4	0	0	0	2	2	2
Mvmt Flow	38	435	13	13	472	34	7	20	20	22	47	112

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	1101	0	0	848	0	0	2063	2045	1437	2243	2034	1634
Stage 1	-	-	-	-	-	-	918	918	-	1110	1110	-
Stage 2	-	-	-	-	-	-	1145	1127	-	1133	924	-
Critical Hdwy	4.14	-	-	4.14	-	-	7.1	6.5	6.2	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.12	5.52	-
Follow-up Hdwy	2.236	-	-	2.236	-	-	3.5	4	3.3	3.518	4.018	3.318
Pot Cap-1 Maneuver	627	-	-	781	-	-	41	57	165	30	57	125
Stage 1	-	-	-	-	-	-	328	353	-	254	285	-
Stage 2	-	-	-	-	-	-	245	282	-	247	348	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	272	-	-	483	-	-	-	~ 12	44	-	~ 12	~ 26
Mov Cap-2 Maneuver	-	-	-	-	-	-	-	~ 12	-	-	~ 12	-
Stage 1	-	-	-	-	-	-	165	178	-	90	119	-
Stage 2	-	-	-	-	-	-	-	118	-	43	175	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	1.6	0.3		
HCM LOS			-	-

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	272	-	-	483	-	-	-
HCM Lane V/C Ratio	-	0.141	-	-	0.026	-	-	-
HCM Control Delay (s/veh)	-	20.4	0	-	12.7	0	-	-
HCM Lane LOS	-	C	A	-	B	A	-	-
HCM 95th %tile Q (veh)	-	0.5	-	-	0.1	-	-	-

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	335	29	12	405	61	29	49	23	32	80	7
Future Volume (veh/h)	0	335	29	12	405	61	29	49	23	32	80	7
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.85	0.99		0.87	0.60		0.39	0.59		0.40
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1811	1811	1811	1826	1826	1826	1856	1856	1856	1900	1900	1900
Adj Flow Rate, veh/h	0	381	33	14	460	69	33	56	26	36	91	8
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	6	6	6	5	5	5	3	3	3	0	0	0
Cap, veh/h	0	1182	102	50	1092	161	88	117	46	91	197	15
Arrive On Green	0.00	0.73	0.73	1.00	1.00	1.00	0.18	0.18	0.18	0.18	0.18	0.18
Sat Flow, veh/h	0	1617	140	18	1494	220	232	654	259	254	1102	85
Grp Volume(v), veh/h	0	0	414	543	0	0	115	0	0	135	0	0
Grp Sat Flow(s),veh/h/ln	0	0	1757	1732	0	0	1145	0	0	1441	0	0
Q Serve(g_s), s	0.0	0.0	8.3	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	8.3	0.0	0.0	0.0	7.7	0.0	0.0	7.2	0.0	0.0
Prop In Lane	0.00		0.08	0.03		0.13	0.29		0.23	0.27		0.06
Lane Grp Cap(c), veh/h	0	0	1284	1303	0	0	251	0	0	304	0	0
V/C Ratio(X)	0.00	0.00	0.32	0.42	0.00	0.00	0.46	0.00	0.00	0.44	0.00	0.00
Avail Cap(c_a), veh/h	0	0	1284	1303	0	0	277	0	0	337	0	0
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.60	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	4.7	0.0	0.0	0.0	36.9	0.0	0.0	36.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.7	0.6	0.0	0.0	0.5	0.0	0.0	0.4	0.0	0.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	2.7	0.2	0.0	0.0	2.5	0.0	0.0	3.0	0.0	0.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	0.0	0.0	5.4	0.6	0.0	0.0	37.4	0.0	0.0	37.0	0.0	0.0
LnGrp LOS			A	A			D			D		
Approach Vol, veh/h		414			543			115			135	
Approach Delay, s/veh		5.4			0.6			37.4			37.0	
Approach LOS		A			A			D			D	

Timer - Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		77.6		22.4		77.6		22.4				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		70.5		20.5		70.5		20.5				
Max Q Clear Time (g_c+I1), s		10.3		9.7		2.0		9.2				
Green Ext Time (p_c), s		0.5		0.4		0.7		0.4				

Intersection Summary			
HCM 6th Ctrl Delay, s/veh			9.8
HCM 6th LOS			A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	43	261	76	37	350	35	12	339	50	7	366	92
Future Volume (vph)	43	261	76	37	350	35	12	339	50	7	366	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0			4.5			4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.86		1.00	0.94			0.93			1.00	0.40
Flpb, ped/bikes	0.96	1.00		0.92	1.00			0.98			1.00	1.00
Frt	1.00	0.96		1.00	0.98			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	1.00
Satd. Flow (prot)	1633	1486		1628	1721			1627			1808	618
Flt Permitted	0.23	1.00		0.34	1.00			0.98			0.99	1.00
Satd. Flow (perm)	403	1486		592	1721			1606			1794	618
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	48	290	84	41	389	39	13	377	56	8	407	102
RTOR Reduction (vph)	0	10	0	0	3	0	0	5	0	0	0	15
Lane Group Flow (vph)	48	364	0	41	425	0	0	441	0	0	415	87
Confl. Peds. (#/hr)	305		280	280		305	480		405	405		480
Confl. Bikes (#/hr)			45			30			30			5
Heavy Vehicles (%)	7%	7%	7%	3%	3%	3%	6%	6%	6%	5%	5%	5%
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2 9			6 10	7
Permitted Phases	4			8			2 9			6 10		6 10
Actuated Green, G (s)	36.5	31.3		34.1	30.1			40.7			49.7	54.9
Effective Green, g (s)	36.5	31.3		34.1	30.1			40.7			49.7	54.9
Actuated g/C Ratio	0.37	0.31		0.34	0.30			0.41			0.50	0.55
Clearance Time (s)	4.5	6.0		4.5	6.0							4.5
Vehicle Extension (s)	2.0	0.2		2.0	0.2							2.0
Lane Grp Cap (vph)	211	465		243	518			653			891	367
v/s Ratio Prot	0.01	0.25		0.01	c0.25							c0.01
v/s Ratio Perm	0.07			0.05				c0.27			c0.23	0.13
v/c Ratio	0.22	0.78		0.16	0.81			0.67			0.46	0.23
Uniform Delay, d1	22.3	31.2		22.8	32.4			24.2			16.4	11.6
Progression Factor	0.84	0.87		1.00	1.00			0.70			1.00	1.00
Incremental Delay, d2	0.1	11.9		0.1	13.5			4.0			1.7	0.1
Delay (s)	19.1	39.2		23.0	45.9			21.0			18.2	11.8
Level of Service	B	D		C	D			C			B	B
Approach Delay (s/veh)		36.9			43.9			21.0			16.9	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	29.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	23.5
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	390	102	23	253	34	88	365	63	91	356	32
Future Volume (vph)	56	390	102	23	253	34	88	365	63	91	356	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95			0.97		1.00	0.96		1.00	0.96	
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	
Frt		0.97			0.98		1.00	0.97		1.00	0.98	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1739			1787		1770	1764		1736	1733	
Flt Permitted		0.87			0.86		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1523			1559		1770	1764		1736	1733	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	411	107	24	266	36	93	384	66	96	375	34
RTOR Reduction (vph)	0	8	0	0	4	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	569	0	0	322	0	93	444	0	96	406	0
Confl. Peds. (#/hr)	65		70	70		65	165		150	150		165
Confl. Bikes (#/hr)			5			5			15			15
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	4%	4%	4%
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	
Protected Phases		4			4		5	2		1	6 11	
Permitted Phases	4			4								
Actuated Green, G (s)		28.5			28.5		9.6	39.8		9.7	48.4	
Effective Green, g (s)		28.5			28.5		9.6	39.8		9.7	48.4	
Actuated g/C Ratio		0.28			0.28		0.10	0.40		0.10	0.48	
Clearance Time (s)		4.5			4.5		4.5	4.5		4.5		
Vehicle Extension (s)		0.2			0.2		2.0	0.2		2.0		
Lane Grp Cap (vph)		434			444		169	702		168	838	
v/s Ratio Prot							0.05	c0.25		c0.06	c0.23	
v/s Ratio Perm		c0.37			0.21							
v/c Ratio		1.31			0.72		0.55	0.63		0.57	0.48	
Uniform Delay, d1		35.7			32.2		43.1	24.2		43.1	17.3	
Progression Factor		1.00			1.00		1.00	1.00		1.01	0.84	
Incremental Delay, d2		155.8			9.8		2.1	4.3		2.6	1.7	
Delay (s)		191.5			42.0		45.3	28.5		46.5	16.4	
Level of Service		F			D		D	C		D	B	
Approach Delay (s/veh)		191.5			42.0			31.3			22.1	
Approach LOS		F			D			C			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	78.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	46	21	51	29	24	109
Future Vol, veh/h	46	21	51	29	24	109
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	86	86	86	86
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	53	24	59	34	28	127

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	259	76	0	0	93	0
Stage 1	76	-	-	-	-	-
Stage 2	183	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.12	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.218	-
Pot Cap-1 Maneuver	734	991	-	-	1501	-
Stage 1	952	-	-	-	-	-
Stage 2	853	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	719	991	-	-	1501	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	952	-	-	-	-	-
Stage 2	836	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	10.1	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	787	1501	-
HCM Lane V/C Ratio	-	-	0.099	0.019	-
HCM Control Delay (s/veh)	-	-	10.1	7.4	0
HCM Lane LOS	-	-	B	A	A
HCM 95th %tile Q (veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	17	51	107	8	45	102
Future Vol, veh/h	17	51	107	8	45	102
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	85	85	85	85	85	85
Heavy Vehicles, %	0	0	2	2	0	0
Mvmt Flow	20	60	126	9	53	120

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	357	131	0	0	135	0
Stage 1	131	-	-	-	-	-
Stage 2	226	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.1	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.2	-
Pot Cap-1 Maneuver	645	924	-	-	1462	-
Stage 1	900	-	-	-	-	-
Stage 2	816	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	620	924	-	-	1462	-
Mov Cap-2 Maneuver	620	-	-	-	-	-
Stage 1	900	-	-	-	-	-
Stage 2	784	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s/v	9.8	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	823	1462	-
HCM Lane V/C Ratio	-	-	0.097	0.036	-
HCM Control Delay (s/veh)	-	-	9.8	7.6	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q (veh)	-	-	0.3	0.1	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	137	194	0
Future Vol, veh/h	0	0	0	137	194	0
Conflicting Peds, #/hr	205	205	205	0	0	205
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	84	84	84	84
Heavy Vehicles, %	0	0	1	1	3	3
Mvmt Flow	0	0	0	163	231	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	804	641	436	0	-	0
Stage 1	436	-	-	-	-	-
Stage 2	368	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	355	478	1129	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	704	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	230	310	909	-	-	-
Mov Cap-2 Maneuver	230	-	-	-	-	-
Stage 1	528	-	-	-	-	-
Stage 2	567	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	909	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection	
Int Delay, s/veh	0

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	0	0	401	439	0
Future Vol, veh/h	0	0	0	401	439	0
Conflicting Peds, #/hr	520	520	520	0	0	520
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	0	3	3	5	5
Mvmt Flow	0	0	0	405	443	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1888	1483	963	0	-	0
Stage 1	963	-	-	-	-	-
Stage 2	925	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.13	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.227	-	-	-
Pot Cap-1 Maneuver	78	155	711	-	-	-
Stage 1	374	-	-	-	-	-
Stage 2	389	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	20	39	359	-	-	-
Mov Cap-2 Maneuver	20	-	-	-	-	-
Stage 1	189	-	-	-	-	-
Stage 2	196	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	359	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q (veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0					

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	0	402	0	0	478
Future Vol, veh/h	0	0	402	0	0	478
Conflicting Peds, #/hr	280	280	0	280	280	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	0	0	419	0	0	498

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1477	979	0	0	699	0
Stage 1	699	-	-	-	-	-
Stage 2	778	-	-	-	-	-
Critical Hdwy	6.4	6.2	-	-	4.16	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.254	-
Pot Cap-1 Maneuver	140	306	-	-	879	-
Stage 1	497	-	-	-	-	-
Stage 2	456	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	75	165	-	-	645	-
Mov Cap-2 Maneuver	75	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	334	-	-	-	-	-

Approach	WB		NB		SB	
HCM Control Delay, s/v	0		0		0	
HCM LOS	A					

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	645	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection						
Int Delay, s/veh	0.3					

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	2	4	1	403	478	4
Future Vol, veh/h	2	4	1	403	478	4
Conflicting Peds, #/hr	320	320	320	0	0	320
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	2	2	6	6
Mvmt Flow	2	4	1	420	498	4

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1562	1140	822	0	-	0
Stage 1	820	-	-	-	-	-
Stage 2	742	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.12	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.218	-	-	-
Pot Cap-1 Maneuver	124	247	807	-	-	-
Stage 1	436	-	-	-	-	-
Stage 2	474	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	60	119	561	-	-	-
Mov Cap-2 Maneuver	60	-	-	-	-	-
Stage 1	303	-	-	-	-	-
Stage 2	329	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s/v	48	0	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	561	-	90	-	-
HCM Lane V/C Ratio	0.002	-	0.069	-	-
HCM Control Delay (s/veh)	11.4	0	48	-	-
HCM Lane LOS	B	A	E	-	-
HCM 95th %tile Q (veh)	0	-	0.2	-	-

Appendix I Pipeline Project List

Pipeline #	Location	PermitNum	Description
1	118 Broadway East	3021140	150-unit apartment building with 22,846 sq. ft. of retail at street level. Parking for 140 vehicles to be located below grade.
2	123 10th Avenue E	3021179	74-unit apartment building with retail. Parking for 25 vehicles proposed. An additional 30 offsite parking spaces proposed at 923 East John Street.
7	800 Denny Way	3033602	13 apartment units, 87 small efficiency dwelling units (100 units total) and retail. No parking proposed.
5	1818 Harvard Ave	3025137	six-story hotel and residential building with 28 small efficiency dwelling units. Parking for 15 vehicles will be located below grade.
6	1833 Broadway	3016632	50-unit apartment building with restaurant, office, and general retail sales and service. Parking for 34 vehicles proposed.
3	1830 Broadway	3021149	94-unit apartment building with retail and child care center. Parking for 21 vehicles proposed.
8	1732 + 1812 Broadway	3028538	223 apartment units and approximately 8,776 SF of commercial space. There will be a total of 126 below grade parking spaces.
9	1106 E Denny Way	3029406	10 small efficiency dwelling units and 8 apartment units (18 units total). No parking proposed.
10	1208 E Olive Street	3024138	69 units above retail in an environmentally critical area. Parking for one vehicle to be provided. Existing structures to be demolished.
11	1717 Belmont Ave	3028324	84 small efficiency dwelling units and 6 apartments. No parking proposed. Existing building to be demolished.
12	1517 Bellevue Ave	3018252	45 residential units, 5 live-work units and 771 sq. ft. of retail space. Existing 2-story building to be demolished.
13	1515 Broadway	3032704	118-unit apartment, retail, and institution building (community center). Project includes renovation of the Atlas Building and Eldridge Tire Building. Atlas Building façade to be rebuilt. No parking proposed.
14	225 Harvard Ave E	3028590	69 SEDUs, 0 parking stalls.
15	102 Harvard Ave E	3032084	18 apartments, 65 SEDUs, 550 sf retail, 1 parking stall.
4	923 E John St	3021177	TOD project
16	112 10th Ave E	3037270	210 apartments, 0 parking stalls.
17	1421 Harvard Ave	3034049	129 apartments, 31,445 sf rock climbing gym, 136 parking stalls.
18	1100 Boylston Ave	3033203	226 apartments, 96 parking stalls.
19	1422 Seneca St	3034443	135 apartments, 0 parking stalls.
20	1710 12th Ave	3035745	145 apartments, 3,500 sf commercial, 90 parking stalls.
21	123 Bellevue Ave E	3034556	154 SEDUs, 14 apartments, 3 parking stalls.
22	229 Broadway E	3036108	95 apartments, 5 work-live units, 1500 sf commercial, 0 parking stalls
23	228 11th Ave	3038045	71 apartments, 0 parking stalls
24	1661 E Olive Way	3039620	164 Apartments, 112 parking stalls
25	1722 Bellevue Ave	3037200	98 Apartments, 2 parking stalls
26	1534 Broadway	3036322	84 apartments, 26,700sf institution, 770sf retail, 0 parking stalls
27	1415 Belmont Ave	3030738	57 SEDUs, 0 stalls.
28	517 E Pike St	3036988	92 apartments, 8,250 sf commercial, 53 stalls.
29	704 E Union St	3034048	49-unit apartment building.

Appendix J Signal Warrant Analysis

HCS Warrants Report

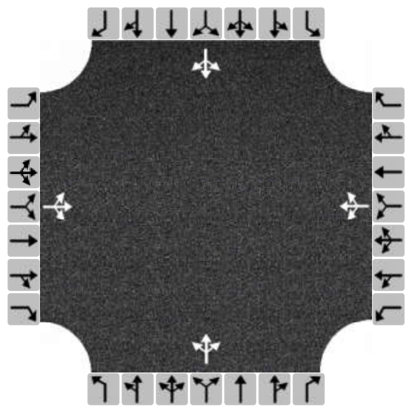
Project Information

Analyst	Transpo Group	Date	3/14/2024
Agency		Analysis Year	2035
Jurisdiction	Seattle	Time Period Analyzed	
Project Description			

General

Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	Yes
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	30	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	300		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	0	0	1	0	0	1	0	0	1	0
Lane Usage		LTR			LTR			LTR			LTR	
Vehicle Volumes Averages (veh/h)	8	286	8	8	332	16	4	12	12	12	29	38
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)	-	Tractor-Trailer Trucks (%)	10

Volume Summary														
Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (80%)	4A (100%)	4B (80%)
07 - 08	707	86	824	0	0	No	No	No	Yes	No	No	No	No	No
08 - 09	524	64	612	0	0	No	No	No	No	No	No	No	No	No
09 - 10	381	46	444	0	0	No	No	No	No	No	No	No	No	No
10 - 11	469	57	547	0	0	No	No	No	No	No	No	No	No	No
11 - 12	545	66	635	0	0	No	No	No	No	No	No	No	No	No
12 - 13	713	87	833	0	0	No	No	No	Yes	No	No	No	No	No
13 - 14	613	75	716	0	0	No	No	No	Yes	No	No	No	No	No
14 - 15	670	82	782	0	0	No	No	No	Yes	No	No	No	No	No
15 - 16	870	107	1017	0	0	No	No	Yes	Yes	No	No	No	No	No
16 - 17	895	109	1044	0	0	No	No	Yes	Yes	No	No	No	No	No
17 - 18	886	108	1034	0	0	No	No	Yes	Yes	No	No	No	No	No
18 - 19	655	79	762	0	0	No	No	No	Yes	No	No	No	No	No
Total	7928	966	9250	0	0	0	0	3	8	0	0	0	0	0

Warrants	
Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	✔
Degree of Platooning (Predominant direction or both directions)	✓
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	✓
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	

HCS Warrants Report

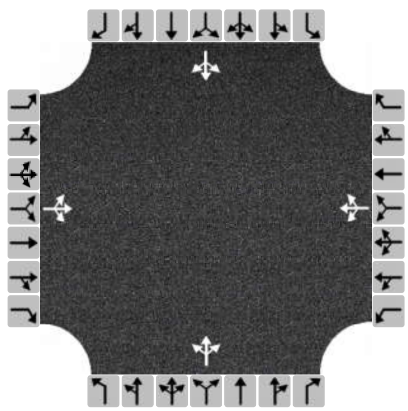
Project Information

Analyst	Transpo Group	Date	3/14/2024
Agency		Analysis Year	2035
Jurisdiction	Seattle	Time Period Analyzed	With-Project
Project Description			

General

Major Street Direction	East-West	Population < 10,000	No
Starting Time Interval	7	Coordinated Signal System	Yes
Median Type	Undivided	Crashes (crashes/year)	0
Major Street Speed (mi/h)	30	Adequate Trials of Crash Exp. Alt.	No
Nearest Signal (ft)	300		

Geometry and Traffic



Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Number of Lanes, N	0	1	0	0	1	0	0	1	0	0	1	0
Lane Usage		LTR			LTR			LTR			LTR	
Vehicle Volumes Averages (veh/h)	24	276	8	8	299	21	4	12	12	14	29	70
Pedestrian Averages (peds/h)	0			0			0			0		
Gap Averages (gaps/h)	0			0			0			0		
Delay (s/veh)	0.0			0.0			0.0			0.0		
Delay (veh-hrs)	0.0			0.0			0.0			0.0		

School Crossing and Roadway Network

Number of Students in Highest Hour	0	Two or More Major Routes	No
Number of Adequate Gaps in Period	0	Weekend Counts	No
Number of Minutes in Period	0	5-year Growth Factor (%)	0

Railroad Crossing

Grade Crossing Approach	None	Rail Traffic (trains/day)	4
Highest Volume Hour with Trains	Unknown	High Occupancy Buses (%)	0
Distance to Stop Line (ft)	-	Tractor-Trailer Trucks (%)	10

Volume Summary

Hour	Major Volume	Minor Volume	Total Volume	Peds/h	Gaps/h	1A (100%)	1A (80%)	1B (100%)	1B (80%)	2 (100%)	3A (100%)	3B (80%)	4A (100%)	4B (80%)
07 - 08	682	123	836	0	0	No	Yes	No	Yes	No	No	No	No	No
08 - 09	505	90	619	0	0	No	No	No	No	No	No	No	No	No
09 - 10	367	66	450	0	0	No	No	No	No	No	No	No	No	No
10 - 11	452	81	554	0	0	No	No	No	No	No	No	No	No	No
11 - 12	526	94	644	0	0	No	No	No	No	No	No	No	No	No
12 - 13	688	123	844	0	0	No	Yes	No	Yes	No	No	No	No	No
13 - 14	593	106	727	0	0	No	No	No	No	No	No	No	No	No
14 - 15	647	116	793	0	0	No	No	No	Yes	No	No	No	No	No
15 - 16	842	150	1032	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
16 - 17	864	155	1059	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
17 - 18	855	154	1049	0	0	Yes	Yes	Yes	Yes	Yes	No	No	No	No
18 - 19	632	113	773	0	0	No	No	No	Yes	No	No	No	No	No
Total	7653	1371	9380	0	0	3	5	3	7	3	0	0	0	0

Warrants

Warrant 1: Eight-Hour Vehicular Volume	
A. Minimum Vehicular Volumes (Both major approaches --and-- higher minor approach) --or--	
B. Interruption of Continuous Traffic (Both major approaches --and-- higher minor approach) --or--	
80% Vehicular --and-- Interruption Volumes (Both major approaches --and-- higher minor approach)	
Warrant 2: Four-Hour Vehicular Volume	
Four-Hour Vehicular Volume (Both major approaches --and-- higher minor approach)	
Warrant 3: Peak Hour	
A. Peak-Hour Conditions (Minor delay -- and-- minor volume --and-- total volume) --or--	
B. Peak-Hour Vehicular Volumes (Both major approaches --and-- higher minor approach)	
Warrant 4: Pedestrian Volume	
A. Four Hour Volumes --or--	
B. One-Hour Volumes	
Warrant 5: School Crossing	
Gaps Same Period --and--	
Student Volumes	
Nearest Traffic Control Signal (optional)	✓
Warrant 6: Coordinated Signal System	✔
Degree of Platooning (Predominant direction or both directions)	✓
Warrant 7: Crash Experience	
A. Adequate trials of alternatives, observance and enforcement failed --and--	
B. Reported crashes susceptible to correction by signal (12-month period) --and--	
C. 80% Volumes for Warrants 1A, 1B, --or-- 4 are satisfied	
Warrant 8: Roadway Network	
A. Weekday Volume (Peak hour total --and-- projected warrants 1, 2, or 3) --or--	
B. Weekend Volume (Five hours total)	
Warrant 9: Grade Crossing	
A. Grade Crossing within 140 ft --and--	
B. Peak-Hour Vehicular Volumes	