



**SPECIAL PERMIT
APPENDIX COVER
SHEET**

180 FAWCETT ST –
5138.00

CAMBRIDGE, MA

11.19.2021

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CITY OF CAMBRIDGE

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August 20, 2021

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Vanasse & Associates
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Andover, MA 01810

Matt D'Amico
Cabot, Cabot & Forbes
185 Dartmouth Street
Boston, MA 02116

RE: 180 Fawcett Street Transportation Impact Study (TIS)

Dear Jennifer and Matt,

The Cambridge Traffic, Parking, and Transportation Department (TP+T) received a Transportation Impact Study (TIS) for the 180 Fawcett Street Project by Cabot, Cabot & Forbes on July 30, 2021. Based on staff review and discussions with VAI for some clarifications, we certify the TIS as accurate and complete.

Thank you for working with us on the TIS and we look forward to continuing to work with you on this Project as it moves through the Development Review process, including a final site plan (we believe there are a few site plan items we will want to continue working with you on) and a final transportation mitigation program.

Please call Adam Shulman of my staff at 617-349-4745 to set up a meeting or if you have any questions.

Very truly yours,

Joseph E. Barr, Director

cc: Adam Shulman, Patrick Baxter, TP+T

Transportation Impact Study

180 Fawcett Street
Cambridge, Massachusetts

Prepared for:

CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

 **Vanasse &
Associates inc**
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

CITY OF CAMBRIDGE
Special Permit Transportation Impact Study (TIS)

Summary Sheet

Planning Board Permit Number: _____

Project Name: 180 Fawcett Street

Address: 180 Fawcett Street, Cambridge, MA

Owner/Developer Name: CCF Fawcett Street Property Company, LLC

Contact Person: Matt D'Amico

Contact Address: 185 Dartmouth Street

Boston, MA 02110

Contact Phone: (617) 603-4000

ITE sq. ft.: 57,434 sf R&D building.

Zoning sq. ft.: 68,993 gross square feet

Land Use Type: R&D building

Existing Parking Spaces: 14 Use: Commercial Building

New Parking Spaces: 55 Use: R&D building

Date of Parking Registration Approval: _____

Trip Generation:	Daily	AM Peak Hour	PM Peak Hour
Total Trips	556	71	61
Vehicle	356	45	39
Transit	93	11	10
Pedestrian	23	3	3
Bicycle	59	8	6
Other	35	5	4

	R&D building		
Mode Split (person trips):	Vehicle:	<u>64</u> %	—
	Transit:	<u>16</u> %	—
	Pedestrian:	<u>4</u> %	—
	Bicycle:	<u>10</u> %	—
	Other:	<u>6</u> %	—

Transportation Consultant: Vanasse and Associates, Inc.

Contact Name: Scott W. Thornton, P.E.

Phone: 978-474-8800

Date of Building Permit Approval: _____



CITY OF CAMBRIDGE
Special Permit Transportation Impact Study (TIS)

Planning Board Criteria Performance Summary
Page 1

Planning Board Permit Number: _____

Project Name: 180 Fawcett Street

Total Data Entries = 87

Total Number of Criteria Exceedances = 13

1. Project Vehicle Trip Generation

Weekday = 356 AM Peak Hour = 45 PM Peak Hour = 39

Exceeds Criteria? [Y/N]	N/N/N
-------------------------	-------

2. Level of Service (LOS)

Intersection	Weekday Morning Peak Hour				Weekday Evening Peak Hour			
	Existing	With Project	Traffic increase	Exceeds Criteria?	Existing	With Project	Traffic increase	Exceeds Criteria?
Concord Avenue at Blanchard Road	F	F	1.0%	No	E	E	1.0%	No
Concord Avenue at Moulton Street	A	A	--	No	A	A	--	No
Concord Avenue at Smith Place	D	E	--	Yes	D	D	0.2%	No
Concord Avenue at Fawcett Street	F	F	1.9%	No	E	E	1.3%	No
Smith Place at Fawcett Street and Private Drive	A	A	--	No	B	B	--	No



3. Traffic on Residential Streets

Roadway	Reviewed Segment	Amount of Residential	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			Existing Two-Way Traffic	Increase due to Project	Exceeds Criteria?	Existing Two-Way Traffic	Increase due to Project	Exceeds Criteria?
Blanchard Road	Colby St/S Normandy Av to Concord Av.	1/2 or more	1,093	8	No	994	7	No
	Mannix Circle to Concord Av.	>1/3 but <1/2	900	6	No	899	5	No
Concord Avenue	Blanchard road to Smith Place	1/3 or less	1,580	23	No	1203	20	No
	Smith Place to Moulton Street	1/3 or less	1,541	1	No	1142	3	No
	Moulton Street to Fawcett Street	1/3 or less	1,601	1	No	1204	3	No
	Fawcett Street to Wheeler Street	1/3 or less	1,800	22	No	1320	19	No
Smith Place	Concord Avenue to Fawcett Street	1/3 or less	188	24	No	255	23	No
Fawcett Street	Concord Avenue to Connection Road	>1/3 but 1/2	275	21	No	263	16	No
	Connection Road to Smith Place	1/3 or less	110	24	No	95	23	No

4. Lane Queue (for Signalized Intersections Critical Lane)

Intersection/Lane	Weekday Morning Peak Hour				Weekday Evening Peak Hour			
	Existing	With Project	Difference in Queue	Exceeds Criteria?	Existing	With Project	Difference in Queue	Exceeds Criteria?
Concord Avenue at Blanchard Road:								
Concord Avenue EB LT/TH	6	6	0	No	5	5	0	No
Concord Avenue EB TH/RT	4	4	0	No	3	3	0	No
Concord Avenue WB L	5	5	0	No	5	5	0	No
Concord Avenue WB T	5	5	0	No	5	5	0	No
Concord Avenue WB R	2	2	0	No	2	2	0	No
Blanchard Road NB LT/TH	6	6	0	No	13	13	0	No
Blanchard Road NB RT	2	2	0	No	2	2	0	No
Blanchard Road SB LT/TH/RT	8	8	0	No	7	7	0	No
Concord Avenue at Moulton Street:								
Concord Avenue EB LT/TH	4	4	0	No	3	3	0	No
Concord Avenue EB TH/RT	4	4	0	No	3	4	1	No
Concord Avenue WB LT/TH/RT	3	4	1	No	4	4	0	No
Private Driveway NB LT/TH/RT	0	0	0	No	1	1	0	No
Moulton Street SB LT/TH/RT	1	1	0	No	2	2	0	No



5. Pedestrian and Bicycle Facilities (for Critical Pedestrian Crossing)

Pedestrian Level of Service – Signalized Intersection

Intersection	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	Existing	With Project	Exceeds Criteria?	Existing	With Project	Exceeds Criteria?
Concord Avenue at Blanchard Road:						
Concord Avenue (West)	D	D	No	E	E	Yes
Concord Avenue (East)	D	D	No	E	E	Yes
Blanchard Road (North)	E	E	Yes	E	E	Yes
Blanchard Road (South)	E	E	Yes	E	E	Yes
Concord Avenue at Moulton Street and Private Drive:						
Concord Avenue (East)	C	C	No	C	C	No
Private Drive (North)	C	C	No	C	C	No
Moulton Street (South)	C	C	No	C	C	No

Pedestrian Level of Service – Unsignalized Intersection

Intersection	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	Existing	With Project	Exceeds Criteria?	Existing	With Project	Exceeds Criteria?
Concord Avenue at Smith Place:						
Concord Avenue (West)	F	F	Yes	F	F	Yes
Smith Place (North)	A	A	No	B	B	No
Concord Avenue at Fawcett Street:						
Concord Avenue (West)	F	F	Yes	F	F	Yes
Fawcett Street (North)	B	B	No	B	B	No
Smith Place at Fawcett Street and Private Drive:						
Fawcett Street (East)	A	A	No	A	A	No
Smith Place (North)	A	A	No	A	A	No



Safe Pedestrian and Bicycle Facilities

Adjacent Street or Public Right-of-Way	Sidewalks or Walkways Present?	Exceeds Criteria?	Bicycle Facilities or Right-of-Ways Present?	Exceeds Criteria?
Smith Place	Yes	No	No ^{a,b}	Yes
Fawcett Street	Yes	No	No ^b	Yes

^aA new bicycle pathway will be proposed as part of the 101 Smith place project.

^bA new bicycle pathway on-site will be proposed as part of this Project.



TRANSPORTATION IMPACT STUDY

180 FAWCETT STREET
CAMBRIDGE, MASSACHUSETTS

Prepared for:

CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

VANASSE & ASSOCIATES, INC.
Transportation Engineers & Planners
35 New England Business Center Drive
Suite 140
Andover, MA 01810

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EXECUTIVE SUMMARY

INTRODUCTION

Vanasse & Associates, Inc. (VAI) has conducted a Transportation Impact Study (TIS) for a proposed research and development (R&D)/laboratory building (the “Project”) to be located at 180 Fawcett Street (Property ID: 267.4-284) within an area of Cambridge known as the “Alewife Quadrangle” neighborhood. The property owner (the “Proponent”) is proposing to construct approximately 57,434 square feet (sf) of gross floor area (gfa) of Research and Development (R&D) use. This study reviews the potential transportation impacts, defines site access requirements, and identifies strategies to reduce traffic impacts associated with the Project. This TIS also reviews the Project with respect to the City of Cambridge Article 19 Special Permit Criteria regarding traffic impacts, is in accordance with the City’s guidelines for TISs, and follows the scoping determination dated May 5, 2021. The following summarizes the study findings.

PROJECT DESCRIPTION

The Project site consists of 19,014 sf of a low-rise building that lies at the northeast corner of the intersection of Fawcett Street and Smith Place. The existing building is sitting on an ±0.767-acre parcel of land in Cambridge, Massachusetts. Currently, the Project site has 14 registered parking spaces for vehicles. Bicycle parking is not provided on the property. Access is provided via one curb cut to Fawcett Street and one curb cut to Smith Place. As part of this development, the existing building will be demolished.

The Project entails construction of a new four-story building (68,993 gross square feet (gsf)) with approximately 57,434 square feet (sf) of gross floor area (GFA) of R&D/laboratory space. The site redevelopment proposes to construct approximately 55 parking spaces contained in a below-grade parking garage. In addition, approximately 14 long-term bicycle parking spaces (0.22 per ksf of lab space) and 8 short-term bicycle parking spaces (0.06 per ksf of lab space) are proposed, in accordance with the City’s Bicycle Parking Guidelines. Access and egress to the below-grade parking garage will be provided via one (1) full-access driveway onto Fawcett Street. An additional driveway to access the loading area will be also provided onto Fawcett Street. The existing driveway to Smith Place will be closed and not retained.

EXISTING CONDITIONS

A field inventory of existing study area roadways was conducted to document traffic conditions in the current analysis year. Items collected regarding the study area roadways and intersections include roadway geometrics, traffic control devices, traffic signal timing plans, traffic volumes, vehicle queues, pedestrian crossing volumes, bicycle volumes, and safety data for the roadways in the vicinity of the site. Transportation information and data used in this study were collected during April/May 2019. In order to establish existing traffic conditions within the study area, automatic traffic recorder counts (ATR), manual turning movement counts (TMCs), and vehicle classification conducted in October 2018 and April 2019 were used. The counts were conducted when colleges and public schools were in regular session and when there was no street cleaning. Twelve-hour pedestrian and bicycle counts performed in April 2019, between 7:00 AM and 7:00 PM along Smith Place north of Concord Avenue and Concord Avenue west of Smith Place were also used. All traffic count information was collected prior to the COVID-19 outbreak.

Due to the effects of the COVID-19 pandemic, regional traffic volumes have not increased between 2019 and 2021. Therefore, in order to provide an adequate baseline condition for this TIS, the obtained 2019 traffic volume without annual growth added was used as the 2021 baseline condition.

CONSISTENCY WITH PLANNING STUDIES

The study area for the Project is located in four distinct neighborhoods or subdistricts: Triangle, Quadrangle (where this Project is located), Cambridge Highlands, and a shopping center. In 2003, the City initiated a multidisciplinary planning study of this area and developed what is now known as the 2005 Concord-Alewife Planning Study (CAP). The Study created a plan for the Concord-Alewife area and addressed issues such as an appropriate mix of uses, including housing, commercial, possible City uses, and open space; the character of future development; access and traffic; and zoning changes needed to accomplish City goals.

More recently, the City of Cambridge embarked on creating a City-wide plan called Envision Cambridge “to create a more sustainable, equitable, and inclusive community.” Envision Cambridge sets a framework for the Quadrangle, which is designated as an evolving mixed-use district, as a district that “should continue to accommodate the bulk of the city’s growth and change, taking advantage of transit proximity, and positively transforming areas characterized by surface parking lots, automobile-oriented uses, and obsolete commercial buildings.” The draft plan recommends that Cambridge should seek to enhance its multimodal network locally and expand connections to regional sustainable transportation¹. The Project proponent has and will continue to work with the City (including the departments of Community Development, Public Works, and Traffic, Parking, and Transportation) to ensure that the proposed Project is consistent with the design guidelines and conforms with the Envision Cambridge goals and planning principles.

PROJECT-GENERATED TRAFFIC

The Project involves the construction of a 57,434 sf R&D building. In order to estimate the trip-generation characteristics of the proposed development, empirical trip rates from existing R&D buildings in the vicinity of the proposed site were used. Trip-generation calculations were performed for a typical weekday as well as the weekday morning and weekday evening peak hours,

¹Envision Cambridge (envision.cambridgema.gov).

the critical time periods for project-related traffic activity. This follows the approach determined in discussion with the Cambridge Traffic, Parking, & Transportation Department. It should be noted that this TIS analyzed a higher area of 62,050 sf; therefore, the TIS is a conservative treatment of Project impacts.

The Project is expected to generate 356 new vehicle trips on an average weekday (two-way, 24-hour volume), with 45 new vehicle trips (35 entering and 10 exiting) expected during the weekday morning peak hour. During the weekday evening peak hour, the Project is expected to generate 39 new vehicle trips (9 entering and 30 exiting). The directional distribution of generated trips to and from the Project site was determined based on a review of the *Alewife Critical Sums Assumptions Report*,² for both the residential and commercial components.

ARTICLE 19 PROJECT REVIEW SPECIAL PERMIT CRITERIA ANALYSIS

As required by Section 19.20 of the Cambridge Zoning Ordinance, the Project has been evaluated against the five Project Review Special Permit Criteria indicators as measurements of the Project's expected impact on City traffic. Of the 87 measurements analyzed in connection with the five indicators, 13 measurements do not satisfy the City standards, resulting in a 15 percent exceedance rate. However, 12 of the 13 indicators are exceeded under Existing conditions, without the Project. As detailed in this TIS, the Project will not exacerbate any of the pre-existing exceedances. The Applicant is also committed to the implementation of the Project mitigation strategies described in this TIS in order to lessen any potential impact of the Project on City traffic. Accordingly, the Project is not expected to have a substantial adverse impact on City traffic and issuance of a Project Review Special Permit is appropriate with respect to potential traffic impacts.

TRAFFIC OPERATIONS ANALYSIS

To assess the impact of the Project on the roadway network, traffic operations and vehicle queue analyses were performed at the study intersections under 2021 Baseline condition, 2021 Build, and 2026 Build conditions. The analysis indicates that the Project will not have a significant effect on operating conditions at the study area intersections.

TRANSPORTATION DEMAND MANAGEMENT (TDM) PROGRAM

Generally, the location of the Project with the addition of the future access bridge to Alewife Station will significantly encourage the use of traffic by employees and visitors of the proposed Project. Mitigation efforts are therefore geared towards measures to encourage Project employees towards alternative transportation that would result in a low single occupant vehicle (SOV) rate for the Project. Consistent with Section 10.18.050 (g) of the Parking and Transportation Demand Management (PTDM) ordinance, the Proponent has developed a PTDM Plan and will work with the Community Development Department to implement the measures identified in the PTDM Plan.

²Alewife Critical Sums Analysis; McMahon Associated; Cambridge, MA; 2019

Reducing the amount of traffic generated by the Project is an important component of the transportation mitigation plan. The goal of the proposed traffic reduction strategy is to reduce the number of SOVs by encouraging the use of public transportation, car/vanpooling, bicycle commuting, and pedestrian travel. The following measures will be implemented as a part of the proposed Project and by the property management team in an effort to reduce the number of vehicle trips generated by the Project:

- Charge for parking at market rates and offer discounted parking for dedicated HOV vehicles.
- Commit to reserving 10 percent of parking spaces in the garage as carpool/HOV vehicles.
- Establish membership in the Alewife TMA including free access for employees to use shuttle buses operated by the TMA. Provide emergency ride home and ride-matching benefits to all employees through the Alewife TMA or other provider acceptable to TP&T.
- R&D tenants will be encouraged to provide 100 percent transit subsidies to employees.
- The pedestrian nature of the site will also be emphasized, as will the proximity of the Alewife Station.
- In order to encourage the use of public transportation, the property management team will make available public transportation schedules which will be posted in a centralized location for the residents.
- Designate a Transportation Coordinator for the site who will also be responsible for:
 - Aggressively promoting and marketing non-SOV modes of transportation to employees.
 - Overseeing the marketing and promotion of transportation options such as posting information on the Project’s web site, social media, and property newsletters.
 - Responding to individual requests for information.
 - Ensuring that annual transportation surveys are conducted.
 - Coordinating with Alewife TMA.
- Provide Bluebikes_{sm} corporate membership (minimum Gold level) paid by employer for employees that choose to become Bluebikes_{sm} members.
- Require corporate membership paid by the employer to allow employees to use carshare vehicles for work related trips during the day instead of needing to drive private vehicles to work.
- Provide electric vehicle level plug-in stations in the garage for at least 5 vehicles.
- Provide a bicycle repair station to include air pumps and other bike tools.

The Applicant will investigate the implementation of these traffic-reducing strategies and will work with the City, the TMA, and area businesses to implement these programs.

PROJECT MITIGATION

The Project proposes implementation of a TDM Plan as described in Section 16 to outweigh any potential adverse impacts of the Project on the surrounding street network. As required by *Cambridge Article 19 -Section 19.20*, the Project has been evaluated against the five indicators as measurements of the Project's expected impact on City traffic. In order to improve measures not satisfied, the Project proponent will implement pedestrian and bicycle safety improvements in the area. The proposed mitigation is further described in Section 15 of this report.

Bicycle Parking

The Proponent is adding long-term and short-term bike parking spaces to meet requirements for the Project under zoning. To encourage the use of bicycling to and from the site, the Proponent is also reviewing the installation of a Bluebikes_{sm} station. This station would further the City's goals of additional Bluebikes_{sm} stations throughout the City but especially along multi-use paths and residential neighborhoods in highly congested areas.

CONCLUSION

As required by Section 19.20, the Project has been evaluated against the five indicators as measurements of the Project's expected impact on City traffic. Of the 87 measurements analyzed in connection with the five indicators, only 13 measurements do not satisfy the City standards, resulting in 15 percent exceedance rate. The Applicant is committed to the implementation of the above Project mitigation strategies to lessen any potential impact of the Project on City traffic. Accordingly, the Project is not expected to have a substantial adverse impact on City traffic such that issuance of a Project Review Special Permit is appropriate with respect to potential traffic impacts.

This TIS finds that the Project can be accommodated within the existing area infrastructure and on the roadway network with minimal effects, resulting in the ability to modify the site associated with the Project as planned. The Project proponent is committed to a project which is sensitive to the area and minimizes the impact to the neighborhood.

PROJECT DESCRIPTION

VAI has conducted a TIS for a proposed R&D development to be located at 180 Fawcett Street (Property ID: 267.4-284) within an area of Cambridge known as the “Alewife Quadrangle” neighborhood. This study reviews the potential transportation impacts, defines site access requirements, and identifies strategies to reduce traffic impacts associated with the Project. In addition, the study reviews the Project with respect to the City of Cambridge Article 19 Special Permit Criteria regarding traffic impacts, is in accordance with the City’s guidelines for TIS, and follows the scoping determination dated May 5, 2021.

The Project location is depicted on Figure A. Survey plans are shown in Figures B including property lines, abutting parcels, and property ownership.

The proposed site plan including proposed building size, land use, vehicle and bicycle parking spaces, widths of proposed driveways, curb cuts, sidewalks, street trees, landscape details and utilities are depicted in Figures C.1 and C.5, as requested in the Scoping Letter. Table A outlines the existing and proposed characteristics of the Project.

Table A
PROJECT CHARACTERISTICS

Characteristics	Existing Site	Project
Leasable Retail (Health Club)	19,014 sf	--
Leasable Office Space/R&D Space (GFA)	--	57,434 sf
Parking Spaces	14 registered	55
Bicycle Spaces		
Long Term	0	14
Short Term	0	8

Source: Site survey.

PEDESTRIAN/BIKE ACCESS TO THE ALEWIFE MBTA STATION

Separate from this application, a proposed multi-use pathway bridge is planned to connect the Quadrangle neighborhood to Cambridge Park Drive and the Alewife MBTA Station. As proposed in the preliminary design, the 150-foot long bridge will cross the MBTA railroad and land in an open space north of the proposed Project site and at the cul-de-sac located in the end of the Cambridge Park Drive. Figure C.6 shows current distances for pedestrians and bicycles from the site to the MBTA station.

SITE ACCESS

Access and egress to the project site is currently provided by two full-access driveways: one full-access driveway onto Smith Place and one full-access driveway onto Fawcett Street. As part of this project the Smith Place driveway will be closed and vehicle access to the proposed new building will be provided by two driveways onto Fawcett Street: One \pm 22-foot wide full-access main driveway serving the below-grade parking garage and one 14-foot wide driveway onto Fawcett Street to access the loading area. According to the Cambridge Zoning Ordinance 6.43.3, in Industrial districts (site located at district Industry B-2), the maximum width of a curb cut shall be 30 feet. The ordinance also states that a maximum of one curb cut for every 100 feet of street frontage or portion thereof shall be allowed for lots having frontage in excess of one hundred feet. The project site provides a total of approximately 147 feet of frontage. The proposed loading area curb cut (14 feet) is proposed within 100 feet of frontage of the site and second site curb-cut (22 feet) is provided in the remaining frontage area. The Applicant believes the proposed site curb-cut complies with the Cambridge Zoning Ordinance for this district but will confirm with the Cambridge Inspectional Services Department (ISD). Figure C.7 graphically depicts proposed driveway dimensions.

SIGHTLINE TRIANGLES FOR VEHICLES EXITING PARKING GARAGE

Sight distance at the site main driveway intersection with Fawcett Street were evaluated in order to determine sightline triangles for vehicles exiting the parking garage, as requested in the Scoping Letter. According to the Cambridge Traffic, Parking & Transportation curb cut guidelines, the curb cut must have safe sightlines (minimum 20-foot visibility in both directions) for motorists entering the roadway or crossing a public sidewalk. As can be seen on Figure C.8, the parking garage driveway provides approximately 105 feet visibility for pedestrian coming from the west and approximately 21-foot visibility for pedestrian coming from the east. The loading dock driveway provides approximately 85 feet visibility for pedestrian coming from the west and approximately 40-foot visibility for pedestrian coming from the east. Therefore, sufficient sightlines are available for drivers to see pedestrians on Fawcett Street when exiting the loading dock and parking garage.

LOADING DOCK AUTOTURN

The loading dock driveway is designed to accommodate a SU-40 and a WB-40 truck. AutoTURN analysis was conducted for a SU-40 and a WB-40 truck entering and exiting the loading area. The analysis was conducted for a truck traveling westbound on Fawcett Street. Figures C.9 through C.12 depict the AutoTURN analyses.

ENVISION CAMBRIDGE

The study area for the Project is located in four distinct neighborhoods or subdistricts: Triangle, Quadrangle (where this Project is located), Cambridge Highlands, and a shopping center. In 2003, the City initiated a multidisciplinary planning study of this area and developed what is now known as the 2005 Concord-Alewife Planning Study (CAP). The Study created a plan for the Concord-Alewife area and addressed issues such as an appropriate mix of uses, including housing, commercial, possible public City uses, and open space; the character of future development; access and traffic; and zoning changes needed to accomplish City goals.

More recently, the City of Cambridge embarked on creating a City-wide plan called Envision Cambridge “to create a more sustainable, equitable, and inclusive community.” Envision Cambridge sets a framework for the Quadrangle, which is designated as an evolving mixed-use district, as a district that “should continue to accommodate the bulk of the city’s growth and change, taking advantage of transit proximity, and positively transforming areas characterized by surface parking lots, automobile-oriented uses, and obsolete commercial buildings.” The draft plan recommends that Cambridge should seek to enhance its multimodal network locally and expand connections to regional sustainable transportation.³ The Project proponent has and will continue to work with the City (including the departments of Community Development, Public Works, and Traffic, Parking, and Transportation) to ensure that the proposed Project is consistent with the design guidelines and conforms with the Envision Cambridge goals and planning principles.

The proposed cross section for Smith Place and Fawcett Street complies with the Envision Cambridge-plan preferred section. The proposed site is located in a corner lot on two different Envision street conditions. The Smith Place Envision plan includes a grade-separated bicycle lane and the Fawcett Street Envision plan include an elevated walkway with a grade-separated bicycle lane. As part of this project a proposed grade-separated bicycle lane with an additional elevated walkway will be provided on both Fawcett Street and Smith Place. Figure C.13 through C.15 graphically depicts the proposed cross section plan and compares the Envision plans with Site Day One plans.

FLAMMABLE GAS DELIVERY AND STORAGE

A dedicated hazardous materials storage area is proposed for the building and will be accessed from the proposed loading area. Flammable gas cylinders will be delivered to the loading area within the building and transferred to the storage room manually. No large storage tank requiring refilling using hoses or piping will be required. The storage room is specially made to withstand two hours of intense flame, giving it a “Two-Hour Enclosure” rating. The storage area will also have dedicated sprinkler and fire protection, and a dedicated emergency exhaust system. The storage room will meet all required safety and code requirements as dictated by the city of Cambridge. The Project storage room location is depicted on Figure C.16.

CONSTRUCTION PHASING PLAN

It is anticipated that the Project Construction Period will be between 18-24 months with typical construction activities occurring between the hours of 7:00 AM and 6:00 PM Monday through Saturday, presuming approval by the City of Cambridge.

³Envision Cambridge (envision.cambridgema.gov).

Construction will begin with the mobilization of a perimeter site fence on Fawcett Street and Smith Street and Utility Cut & Cap followed by the various construction phases identified below:

Phase 1: Demolition

Phase 2: Excavation & Sitework

Phase 3: Structural Steel

Phase 4: Façade and Roofing Installation

Phase 5: MEP Rough and

Phase 6A: Interior Finishes

Phase 6B: Exterior Sitework and Landscaping

Phase 7: Demobilization

1.0 EXISTING CONDITIONS

1.a - EXISTING TRAFFIC CONDITIONS

A field inventory of existing study area roadways was conducted to document baseline traffic conditions. Items collected regarding the study area roadways and intersections include roadway geometrics, traffic control devices, traffic signal timing plans, traffic volumes, vehicle queues, pedestrian crossing volumes, bicycle volumes, and safety data for the roadways in the vicinity of the site. Traffic volumes were measured by means of ATRs and substantiated by manual TMCs and vehicle-classification counts. Other transportation-related data inventoried include area parking supply and regulations, transit stop and services, and provision of bicycle and pedestrian facilities.

Transportation Network

The Project site lies at the northeast corner of the intersection of Fawcett Street and Smith Place, north of Concord Avenue in the “Quadrangle” neighborhood of Cambridge. Concord Avenue is an east-west roadway just south of the Project site that extends between Belmont and Harvard Square in Cambridge. Smith Place (and for a portion of its alignment, Fawcett Street) is a north-south direction roadway just west of the Project Site which connects the heart of the “Quadrangle” area to Concord Avenue. Regional access to the area is provided via Concord Avenue to the west and east. In the immediate vicinity of the site, local access is provided from Smith Place and Fawcett Street.

Geometric and Traffic Control

Intersection geometry and lane usage was obtained from the most recent approved (September 2019) traffic study conducted in this area, Cambridge Community Development Neighborhood Map and field inventory conducted by VAI in April 2019. A graphical depiction of intersection inventories for the study area intersections are provided in Figures 1.a.1 through 1.a.5. It is important to note that during the VAI field inventory in 2019, all sidewalks and wheelchair ramps along Concord Avenue were in fair to good condition.

1.b - DESCRIPTION OF PROJECT STUDY AREA

The Project study area was determined in consultation with City transportation officials. The study area was confirmed in the May 5, 2021 Scoping Determination from the City to VAI. The study area is listed below:

1. Concord Avenue at Blanchard Road and Griswold Street
2. Concord Avenue at Smith Place
3. Concord Avenue at Moulton Street
4. Concord Avenue at Fawcett Street
5. Smith Place at Fawcett Street
6. Fawcett Street at the site drive
7. Smith Place at the site drive (To be closed)

The location of the counts and the date the counts were conducted are shown on Figure 1.b.1.

1.c - PARKING AND LOADING FACILITIES

On-Site Vehicle Parking

According to the City's records, the Project site has 14 registered parking spaces. As part of this development, all existing buildings including all parking spaces will be demolished.

Off-Site Vehicle Parking

Most of the existing off-site parking in the area is accommodated by private off-street lots. Approximately 7 unregulated on-street parking spaces are available within the immediate vicinity of the proposed site. They are located along the project site frontage in the east side of Smith Place between Fawcett Street and Mooney Street. Figure 1.c.1 provides a summary of the existing on-street parking regulations along the streets in the Quadrangle area. Due to the COVID-19 impacts on-street parking utilization survey was not conducted.

On-Site Bicycle Parking

Currently, bicycle parking spaces are not provided within the Project site.

1.d - TRANSIT SERVICES

Existing transit have been researched and inventoried within study area.

Existing Public Transit System

The Site is located 1.5 miles from the Alewife Station via Concord Avenue and Alewife Brook Parkway. Alewife Station is a terminating stop on the MBTA Red Line subway system. From the Alewife Station, the Red Line continues to Park Street, where connections to the Green Line can be made; to Downtown Crossing, where connections to the Orange Line are possible; and to South Station, where connections to commuter rail services are available. A combined Braintree/Ashmont Red Line services is provided every 4.5 minutes during the peak rush hours and every 8 to 9 minutes during off-peak hours. Bus routes connect to each of these stations as well as to Alewife Station,

which is also the terminus for MBTA Bus Route 62, 67, 76, 79, 84, 350, and 351.

The site is served by two MBTA bus routes, routes 74 and 78. Both routes stop on Concord Avenue near the Project Site. The eastbound stop is to the west of the signalized pedestrian crossing across Concord Avenue and provides a convenient protected crossing for bus users. Travel time from the Project site to Harvard Square via bus routes 74 and 78 is approximately 20 minutes (based on MBTA travel times) but varies based on traffic and time of day. Route 74 and 78 operate on approximately 18- to 20-minute headways during peak times and varies during off-peak periods.

It is important to note that due to COVID-19 some of the above-mentioned routes were suspended or combined. In order to provide a typical non-COVID-19 scenario, the transit analysis was conducted for all the existing lines including the suspended lines. Figures 1.d.1 provides a graphical depiction of the regional public services available in the study area.

Existing Private Transit System

The Alewife Transportation Management Association (TMA) is a non-profit organization that provides alternative transportation to various areas from Alewife Station. Employers and property owners or developers can become a member by filling out an application and paying a membership fee corresponding to the size of the development. The Alewife TMA provides emergency ride home, carpool, vanpool, and shuttle services. The Alewife Shuttle connects the Quadrangle neighborhood along Concord Avenue to Alewife Station with the use of 18-passenger, Americans with Disabilities Act (ADA)-equipped vehicles. Figures 1.d.2 provides a graphical depiction of the Alewife Shuttle Bus service (private transportation services) route and stops in the study area.

Shared Mobility Services

Currently, there are no carsharing stations in the Quadrangle neighborhood. One Bluebikes_{sm} station with 19 docks was identified at Smith Place. Three additional Bluebikes_{sm} stations are located within the study area (two at Alewife Station and one off of Cambridge Park Drive). Figure 1.d.3 provides a carsharing and ridesharing service map highlighting nearby locations of carsharing services such as Zipcar and Bike Share service.

Bicycle Parking and Route Access

Figure 1.d.4 shows the bicycle parking and multi-use path map for bicycle in the study area. Note that the bicycle route access map depicts the routes to the site from streets and the public right-of-way.

1.e - LAND USE

The neighborhood surrounding the Project site is largely characterized by business, office and industrial uses, as shown in Figure 1.e.1.

2.0 DATA COLLECTION

2.a - AUTOMATIC TRAFFIC RECORDER COUNTS (ATR)

In order to establish existing traffic conditions within the study area, ATR counts conducted in 2019 were used. Due to the effects of the COVID-19 pandemic, regional traffic volumes have generally not increased from 2019 to 2021. Therefore, in order to provide an adequate baseline condition for this TIS, the 2019 traffic volumes were used without annual growth added as the 2021 baseline condition.

The ATRs were conducted during 48 hours on Tuesday and Wednesday, April 2 and 3, 2019, when colleges and public schools were in regular session and when there was no street cleaning. The traffic count data sheets are provided in the Appendix. A summary of the ATR data is provided in Table 2.a.1, while the average hourly directional volumes recorded at the ATR locations are summarized in Table 2.a.2. Figure 2.a.1 provides a summary of the existing volume along Concord Avenue. Figure 2.a.2 provides a summary of the existing volume along Smith Place.

**Table 2.a.1
BASELINE TRAFFIC VOLUMES**

Location	Daily Volume (vpd) ^a	Weekday Morning Peak Hour (8:00 – 9:00 AM)			Weekday Afternoon Peak Hour (4:45 – 5:45 PM)		
		Volume (vph)	Percent of Daily Traffic ^b	Predominant Flow ^c	Volume (vph)	Percent of Daily Traffic	Predominant Flow
Concord Avenue, west of Smith Place	14,590	1,594	10.9	59%, EB	1,186	8.1	54%, WB
Smith Place, north of Concord Avenue	2,490	188	7.6	55%, NB	255	10.2	71%, SB

^aAverage daily traffic in vehicles per day (vpd) based on ATR counts collected by VAI in April 2019. (Represents the 2021 Baseline Condition)

^bPercent of daily volume in peak hour.

^cPercent traveling in the peak direction.

Table 2.a.2
AVERAGE HOURLY TRAFFIC VOLUMES AT ATR LOCATIONS^a

Time	Concord Avenue, west of Smith Place			Smith Place, north of Concord Avenue		
	Weekday			Weekday		
	EB	WB	Total	NB	SB	Total
12:00 AM	35	34	69	2	0	2
1:00	20	18	38	5	2	7
2:00	15	13	28	2	4	6
3:00	6	9	15	1	4	5
4:00	18	32	50	10	3	13
5:00	73	116	189	28	10	38
6:00	197	348	545	103	10	113
7:00	391	622	1013	110	35	145
8:00	535	731	1266	80	42	122
9:00	418	564	982	74	60	134
10:00	384	414	798	84	76	160
11:00	422	452	874	88	91	179
12:00 PM	479	411	890	106	81	187
1:00	462	394	856	93	99	192
2:00	548	416	964	86	104	190
3:00	520	414	934	92	117	209
4:00	528	440	968	76	137	213
5:00	482	414	896	76	97	173
6:00	532	452	984	65	72	137
7:00	490	326	816	46	54	100
8:00	370	235	605	24	46	70
9:00	260	166	426	16	44	60
10:00	146	102	248	7	17	24
<u>11:00</u>	<u>72</u>	<u>65</u>	<u>137</u>	<u>4</u>	<u>6</u>	<u>10</u>
Total ^b	7403	7188	14591	1278	1211	2489

^aVolumes based on ATR counts conducted by VAI in April 2019 expressed in vph;
(Represents the 2021 Baseline Condition)

^bDaily volumes expressed in vpd.

2.b - PEDESTRIAN AND BICYCLE COUNTS

Twelve-hour pedestrian and bicycle counts were performed on Tuesday, April 2, 2019, between 7:00 AM and 7:00 PM along Smith Place north of Concord Avenue, and Concord Avenue west of Smith Place. Pedestrian and bicycle counts for the study area intersections were collected during the vehicle count periods of 2019 described above. Pedestrian count data are summarized in Table 2.b.1 and bicycle count data are presented in Table 2.b.2. The pedestrian and bicycle counts are separated by direction of travel and if they are riding in the street or riding in the cycle track or sidewalk.

**Table 2.b.1
12-HOUR PEDESTRIAN VOLUMES^a**

Time of day	Concord Avenue, West of Smith Place						Smith Place, North of Concord Avenue					
	North Sidewalk		South Sidewalk		Walking in the Street		East Sidewalk		West Sidewalk		Walking in the Street	
	EB	WB	WB	EB	From North	From South	SB	NB	NB	SB	WB	EB
7:00 AM	1	4	2	4	1	0	0	1	2	1	0	1
7:30 AM	1	6	3	4	0	0	0	4	0	2	4	0
8:00 AM	1	4	5	2	0	0	0	0	1	0	1	3
8:30 AM	6	5	1	5	0	0	0	1	1	0	0	1
9:00 AM	6	8	1	2	0	0	4	7	0	0	0	1
9:30 AM	4	6	4	1	0	0	4	0	0	0	0	0
10:00 AM	2	4	7	6	0	0	0	5	0	0	1	1
10:30 AM	0	6	3	1	0	0	1	2	0	0	1	0
11:00 AM	10	2	2	4	0	0	0	0	2	3	1	1
11:30 AM	5	4	2	1	1	0	2	0	1	0	0	1
12:00 PM	12	9	0	5	0	0	2	5	0	0	0	0
12:30 PM	13	17	2	4	0	0	5	3	0	2	1	1
1:00 PM	10	11	4	2	0	0	0	2	0	3	1	1
1:30 PM	7	6	1	4	0	0	1	1	1	0	1	0
2:00 PM	9	8	2	4	0	0	1	2	0	0	2	0
2:30 PM	2	7	2	3	0	0	0	1	0	0	2	1
3:00 PM	2	5	0	7	0	0	1	3	1	2	0	0
3:30 PM	7	3	2	2	0	0	1	0	1	5	1	2
4:00 PM	8	4	4	2	0	0	1	0	5	1	0	0
4:30 PM	12	7	5	2	0	0	3	1	1	1	2	1
5:00 PM	5	8	4	3	1	1	2	2	1	2	0	0
5:30 PM	8	6	3	2	1	0	4	2	2	2	0	0
6:00 PM	8	7	4	1	0	1	1	5	4	1	2	0
<u>6:30 PM</u>	<u>4</u>	<u>3</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>3</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>1</u>
Total	143	150	64	73	4	2	34	50	25	25	21	16

^aBased on counts conducted by VAI in April 2019.

Table 2.b.2
12-HOUR BICYCLE VOLUMES^a

Time of day	Concord Avenue, West of Smith Place								Smith Place, North of Concord Avenue			
	Bikes in the Sidewalk				Bikes in the Bike Lane				East Sidewalk		West Sidewalk	
	North Sidewalk		South Sidewalk		North Bike Lane		South Bike Lane					
	EB	WB	WB	EB	EB	WB	WB	EB	SB	NB	NB	SB
7:00 AM	0	0	0	1	0	0	0	5	0	2	0	0
7:30 AM	0	0	1	1	1	2	2	13	0	0	0	0
8:00 AM	0	0	2	0	0	5	1	16	0	0	0	0
8:30 AM	2	0	0	0	1	4	0	14	0	0	0	0
9:00 AM	0	0	0	3	0	3	0	10	0	0	0	0
9:30 AM	0	0	0	0	0	2	1	6	0	0	0	1
10:00 AM	0	0	0	0	1	0	1	5	0	0	0	0
10:30 AM	0	0	0	0	0	1	0	4	0	0	0	0
11:00 AM	0	0	0	0	0	1	1	1	0	0	0	0
11:30 AM	0	0	0	0	1	1	0	1	0	1	0	0
12:00 PM	0	0	0	0	0	3	0	6	0	1	0	1
12:30 PM	0	0	0	0	0	4	0	2	0	0	0	0
1:00 PM	0	0	0	0	0	0	0	0	0	1	0	0
1:30 PM	1	0	0	0	0	1	0	0	0	0	0	1
2:00 PM	0	0	0	0	0	3	1	3	0	1	0	0
2:30 PM	0	0	0	0	0	5	0	2	0	0	0	0
3:00 PM	0	0	0	0	0	5	0	2	0	0	0	1
3:30 PM	0	0	0	0	0	2	0	2	0	0	2	0
4:00 PM	0	0	0	0	0	8	0	6	0	0	1	0
4:30 PM	0	0	0	0	0	5	1	5	0	0	0	0
5:00 PM	0	2	0	2	0	8	0	5	0	1	0	1
5:30 PM	1	0	2	0	0	22	1	8	0	0	0	2
6:00 PM	0	0	2	0	0	14	0	7	0	0	0	0
<u>6:30 PM</u>	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>7</u>	<u>1</u>	<u>2</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	4	2	8	7	4	106	10	125	0	7	3	7

^aBased on counts conducted by VAI in April 2019.

2.c - INTERSECTION TURNING MOVEMENT COUNTS AND QUEUES

Intersection manual TMCs were conducted at the study area intersections in April and May 2019 for the weekday morning (7:30 to 9:30 AM) and weekday evening (4:30 to 6:30 PM) time periods. Total cars, trucks, buses, pedestrians by movement, bicycles, and vehicle queues were recorded. Based on a review of seasonal adjustment factors collected by the Massachusetts Department of Transportation (MassDOT), traffic volumes collected in April and May are approximately 3 percent, above-average-month conditions. Therefore, the traffic counts that form the basis of this assessment were not adjusted downward to provide a conservative (above-average) analysis condition.

It is important to note that due to the effects of the COVID-19 pandemic, regional traffic volumes have not increased between 2019 and 2021. Therefore, in order to provide an adequate baseline condition for this TIS, the obtained 2019 traffic volume was used with no annual growth as the 2021 baseline condition. The 2021 Existing weekday morning and weekday evening peak-hour traffic-volume networks are depicted on Figures 2.c.1 and 2.c.2. The pedestrian volumes are depicted on Figures 2.c.3 and 2.c.4 for the weekday morning and weekday evening peak-hour periods. Bicycle volumes are provided on Figures 2.c.5 and 2.c.6 for the weekday morning and evening peak-hour periods. The raw count data are included in the Appendix.

Existing Vehicle Queues

Vehicle queues observations were conducted during the morning and evening peak hours at signalized intersections within study area. It is important to note that queues were observed at the same time as the TMCs were being captured. These queue observations were used for the Synchro model calibration for the queue analysis and are presented below. (A detailed queue analysis is provided in Section 7 of this report.) Table 2.c.1 summarizes the vehicle queue observations by intersection approach and lane.

Table 2.c.1
EXISTING QUEUE OBSERVATIONS^a

Intersection/Lane ^b	Weekday Morning Peak Hour		Weekday Evening Peak Hour	
	Average Queue	Maximum Queue	Average Queue	Maximum Queue
<i>Concord Avenue at Blanchard Road:</i>				
Concord Avenue EB LT/TH	4	9	5	9
Concord Avenue EB TH/RT	6	10	3	7
Concord Avenue WB L	5	9	5	8
Concord Avenue WB T	4	8	6	11
Concord Avenue WB R	2	6	4	8
Blanchard Road NB LT/TH	8	15	12	18
Blanchard Road NB RT	1	3	0	3
Blanchard Road SB LT/TH/RT	8	11	8	12
<i>Concord Avenue at Moulton Street:</i>				
Concord Avenue EB LT/TH	7	13	5	9
Concord Avenue EB TH/RT	4	10	4	10
Concord Avenue WB LT/TH/RT	2	6	5	12
Private Driveway NB LT/TH/RT	0	1	1	3
Moulton Street SB LT/TH/RT	1	6	2	4

^aBased upon observations conducted by VAI in April 2019.

^bEB = eastbound; WB = westbound; NB = northbound; SB = southbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

2.d - MOTOR VEHICLE CRASH DATA

Motor vehicle crash data was obtained from the MassDOT crash data portal and Cambridge Police Department (CPD) for the most recent three-year period (2016 through 2018) in order to examine motor vehicle crash trends occurring within the study area. The CPD crash data was obtained from the Cambridge open data website. In order to evaluate crash trends at local intersections within study area, data from MassDOT and CPD were compared. The comparison shows that all crashes on the CPD list were included in the MassDOT report; however, some of the crashes in the MassDOT list were not included in the CPD list. Therefore, in order to provide a consistent and conservative analysis, all data from the MassDOT crash data portal was included in the crash analysis. This data is summarized in Table 2.d.1. Table 2.d.2 identifies crashes between vehicles and pedestrians and vehicles and bicyclists.

MassDOT has six districts within Massachusetts, with Cambridge falling under the jurisdiction of District 6. The average crash rate per million entering vehicles for District 6 is 0.71 for signalized intersections and 0.52 for unsignalized intersections. Ten of the twelve study area intersections fall under the District 6 average crash rate for signalized and unsignalized intersections.

The crash summary indicates the intersection of Concord Ave. at Blanchard Road and Griswold Street has the highest crash reported in the study area with an average of 4 crashes per year over the three-year study period. The majority of these crashes were either angle collisions or sideswipe-same direction. Seven out of the 12 crashes resulted in property damage only, 9 crashes occurred on a weekday during off-peak hours, 9 crashes occurred with dry pavement conditions, and 1 crash experienced wet roadway conditions. The involvement of one cyclist was noted in the crash data at this location.

In addition, the Highway Safety Improvement Program (HSIP) database was reviewed. None of the study intersections were included in the most recent (2015 through 2017) HSIP listing. The detailed MassDOT Crash Rate Worksheets and High Crash Location maps are provided in the Appendix.

Table 2.d.1
VEHICLE CRASH DATA SUMMARY^a

	Concord Ave. at Blanchard Rd. and Griswold St. (Signalized)	Concord Ave. at Smith Pl. (Unsignalized)	Concord Ave. at Moulton St. (Signalized)	Concord Ave. at Fawcett St. (Unsignalized)	Smith Pl. at Fawcett St. (Unsignalized)
<i>Year:</i>					
2016	4	2	2	2	1
2017	4	3	1	2	0
<u>2018</u>	<u>4</u>	<u>2</u>	<u>2</u>	<u>5</u>	<u>1</u>
Total	12	7	5	9	2
Average ^a	4.00	2.33	1.67	3.00	0.67
Crash Rate ^b	0.52	0.40	0.29	0.48	0.59
Significant ^c	No/No	No/No	No/No	No/No	No/No
<i>Type:</i>					
Angle	5	2	0	3	0
Rear-End	1	2	1	1	2
Head-On	2	0	1	1	0
Sideswipe	3	2	1	3	0
Fixed Object	0	0	1	0	0
<u>Other/Unknown</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>0</u>
Total	12	7	5	9	2
<i>Time:</i>					
Weekday 7:00 to 9:00 AM	3	0	0	1	0
Weekday 4:00 to 6:00 PM	0	1	1	0	0
<u>Remainder of Day</u>	<u>9</u>	<u>0</u>	<u>4</u>	<u>8</u>	<u>2</u>
Total	12	7	5	9	2
<i>Pavement Conditions:</i>					
Dry	9	4	4	6	1
Wet	1	2	0	1	1
Snow	0	0	0	0	0
Ice	1	1	0	0	0
Other	0	0	0	1	0
<u>Unknown</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>1</u>	<u>0</u>
Total	12	7	5	9	2
<i>Day of Week:</i>					
Monday through Friday	10	7	4	7	0
<u>Saturday and Sunday</u>	<u>2</u>	<u>0</u>	<u>1</u>	<u>2</u>	<u>2</u>
Total	12	7	5	9	2
<i>Severity:</i>					
Property Damage Only	7	2	1	3	1
Personal Injury	3	1	2	5	0
Fatal Crashes	0	0	0	0	0
<u>Other/Unknown</u>	<u>2</u>	<u>4</u>	<u>2</u>	<u>1</u>	<u>1</u>
Total	12	7	5	9	2

^aSource: MassDOT Crash Data.

^bAverage crashes over three-year period. Includes crashes with pedestrians and/or bicyclist involvement shown in Table 2.d.2

^cCrash rate in crashes per million entering vehicles (mev). Includes crashes with pedestrian and/or bicyclist involvement shown in Table 2.d.2

^dCrash rate noted as significant if rate exceeds MassDOT District 6/statewide averages of 0.71/0.78 and 0.52/0.57 for signalized and unsignalized intersections, respectively.

Table 2.d.2
CRASH DATA SUMMARY:
VEHICLE TO PEDESTRIAN AND VEHICLE TO BICYCLIST^a

	Vehicle to Pedestrian	Vehicle to Bicyclist		
	Concord Ave. at Blanchard Rd./ Griswold St. (Signalized)	Concord Ave. at Blanchard Rd. and Griswold St. (Signalized)	Concord Ave. at Smith Pl. (Unsignalized)	Concord Ave. at Fawcett St. (Unsignalized)
<i>Year:</i>				
2016	1	1	1	1
2017	0	0	0	1
<u>2018</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2</u>
Total	1	1	1	4
Average ^a	0.33	0.33	0.33	1.33
<i>Time:</i>				
Weekday 7:00 to 9:00 AM	0	0	0	0
Weekday 4:00 to 6:00 PM	0	0	0	0
<u>Remainder of Day</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>4</u>
Total	1	1	1	4
<i>Pavement Conditions:</i>				
Dry	1	1	0	4
Wet	0	0	1	0
Snow	0	0	0	0
Icy	0	0	0	0
Other	0	0	0	0
<u>Unknown</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	1	1	4
<i>Day of Week:</i>				
Monday through Friday	1	1	1	3
<u>Saturday and Sunday</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>1</u>
Total	1	1	1	4
<i>Severity:</i>				
Property Damage Only	0	1	0	0
Personal Injury	0	0	1	4
Fatal Crashes	0	0	0	0
<u>Other/Unknown</u>	<u>1</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	1	1	1	4

^aSource: MassDOT Crash Data.

^bAverage crashes over three-year period.

2.e - EXISTING TRANSIT SERVICE

Daily weekday transit ridership, as well as the most recent operating hours and peak-hour headway data, are provided in Table 2.e.1 for existing transit services in the area. (A more detailed transit analysis is provided in Section 10 of this report.)

**Table 2.e.1
TRANSIT SERVICE SUMMARY**

Route No.	Route	Hours of Operation ^a	Peak-Hour Headway (minutes) ^b	Daily Ridership ^b	Peak-Hour Transit Frequency ^b	Peak-Hour Direction Planning Capacity ^d	Total Daily Trips per direction ^b	Estimated Daily Capacity
MBTA Subway								
Alewife Station	Red Line	Northbound 5:08 AM-1:10 AM Southbound 5:16 AM-1:09 AM	~4-9	23,972	13 ^c	2,171	77	167,167
TMA Shuttle								
Alewife TMA shuttle ^e	Alewife TMA shuttle	Morning 7:00 – 11:00 AM Afternoon 3:00 – 7:00 PM	~30	75 ^e	2 ^e	36	16 ^e	576
MBTA Bus Line								
62 ^f	Bedford VA Hospital – Alewife Station	(Line Suspended)	~35-40	1,326	2	106	25	2,650
67	Turkey Hill – Alewife Station	Inbound 6:25 AM-7:37 PM outbound 6:00 AM-7:23 PM	~24-50	672	2	106	23	2,438
74	Belmont Center/Harvard Station via Concord Ave.	Inbound 5:10 AM-1:08 AM Outbound 5:30 AM-1:22 AM	~18-95	730	2	106	24	2,544
76 ^g	Hanscom/Lincoln Lab – Alewife Station	Inbound 6:00 AM-10:38 PM Outbound 5:00 AM-9:37 PM	~15-70	1,016	2	106	23	2,438
78 ^g	Arlmont Village/Harvard Station via Park Circle	Inbound 5:35 AM-12:26 AM Outbound 5:45 AM-12:54 AM	~20-60	1,292	3	159	33	5,247
79 ^f	Arlington Heights – Alewife Station	(Line Suspended)	~10-55	1,154	3	159	31	4,929
84 ^f	Arlmont Village – Alewife Station	(Line Suspended)	~20-50	388	2	106	11	1,166
350 ^g	North Burlington – Alewife Station	Inbound 6:00 AM-11:08 PM Outbound 6:16 AM-11:05 PM	~15-65	1,566	3	159	29	4,611
351 ^f	EMD Serono/Bedford Woods – Alewife Station	(Line Suspended)	~45-60	184	1	53	4	212

^aSource: MBTA schedule 2019.

^bMBTA bus ridership data from fall 2019 and MBTA composite of station passenger entry and ridership data, FY 2019.

^cAssumed 4.5 minutes headway during peak hour.

^dNumber of policy level capacity per MBTA Blue Book 14th Edition - 53 passengers per MBTA fix bus/167 passengers per train car/18 passengers per shuttle.

^eAlewife TMA ridership data from Jan 2020.

^fLine Suspended.

^gRoute Combined with a suspended route.

2.f - EXISTING PARKING UTILIZATION

According to the City's records, the Project site location has 14 registered parking spaces. As part of this development, the existing site buildings including all parking spaces will be demolished. The location of the existing vehicle parking supply was previously shown on Figures B.1. Due to COVID-19 impacts and expected minimal use of the site, existing parking utilization survey was not conducted.

2.g - BICYCLE PARKING

Currently, bicycle parking spaces are not provided at the Project site. Locations of bike parking in the area are shown on Figure 1.d.4.

3.0 PROJECT TRAFFIC

3.a - MODE SHARE

In coordination with the City of Cambridge, Traffic, Parking and Transportation Department (TP&T), mode shares for the Project were developed from data from PTDM monitoring reports from 10 Wilson Road (2017) PTDM report, 767 Concord Avenue (2019) PTDM report, and 75 Moulton Street (2019) PTDM report. Table 3.a.1 presents the TP&T approved mode share rates for this analysis.

**Table 3.a.1
MODE SPLIT SUMMARY^a**

<u>Mode Split</u>	<u>R&D Building</u>
Single Occupancy Vehicle (SOV)	54.0
High Occupancy Vehicle (HOV)	10.0
Transit	16.0
Bicycle	10.0
Pedestrian	4.0
<u>Other</u>	<u>6.0</u>
TOTAL	100

^aTDM monitoring reports from 10 Wilson Road (2017), 767 Concord Avenue (2019), and 75 Moulton Street (2019) PTDM report.

3.b - TRIP GENERATION

The Project involves the construction of a 57,434 sf R&D building. In order to provide the most accurate trip-generation estimates and as requested in the City's scoping letter, instead of using the Institute of Transportation Engineers (ITE)⁴ *Trip Generation manual* (10th edition) rates for R&D (Land Use Code (LUC) 760), empirical trip rates from existing R&D buildings in the vicinity of the proposed site were used. Trip-generation calculations were performed for a typical weekday as

⁴*Trip Generation*, 10th Edition; Institute of Transportation Engineers; Washington, DC; 2017.

well as the weekday morning and weekday evening peak hours, the critical time periods for Project-related traffic activity.

Summary of Empirical Trip Rate Analysis for Office/Lab Space

The City provided recent PTDM Annual Report Summaries for 10 Wilson Road (2017) PTDM report, 767 Concord Avenue (2019) PTDM report, and 75 Moulton Street (2019) PTDM report which contain information on building occupancies, driveway counts, and mode shares (from survey data). The average data of the driveway counts divided by the building occupancies from each facility has been used to reach an empirical trip-generation rate.

When compared to the ITE trip rates, the empirical trip-generation rate shows to be significantly higher than the trips rates provided by ITE. Based on this finding and in order to provide a conservative analysis, the empirical trip-generation rates were used.

Vehicle Occupancy

National census data from the American Community Survey⁵ (ACS) - census tract *3546-Middlesex County, Massachusetts* where the site is located, was used to identify vehicle occupancy ratio (VOR) (1.05) to convert vehicle trips to person trips.

R&D Center Trip Generation

It should be noted that the initial building size of 62,050 sf has been reduced through increasing design detail to 57,434 sf. However, the larger building size has been retained in order to provide a conservative analysis of Project impacts. The proposed R&D vehicle trips (SOV and HOV) were calculated using the empirical trip-generation rates for each peak period and the independent variable of 62.050 ksf. The obtained vehicle trips were converted to person trips using VOR from census data from the ACS (1.05). According to the mode split data, the SOV and HOV represented 64 percent of the trips generated by the project. The remaining 36 percent of the trips represent trips made by way of public transportation, walking, bicycle, and other, and were adjusted to the specific person trips using mode split percentage as documented in Table 3.a.1. A spreadsheet documenting these calculations is attached in the Appendix of this TIS. Table 3.b.2 summarizes the proposed R&D trip generation by mode.

Existing Use Trips

Per standard practice, an investigation of vehicle-trip activity at the existing site was conducted to determine if vehicle-trip-generation credit will be applied for this development. Based upon field observation, existing vehicle trips associated with the site buildings/uses was minimal. It is important to note that the Project site was not vacant during the data collection period. However, due to the COVID-19 pandemic, peak-hour vehicle trips from the existing project site would likely be minimal. In order to be conservative, the existing site trips were neglected and were not subtracted from the roadway network.

As can be seen in Table 3.b.2, the Project is expected to generate 45 new vehicle trips (35 vehicles entering and 10 exiting) during the weekday morning peak-hour. During the weekday evening peak hour, the Project is expected to generate 39 new vehicle trips (9 vehicles entering and 30 exiting).

⁵2015-2019 American Community Survey, five-year estimates.

Table 3.b.2
PROJECT R&D TRIP GENERATION BY MODE

Time Period/ Directional Distribution	R&D Vehicle Trips Rates ^a	Proposed R&D (SOV+HOV) Vehicle Trips (62,050 GFA)	Person Trips		Mode Share - Person Trips					
			(SOV+HOV) Person Trips (64%)	Total Person Trips (100%) ^b	SOV Trips (54%)	HOV Trips (10%)	Transit Trips (16%)	Bicycle Trips (10%)	Pedestrian Trips (4%)	Other Trips (6%)
<i>Average Weekday Daily:</i>										
Entering	2.83	176	185	289	156	29	46	29	12	17
<u>Exiting</u>	<u>2.90</u>	<u>180</u>	<u>189</u>	<u>295</u>	<u>159</u>	<u>30</u>	<u>47</u>	<u>30</u>	<u>11</u>	<u>18</u>
Total	5.73	356	374	584	315	59	93	59	23	35
<i>Weekday Morning Peak Hour:</i>										
Entering	0.57	35	37	58	31	6	9	6	2	4
<u>Exiting</u>	<u>0.16</u>	<u>10</u>	<u>11</u>	<u>17</u>	<u>9</u>	<u>2</u>	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>
Total	0.73	45	48	75	40	8	11	8	3	5
<i>Weekday Evening Peak Hour:</i>										
Entering	0.14	9	9	14	8	1	2	1	1	1
<u>Exiting</u>	<u>0.48</u>	<u>30</u>	<u>32</u>	<u>50</u>	<u>27</u>	<u>5</u>	<u>8</u>	<u>5</u>	<u>2</u>	<u>3</u>
Total	0.62	39	41	64	35	6	10	6	3	4

^aBased on average trip rates from 10 Wilson Av 2017 PTDM report, West Cambridge Science Park 2019 PDTM and 75 Moulton Street 2019 PTDM report.

^b Total Person trips = (SOV+HOV) Person Trips/0.64

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

3.c - TRIP DISTRIBUTION

The directional distribution of generated trips to and from the Project site was determined based on a review of the *Alewife Critical Sums Assumptions Report*⁶, for commercial (R&D offices) components. The general trip distribution for the Project is summarized in Table 3.c.1.

Table 3.c.1
TRIP-DISTRIBUTION SUMMARY

Roadway	Direction (To/From)	Commercial Percent (%)
Blanchard Road	North	15
Blanchard Road	South	15
Concord Avenue	West	20
Concord Avenue	East	<u>50</u>
TOTAL		100

Trip distribution is also shown on Figure 3.c.1. Research and Development Center trips for the weekday morning and weekday evening peak hours are shown on Figures 3.c.2 and 3.c.3, respectively.

3.d - PROJECT SERVICE AND LOADING

The Project is expected to generate truck and delivery trips over the course of a day other than the typical roadway peak hour. Typical deliveries may include trash removal and courier package delivery services. Those services will be directed to use the loading areas that will be located off Fawcett Street, next to the garage driveway. Trash and recycling will be contained in trash areas in separate rooms.

⁶*Ibid* 3

4.0 BACKGROUND TRAFFIC

Traffic volumes in the study area were projected to the year 2026, which reflects a five-year planning horizon consistent with City traffic study guidelines and the traffic study scope issued by the City TP&T Department. Traffic-volume conditions would include increases due to development projects approved or under construction and increases to general background traffic levels, assumed to increase at 0.5 percent per year.

As indicated in the Scoping Letter, the following projects were identified for inclusion in the Future 2026 condition:

- 671-675 Concord Avenue (HRI Concord Highlands).
- 87-95 Fawcett Street
- 55 Wheeler Street
- 605 Concord Avenue
- 35 Cambridge Park Drive renovation project
- 50 Cambridge Park Drive
- 188R Cambridge Park Drive
- 130 Cambridge Park Drive
- The Residences at Alewife Station (195 & 211 Concord Turnpike)
- Discovery Park mixed-use development
- 75 New Street
- 101 Cambridge Park Drive
- 75/109 Smith Place
- 402 Rindge Avenue
- 40 Wilson Road

Traffic volumes associated with the aforementioned development projects by others were obtained from the respective traffic studies and were assigned onto the study area roadway network based on existing traffic patterns where no other information was available (see distribution in Appendix).

No other developments were identified that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

5.0 TRAFFIC ANALYSIS

As requested in the traffic study scope issued by the City TP&T Department, traffic analysis was developed for the 2021 Baseline condition, 2021 Build, and 2026 Future conditions scenarios for both weekday morning and weekday evening peak-hour periods.

5.a – 2021 BASELINE CONDITIONS ANALYSIS

Existing analysis was conducted based on existing vehicle, bicycle, and pedestrian volumes as detailed in Section 2 of this report.

5.b – 2021 BUILD CONDITION ANALYSIS

The 2021 Baseline condition traffic volumes were combined with the net new site-generated traffic levels to derive the 2021 Build condition networks, shown on Figures 5.b.1 and 5.b.2 for the weekday morning and weekday evening peak hours, respectively. Figures 5.b.3 and 5.b.4 represent the projected 2021 Build weekday morning and weekday evening peak-hour pedestrian volumes, respectively.

5.c – 2026 FUTURE CONDITION ANALYSIS

The Future 2026 traffic-volume condition includes the traffic volumes from the identified background developments, the increases resulting from the 0.5 percent per year annual growth rate that were applied to the 2021 Baseline conditions traffic volumes, and the net new traffic associated with the Project. These traffic-volume networks are shown on Figures 5.c.1 and 5.c.2 for the weekday morning and weekday evening peak-hour traffic volumes, respectively.

5.d – 2026 FUTURE CONDITION CUMULATIVE IMPACT

As requested by the City TP&T Department, this traffic study shows a map depicting the future cumulative traffic impact during a typical weekday morning and evening peak hour at the study area intersections. This map includes this Project and all other projects currently permitted, under construction or not fully occupied. This map is shown in Figures 5.d.1 and 5d.2.

6.0 VEHICLE CAPACITY ANALYSIS

6.a CAPACITY ANALYSIS

Measuring existing and future traffic volumes quantifies traffic flow within the study area. To assess quality of flow, roadway capacity and vehicle queue analyses were conducted under 2021 Baseline, 2021 Build, and 2026 Future conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study. These analyses were conducted using Synchro™ 10 analysis software. The analysis worksheets are contained in the Appendix.

Levels of service for signalized intersections were calculated using the Percentile Delay Method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on “percentile” delay. Levels of service for unsignalized intersections were calculated using procedure described in the 2010 *Highway Capacity Manual*⁷. Levels of service were conducted for the 2021 Baseline, 2021 Build, and 2026 Future conditions for the intersections within the study area. The results of the intersection capacity analyses are summarized for signalized intersections in Table 6.a.1 and for unsignalized intersections in Table 6.a.2.

Figures 6.a.1 and 6.a.2 depicts the vehicle level-of-service summaries in a graphical map format for the weekday morning and weekday evening peak hours, respectively. Figures 6.a.3 and 6.a.4 provide a graphical map of vehicle delay changes at the study area intersections for the weekday morning and weekday evening peak hours, respectively. These delay change maps depict the change in delay from Existing to Build and from Existing to Future conditions.

⁷*Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2010.

Table 6.a.1
VEHICLE LEVEL-OF-SERVICE SUMMARY – SIGNALIZED INTERSECTIONS

Intersection/Peak Hour/Movement	2021 Baseline Condition		2021 Build		Difference in Delay	2026 Future	
	Delay ^a	LOS ^b	Delay	LOS		Delay	LOS
Concord Avenue at Blanchard Road:							
<i>Weekday Morning:</i>							
Concord Avenue EB LT TH RT	70.8	E	71.4	E	0.6	82.5	F
Concord Avenue WB LT	105	F	106.2	F	1.2	138.1	F
Concord Avenue WB TH	43.9	D	44	D	0.1	48.3	D
Concord Avenue WB RT	5.7	A	5.7	A	0.0	5.5	A
Blanchard Road NB LT TH	43.1	D	43.2	D	0.1	43.8	D
Blanchard Road NB RT	12.8	B	12.8	B	0.0	13.4	B
Blanchard Road SB LT TH RT	228.4	F	234.1	F	5.7	266	F
Overall	104.7	F	106.6	F	1.9	118.6	F
<i>Weekday Evening:</i>							
Concord Avenue EB LT TH RT	70.6	E	70.9	E	0.3	73.3	E
Concord Avenue WB LT	152.1	F	159.3	F	7.2	209.9	F
Concord Avenue WB TH	52.4	D	52.9	D	0.5	56.4	E
Concord Avenue WB RT	6.9	A	6.9	A	0.0	6.7	A
Blanchard Road NB LT TH	47.1	D	47.4	D	0.3	52	D
Blanchard Road NB RT	20.8	C	21	C	0.2	24.4	C
Blanchard Road SB LT TH RT	68.7	E	68.9	E	0.2	72.8	E
Overall	61.0	E	62.0	E	1.0	70.3	E
Concord Avenue at Moulton Street:							
<i>Weekday Morning:</i>							
Concord Avenue EB LT TH RT	4	A	4	A	0	4.3	A
Concord Avenue WB LT TH RT	6.1	A	6.1	A	0	8.2	A
Private Driveway NB LT TH RT	0.3	A	0.3	A	0	0.3	A
Moulton Street SB LT TH RT	30	C	30	C	0	30.4	C
Overall	5.8	A	5.8	A	0	6.9	A
<i>Weekday Evening:</i>							
Concord Avenue EB LT TH RT	4.9	A	4.9	A	0	5.3	A
Concord Avenue WB LT TH RT	8.1	A	8.1	A	0	8.8	A
Private Driveway NB LT TH RT	13.9	B	13.9	B	0	13.8	B
Moulton Street SB LT TH RT	26.1	C	26.1	C	0	26.4	C
Overall	9.1	A	9.1	A	0	9.2	A
Concord Avenue at Fawcett Street:							
<i>Weekday Morning:</i>							
Concord Avenue EB LT TH					--	12	B
Concord Avenue WB LT TH					--	21.3	C
Fawcett Street SB LT RT					--	45.3	D
Overall						18.9	B
<i>Weekday Evening:</i>							
	See Table 6.a.2		See Table 6.a.2				
Concord Avenue EB LT TH					--	8.8	A
Concord Avenue WB LT TH					--	13.9	B
Fawcett Street SB LT RT					--	46.6	D
Overall						15.4	B

^aDelay per vehicle (in seconds) as calculated by Synchro for the movements shown.

^bLevel of service.

NB = northbound; SB = southbound; WB = westbound; SB = southbound; LT = left-turn movement; TH = through movement; RT = right-turn movement.

Table 6.a.2
VEHICLE LEVEL-OF-SERVICE SUMMARY – UNSIGNALIZED INTERSECTIONS

Unsignalized Intersection/Peak Hour Critical Movement	2021 Baseline Condition			2021 Build			Difference in Delay	2026 Future		
	Demand ^a	Delay ^b	LOS ^c	Demand	Delay	LOS		Demand	Delay	LOS
Concord Avenue at Smith Place:										
<i>Weekday Morning:</i>										
Concord Avenue EB LT	65	9.4	A	83	9.5	A	0.1	131	10.7	B
Concord Avenue EB TH	877	0.7	A	877	0.9	A	0.2	934	1.9	A
Smith Place SB LT RT	85	34.6	D	91	40.2	E	5.6	123	291.7	F
Overall										
<i>Weekday Evening:</i>										
Concord Avenue EB LT	57	8.9	A	62	8.9	A	0	74	9.0	A
Concord Avenue EB TH	493	0.3	A	493	0.3	A	0	562	0.4	A
Smith Place SB LT RT	180	28.6	D	198	31.5	D	2.9	315	139.5	F
Overall										
Concord Avenue at Fawcett Street:										
<i>Weekday Morning:</i>										
Concord Avenue EB LT	22	9.8	A	22	9.8	A	0			
Concord Avenue EB TH	899	0.3	A	900	0.3	A	0			
Fawcett Place SB LT RT	104	65.7	F	108	74.6	F	8.9			
Overall										
See Table 6.a.1										
<i>Weekday Evening:</i>										
Concord Avenue EB LT	22	9.1	A	22	9.1	A	0			
Concord Avenue EB TH	618	0.2	A	621	0.2	A	0			
Fawcett Place SB LT RT	142	36.8	E	154	41.5	E	4.7			
Overall										
Smith Place at Fawcett Street and Private Drive:										
<i>Weekday Morning:</i>										
Private Drive EB LT TH RT	8	9.0	A	8	9	A	0	8	9.0	A
Fawcett Street WB LT TH RT	64	9.4	A	70	9.6	A	0.2	72	9.6	A
Smith Place NB LT TH RT	59	8.2	A	77	8.2	A	0	79	8.2	A
Smith Place SB LT TH RT	44	7.5	A	44	7.5	A	0	45	7.6	A
Overall										
<i>Weekday Evening:</i>										
Private Drive EB LT TH RT	16	9.1	A	16	9.2	A	0.1	16	9.2	A
Fawcett Street WB LT TH RT	59	10.4	B	77	11.0	B	0.6	79	11.0	B
Smith Place NB LT TH RT	84	7.5	A	89	7.5	A	0	91	7.5	A
Smith Place SB LT TH RT	87	7.4	A	87	7.4	A	0	89	7.4	A
Overall										
Fawcett Street at Site Drive A:										
<i>Weekday Morning:</i>										
Fawcett Street EB LT	Neg.	--	A	18	7.4	A	7.4	18	7.4	A
Fawcett Street EB TH	46	--	A	46	0	A	0	47	0	A
Site Drive SB LT RT	Neg.	--	A	10	9	A	9	10	9	A
Overall										
<i>Weekday Evening:</i>										
Fawcett Street EB TH LT	Neg.	--	A	5	7.4	A	7.4	5	7.4	A
Fawcett Street WB TH RT	36	--	A	36	0	A	0	37	0	A
Site Drive SB LT RT	Neg.	--	A	30	8.9	A	8.9	30	9	A
Overall										
Smith Place at Site Drive B:										
<i>Weekday Morning:</i>										
Site Drive WB LT RT	Neg.	--	A				--			
Smith Place SB LT	Neg.	--	A				--			
Smith Place SB TH	44	--	A				--			
Overall										
(Site Driveway B will be closed under future conditions)										
<i>Weekday Evening:</i>										
Site Drive WB LT RT	Neg.	--	A				--			
Smith Place SB LT	Neg.	--	A				--			
Smith Place SB TH	87	--	A				--			
Overall										
(Site Driveway B will be closed under future conditions)										

^aDemand (in vehicles per hour) for the critical movements.

^bDelay per vehicle (in seconds) for the critical movements as calculated by Synchro

^cLevel of service.

NB = northbound; SB = southbound; WB = westbound; SB = southbound; LT = left-turn movement; TH = through movement; RT = right-turn movement.

Neg.= Neglected

7.0 QUEUE ANALYSIS

Vehicle queues were calculated for each approach of the signalized study area intersections using SimTraffic analysis software. Table 7.a.1 shows the results for the observed and modeled average queues (expressed as the number of vehicles) for each scenario for the morning and evening peak hour, respectively.

As requested in the traffic scope letter, SimTraffic was used to approximate the queue conditions. The traffic model required calibration by adjusting the traffic volumes in all approaches of the signalized intersections to accurately reflect observed queuing conditions. These adjustments were carried forward in the 2021 Build and 2026 Future conditions analyses.

Table 7.a.1
QUEUE ANALYSIS RESULTS^a

Intersection/Lane	Weekday Morning Peak Hour					Weekday Evening Peak Hour				
	2019 Observed	2021 Existing Calculated	2021 Build Calculated	Difference in Queue	2026 Future Calculated	2019 Observed	2021 Existing Calculated	2021 Build Calculated	Difference in Queue	2026 Future Calculated
<i>Concord Avenue at Blanchard Road:</i>										
Concord Avenue EB LT/TH	4	6	6	0	9	5	5	5	0	7
Concord Avenue EB TH/RT	6	4	4	0	7	3	3	3	0	5
Concord Avenue WB L	5	5	5	0	5	5	5	5	0	5
Concord Avenue WB T	4	5	5	0	5	6	5	5	0	5
Concord Avenue WB R	2	2	2	0	2	4	2	2	0	3
Blanchard Road NB LT/TH	8	6	6	0	6	12	13	13	0	26
Blanchard Road NB RT	1	2	2	0	2	0	2	2	0	3
Blanchard Road SB LT/TH/RT	8	8	8	0	10	8	7	7	0	9
<i>Concord Avenue at Moulton Street:</i>										
Concord Avenue EB LT/TH	7	4	4	0	5	5	3	3	0	4
Concord Avenue EB TH/RT	4	4	4	0	5	4	3	4	1	4
Concord Avenue WB LT/TH/RT	2	3	4	1	8	5	4	4	0	6
Private Driveway NB LT/TH/RT	0	0	0	0	0	1	1	1	0	1
Moulton Street SB LT/TH/RT	1	1	1	0	1	2	2	2	0	3

^aAll queues calculated using SimTraffic methodology. Queue in vehicles per lane.

8.0 RESIDENTIAL STREET VOLUME ANALYSIS

8.a RESIDENTIAL STREET VOLUME ANALYSIS

The Project is located in an area of both residential and commercial uses. Residential streets will be subject to some measure of traffic traveling to and from the Project. Of all the roadway segments in the study area, some of the identified segments are streets that have more than one-third of residential frontage, as determined by the existing first floor use. Roadway segments within the study area with residential street frontage are evaluated for increased volume on residential streets which is a Planning Board criterion.

The peak-hour traffic volumes (both directions) on the analyzed roadway segments are presented in Table 8.a.1. For analyzed segments that are between study area intersections, the highest volumes at the intersections were taken as the volume traveling along the segment. The analysis shows the percent increase in traffic along the residential roadway segments between Existing and Build volumes.

**Table 8.a.1
TRAFFIC ON RESIDENTIAL STREETS**

Roadway	Reviewed Segment	Amount of Residential	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			Existing Two-Way Traffic	Build Two-Way Traffic	Increase due to Project	Existing Two-Way Traffic	Build Two-Way Traffic	Increase due to Project
Blanchard Road	Colby St/S. Normandy Av. to Concord Av. Mannix Circle to Concord Av.	1/2 or more	1,093	1,101	8	994	951	7
		>1/3 but <1/2	900	906	6	899	904	5
Concord Avenue	Blanchard Road to Smith Place Smith Place to Moulton Street Moulton Street to Fawcett Street Fawcett Street to Wheeler Street	1/3 or less	1,580	1,603	23	1203	1223	20
		1/3 or less	1,541	1,542	1	1142	1145	3
		1/3 or less	1,601	1,602	1	1204	1207	3
		1/3 or less	1,800	1,822	22	1320	1339	19
Smith Place	Concord Avenue to Fawcett Street	1/3 or less	188	212	24	255	278	23
Fawcett Street	Concord Avenue to Connection Road Connection Road to Smith Place	>1/3 but 1/2	275	296	21	263	279	16
		1/3 or less	110	134	24	95	118	23

9.0 PARKING ANALYSIS

According to the City's records, the Project site has 14 registered parking spaces. As part of this development all existing site buildings including all parking spaces will be demolished.

9.a PROJECTED PARKING DEMAND

A parking analysis was conducted to determine future parking demands. The demand analysis is based upon the City of Cambridge Zoning Ordinance *Article 6 – Off Street Parking and Loading Requirements and Nighttime Curfew on Large Commercial through Trucks*. Table 9.a.1 summarizes the zoning parking requirements for the Project, as well as the estimated parking demand. The demand analysis is based upon research into residential parking use rates in the Cambridge Quadrangle neighborhood along with expected employee population and mode split assumptions from the trip-generation analysis.

As required in the Scoping Determination, the potential number of parking spaces needed for the Project was calculated based on the estimated number of employees multiplied by the automobile mode split (SOV plus half HOV). Table 9.b.1 summarizes the parking analysis for the Project, including parking requirements consistent with the Envision Cambridge study.

A general site plan depicting the proposed parking and services loading access was previously shown as Figure C.1

**Table 9.a.1
VEHICLE PARKING ANALYSIS**

Envision Cambridge Requirement						
Analysis Type	Use	Size	Zoning Rate		Required Spaces	
			Maximum ^a	Minimum	Maximum	Minimum
Zoning	R&D	62,050 sf	0.8/1000 sf	--	50	50
Parking Demand						
Analysis Type	Use	Size	Rate	Demand		
Demand	R&D	124 emp ^b	0.59 ^c	73		
Detailed Proposed Parking						55
Total Provided for Project						55

^aBased on Envision Cambridge - Alewife District Plan – Parking Requirement – Fall 2019

^bBased on expected number of employees ranging between 1.5 and 2.5 employees per 1,000 sf for R&D Use, which yields a total of 93 to 155 employees. Estimate based on density of 2.0 employees/1,000 sf.

^cCalculated as SOV rate (54 percent) plus ½ of HOV rate (5 percent) for R&D category

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

9.b PARKING MANAGEMENT PLAN

It should be noted that the Applicant is committed to implementing typical TDM measures to further reduce the demand for parking, including encouragement of public transit and bicycles for the office employees and residents. The parking provided by the Project will be restricted to use by the tenant employees and visitors. Spaces will not be available for commercial (public parking) use.

9.c BICYCLE PARKING

A bicycle parking analysis was conducted to determine future long-term and short-term bicycle parking demands. The Project complies with City Zoning requirements for bicycle parking. Tables 9.c.1 and 9.c.2 document the Project bicycle parking demand based upon the City of Cambridge Zoning Ordinance.

**Table 9.c.1
BICYCLE PARKING REQUIREMENTS**

Land Use	Parking Ratio Per Sf	Size (ksf or units)	Total Parking Spaces Required
R&D Long-Term (0.22 per 1000) ^a	0.22	62.05	14
R&D Short-Term (0.06 per 1000)	0.06	62.05	4
Total			18

^aWhere 20 or more bicycle parking spaces are required, at least 5 percent of the long-term spaces are required to be tandem.

Table 9.c.2
BICYCLE PARKING ANALYSIS

Use	Size (ksf or units)	Proposed Bike Spaces		Total Spaces
		Long Term Spaces	Short Term Spaces	
R&D	62,050	14	8	22
TOTAL		14	8	22

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

It is important to note that all long-term bicycle parking spaces will be provided in a ground-level bike room with direct access to the building exterior and sidewalk. The Project’s short-term spaces for visitors will be located close to the building entrance. Detailed plans (1 inch = 10 feet) for long-term and short-term bicycle parking as well as the proposed bicycle rack details are shown on Figures 9.c.1 and 9.c.2.

10.0 TRANSIT ANALYSIS

The transit analysis included a review of existing Red Line, public and private bus operations and an assessment of the impacts of project-generated transit trips and future transit trips. The following section summarizes existing transit services availability in the study area and provide an assessment of transit utilization and capacity for transit lines that may be used by travelers for the proposed Project. These services include the Red Line (accessed at Alewife Station) and MBTA Bus Lines 62, 67, 74, 76, 78, 79, 84, 350, and 351. Only Route 74 and 78 buses have stops along Concord Avenue, whereas all other bus lines are accessed at Alewife Station. It is important to note that due to the COVID-19 and effective August 30, 2020, some of the mentioned lines were suspended. However, in order to provide a typical non COVID-19 scenario, the transit analysis was also conducted for the suspended line. Consistent with the TIS guidelines, transit analysis was based on the following five-step method:

1. Assessment of the existing transit system capacity and utilization – Existing conditions
2. Project transit distribution
3. Assessment of the future transit system capacity and utilization – 2021 Build conditions
4. Assignment of transit trips by area background project to the transit system network
5. Assessment of the future transit system utilization (impacts from project as well as other background projects and general system growth) – 2026 Build Future conditions

The volume-to-capacity (V/C) ratio is the resulting metric that, for the purposes of this study, is used to reflect the level of utilization for each transit service line. The V/C ratios were assessed under the Existing, 2021 Build, and 2026 Future Conditions.

10.a EXISTING TRANSIT SYSTEM CAPACITY AND UTILIZATION

The capacity for the subway line, fixed bus route, and private routes were obtained from numbers of train/bus operation during a time period (frequency), number of people that can be accommodated on a train/bus car and for subway the number of cars on each train. The transit capacity was evaluated for a typical weekday, as well as the weekday morning (8:00 to 9:00 AM) and weekday evening (5:00 to 6:00 PM) peak hours, the critical time periods for Project-related traffic activity. Consistent with the TP&T direction, train frequencies were compiled from the latest published MBTA schedules and MBTA Bus Ridership data from FY 2019. The existing transit capacity was then adjusted based on MBTA's on-time performance data (reliability).

The Commuter Rail Reliability is measured as the percent of trains that arrives at their final stop no more than 5 minutes later than scheduled. The Bus reliability is measured at each end of the route and key stops in between. For services that come every 15 minutes or less, it is the percentage of buses that are no more than 3 minutes later than the schedule interval since the last bus. For other services, it is the percentage that arrive within 6 minutes of the scheduled time. Applying the reliability percentage adjustment reduces the number of available trains during the peak hour and accounts for schedule irregularities which would result in wait times experienced by the passengers. The average Red Line on-time performance was adjusted to 93 percent based on the average of the past 30-day average (May 1 through May 31, 2019) data provided by the MBTA Open Data Portal. The MBTA Bus service capacity for each line was adjusted for on-time performance based on average of the past 30-day average (data from April 2 through April 30, 2019 and May 1 through May 31, 2019 provided by the MBTA Performance Dashboard. For the purposes of this study, the vehicle load standards (i.e., number of people safely and comfortably riding on a train car of bus) are based on the MBTA's Service Delivery Policy and the MBTA Blue Book 14th Edition data (Red Line policy capacity of 167 passengers per car, with a standard operation of six-car trains; MBTA Bus policy capacity of 53 passengers per vehicle).

MBTA Ridership data from FY 2019 was used to obtain peak-hour passenger loads for bus routes that are expected to be utilized by the future Project employees. The Red Line ridership for this analysis was based on data for Alewife Station. Inbound trains start their trip from Alewife Station and continue to Ashmont or Braintree, and Outbound trains end at Alewife Station from either Ashmont or Braintree. Passengers board the train serving the inbound Red Line and exit the out-bound Red Line. Specific boarding and alighting volumes during the morning and evening peak hours are presented in the Appendix. The resulting transit system capacities and system's utilization rates for daily and peak hour are presented in Tables 10.a.1 and 10.a.2, respectively.

Table 10.a.1
EXISTING TRANSIT DAILY CAPACITY

Route No.	Estimated Daily Capacity ^a	Existing Daily Ridership ^b	On-Time Performance Adjustment ^c	Adjusted Existing Daily Ridership	V/C ^d
MBTA Subway					
Red Line at Alewife	167,167	23,972	0.93	22,294	0.13
MBTA Bus Line					
62 ^e	2,650	1,326	0.62	822	0.31
67	2,438	672	0.61	410	0.17
74	2,544	732	0.55	403	0.16
76 ^f	2,438	1,016	0.54	549	0.23
78 ^f	5,247	1,292	0.43	556	0.11
79 ^e	4,929	1,156	0.69	798	0.16
84 ^e	1,166	388	0.63	244	0.21
350 ^f	4,611	1,566	0.50	783	0.17
351 ^e	212	184	0.57	105	0.50

^aFrom Table 2e.1.

^bMBTA bus ridership data from Fall 2019 and MBTA composite of station passenger entry and ridership data, FY 2019.

^cOn-Time Performance Factor from MBTA Dashboard and MBTA open data portal.

^dVolume-to-capacity ratio.

^eLine Suspended.

^fRoute Combined with a Suspended Route.

Table 10.a.2
EXISTING TRANSIT PEAK-HOUR CAPACITY^a

Route No.	Direction	Frequency Peak Hour ^a	Passengers per Vehicle ^c	No. of Cars in a Train	Estimated Peak Hour Capacity without adjustment	On-Time Performance Adjustment ^d	Estimated Peak Hour Capacity	Morning Peak Hour Ridership	Evening Peak Hour Ridership	Morning Peak V/C	Evening Peak V/C
MBTA Subway											
Red Line at Alewife	Inbound	13 ^b	167	6	13,026	0.93	12,114	2,624	1,006	0.22	0.08
	Outbound	13 ^b	167	6	13,026	0.93	12,114	684	2,082	0.06	0.17
MBTA Bus Lines											
62 ^e	Inbound	2.1	53	--	111	0.62	69	194	34	2.81	0.49
	Outbound	2.0	53	--	106	0.62	66	34	160	0.52	2.43
67	Inbound	1.9	53	--	101	0.61	62	103	15	1.68	0.24
	Outbound	1.9	53	--	101	0.61	62	10	58	0.16	0.94
74	Inbound	1.1	53	--	58	0.55	32	0	6	0.00	0.19
	Outbound	1.6	53	--	85	0.55	47	3	1	0.06	0.02
76 ^f	Inbound	1.6	53	--	85	0.54	46	90	30	1.97	0.66
	Outbound	1.7	53	--	90	0.54	49	37	95	0.76	1.95
78 ^f	Inbound	2.3	53	--	122	0.43	52	0	8	0.00	0.15
	Outbound	2.1	53	--	111	0.43	48	10	3	0.21	0.06
79 ^e	Inbound	2.3	53	--	122	0.69	84	75	21	0.89	0.25
	Outbound	2.3	53	--	122	0.69	84	9	85	0.11	1.01
84 ^e	Inbound	1.8	53	--	95	0.63	60	70	8	1.16	0.13
	Outbound	1.8	53	--	95	0.63	60	4	89	0.07	1.48
350 ^f	Inbound	2.3	53	--	122	0.50	61	112	34	1.84	0.56
	Outbound	2.2	53	--	117	0.50	59	59	65	1.01	1.11
351 ^f	Inbound	1.0	53	--	53	0.57	30	0	33	0.00	1.09
	Outbound	1.0	53	--	53	0.57	30	51	0	1.69	0.00

^aNumber of vehicle trips per hour, obtained from MBTA Ridership data - Fall 2019.

^bBased on average headway of 4.5 minutes over one hour.

^cNumber of policy level capacity per MBTA Blue Book 14th Edition (Red Line and Buses).

^dOn-Time Performance Factor from MBTA Dashboard and MBTA open data portal.

^eLine Suspended

^fRoute combined with a Suspended Route.

10.b PROJECT TRANSIT DISTRIBUTION

As presented in Section 3 of this report, the Project is expected to generate approximately 11 transit trips (9 entering and 2 exiting) during the morning peak hour and 10 transit trips (2 entering and 8 exiting) during the evening peak hour. For a conservative analysis, no transit trip credits were taken from the existing building on site. Project transit trip distribution was divided between the Red Line and Bus Lines.

The distribution was developed based on MBTA existing peak-hour ridership levels data (Fall 2019). The MBTA data indicated that approximately 74 percent of transit riders use the subway (Red Line) and 26 percent use buses. Separate from this application, a proposed multi-use pathway bridge is planned to connect the Quadrangle neighborhood to Cambridge Park Drive and the Alewife Station. The bridge will shorten the access to the Alewife station from 1.5 miles to 0.5 miles (less than a 10-minute walk) north of the site. In order to provide a conservative analysis, 60 percent of transit riders use were assumed to use the subway (Redline) and 40 percent of the users were assumed to use buses. The distribution on the transit routes is shown in Tables 10.b.1 and 10.b.2.

**Table 10.b.1
TRANSIT SYSTEM TRIP DISTRIBUTION**

<u>Time Period/Directional Distribution</u>	<u>Project Transit Trips^b</u>	<u>Red Line Distribution (60%)^b</u>	<u>Bus Distribution (40%)^b</u>
<i>Weekday Daily:</i>			
Entering	46	28	18
<u>Exiting</u>	<u>47</u>	<u>28</u>	<u>19</u>
Total	93	56	37
<i>Weekday Morning:</i>			
Entering	9	5	4
<u>Exiting</u>	<u>2</u>	<u>1</u>	<u>1</u>
Total	11	6	5
<i>Weekday Evening:</i>			
Entering	2	1	1
<u>Exiting</u>	<u>8</u>	<u>5</u>	<u>3</u>
Total	10	6	4

^aFrom Table 3.b.2.

^bBased on MBTA daily bus ridership data from Table 10.a.1

**Table 10.b.2
PROJECT-GENERATED PEAK-HOUR TRANSIT TRIPS BY LINE**

Route No.	Direction	Weekday Morning			Weekday Evening		
		Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total	Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total
MBTA Subway – Red Line							
Red Line at Alewife	Inbound	5	0	5	1	0	1
	Outbound	0	1	1	0	5	5
MBTA Bus Lines at Concord Avenue							
74	Inbound	1	0	1	0	0	0
	Outbound	0	0	0	0	1	1
78	Inbound	1	0	1	1	0	1
	Outbound	0	1	1	0	1	1
MBTA Bus Lines at Alewife Station							
62	Inbound	1	0	1	0	0	0
	Outbound	0	0	0	0	1	1
67	Inbound	0	0	0	0	0	0
	Outbound	0	0	0	0	0	0
76	Inbound	0	0	0	0	0	0
	Outbound	0	0	0	0	0	0
79	Inbound	0	0	0	0	0	0
	Outbound	0	0	0	0	0	0
84	Inbound	0	0	0	0	0	0
	Outbound	0	0	0	0	0	0
350	Inbound	1	0	1	0	0	0
	Outbound	0	0	0	0	0	0
351	Inbound	0	0	0	0	0	0
	Outbound	0	0	0	0	0	0
Total		9	2	11	2	8	10

10.c 2021 BUILD TRANSIT SYSTEM CAPACITY AND UTILIZATION

The Project-generated transit trips by both Red line and Bus lines (Table 10.b.2) were added to the existing route volume to develop the Build condition utilization scenario. The resulting system capacities and system’s utilization rates for both Red Line and Bus Lines under the 2021 Build condition are summarized on the analysis results table in Section 10.e.

10.d. ASSIGNMENT OF AREA BACKGROUND PROJECT TRANSIT TRIPS

In addition to growing the transit trips to 2026 Future conditions, it is necessary to add transit trips from area projects that are not yet built and/or under construction. The same projects listed in the Section 4 of this report were also used in the transit analysis. Transit trips for each background project, as presented in Table 10.d.1 were included in the Future analysis.

**Table 10.d.1
BACKGROUND PROJECT TRANSIT TRIPS**

Project	Daily Trips	Weekday Morning			Weekday Evening		
		In	Out	Trips Total	In	Out	Trips Total
Triangle Area							
35 Cambridge Park Drive	168	13	2	15	5	13	18
50 Cambridge Park Drive	926	25	76	101	72	32	104
188R Cambridge Park Drive	1,567	20	89	109	109	59	168
130 Cambridge Park Drive	582	9	36	45	35	19	54
Subtotal	3,243	67	203	270	221	123	344
Quadrangle Area / Shopping Center							
671-675 Concord Avenue	224	3	14	17	14	7	21
87-95 Fawcett Street	124	2	7	9	7	4	11
55-Wheeler Street	1,942	30	119	149	118	63	181
605 Concord Avenue	208	2	7	9	14	7	21
The Residences at Alewife Station	304	67	28	95	38	38	76
75 New Street	192	3	12	15	12	6	18
101 Cambridge Park Drive	440	36	18	54	10	30	40
75/109 Smith Place	98	5	2	7	1	5	6
402 Rindge Avenue	550	30	18	48	17	27	44
40 Wilson Road	294	3	8	11	11	2	13
Subtotal	4,376	181	233	414	242	189	431
Total	7,619	248	436	684	463	312	775

Consistent with the overall distributions of the project expected transit trips, 60 percent of the background transit trips were assigned to the Red Line and 40 percent were assigned to bus routes. It was assumed that developments located in the Triangle area will only use bus lines that are available at the Alewife Station. Developments located at the Quadrangle and a shopping center area will use both bus lines that are available at the Alewife Station and the two bus lines (Routes 74 and 78) with bus stops at Concord Avenue.

10.e FUTURE TRANSIT SYSTEM CAPACITY AND UTILIZATION

To analyze the 2026 Future condition for transit, the MBTA existing ridership was grown to year 2026 based on a 1.0 percent per year growth rate for the Red Line. An estimated average annual growth rate of 0.01 percent per year was applied for buses. Both annual growth percentages are presented in the Boston Metropolitan Planning Organization/Central Transportation Planning Staff (CTPS) study of the August 2019 Long-Range transportation plan. The 2026 Future ridership is presented on the summary of analysis results table section 10.e.

10.f SUMMARY OF ANALYSIS RESULTS

Tables 10.f.1, 10.f.2, and 10.f.3 demonstrate and compare the daily and peak-hour ridership impacts during Existing, Build, and Future conditions in the bus routes and subway lines.

Table 10.f.1
DAILY RIDERSHIP IMPACTS

Route No.	Estimated Daily Capacity ^a	Existing ^b		2021 Build		2026 Build	
		Ridership	V/C	Ridership	V/C	Ridership	V/C
MBTA Subway – Red Line							
Red Line at Alewife	167,167	22,294	0.13	22,350	0.13	28,058	0.17
MBTA Bus Lines							
62	2,650	822	0.31	826	0.31	1,513	0.57
67	2,438	410	0.17	412	0.17	716	0.29
74	2,544	403	0.16	409	0.16	579	0.23
76	2,438	549	0.23	553	0.23	960	0.39
78	5,247	556	0.11	569	0.11	930	0.18
79	4,929	798	0.16	800	0.16	1,106	0.22
84	1,166	244	0.21	246	0.21	523	0.45
350	4,611	783	0.17	787	0.17	1,220	0.26
351	212	105	0.50	105	0.50	232	1.09

^aTable 2.e.1.

^bTable 10.a.1

Table 10.f.2
PEAK-HOUR RIDERSHIP IMPACTS - WEEKDAY MORNING

Route No.	Direction	Estimated Peak-Hour Capacity ^a	Existing ^a		2021 Build		2026 Build	
			Ridership	V/C	Ridership	V/C	Ridership	V/C
MBTA Subway – Red Line								
Red Line at Alewife	Inbound	12,114	2,624	0.22	2,629	0.22	2,912	0.24
	Outbound	12,114	684	0.06	685	0.06	982	0.08
MBTA Bus Lines								
62	Inbound	69	194	2.81	195	2.83	218	3.16
	Outbound	66	34	0.52	34	0.52	73	1.11
67	Inbound	62	103	1.68	103	1.66	113	1.82
	Outbound	62	10	0.16	10	0.16	28	0.45
74	Inbound	32	0	0.00	1	0.03	8	0.25
	Outbound	47	3	0.06	3	0.06	12	0.26
76	Inbound	46	90	1.97	90	1.96	102	2.22
	Outbound	49	37	0.76	37	0.76	60	1.22
78	Inbound	52	0	0.00	1	0.02	16	0.31
	Outbound	48	10	0.21	11	0.23	30	0.63
79	Inbound	84	75	0.89	75	0.89	83	0.99
	Outbound	84	9	0.11	9	0.11	27	0.32
84	Inbound	60	70	1.16	70	1.17	78	1.30
	Outbound	60	4	0.07	4	0.07	20	0.33
350	Inbound	61	112	1.84	113	1.85	128	2.10
	Outbound	59	59	1.01	59	1.00	84	1.42
351	Inbound	30	0	0.00	0	0.00	4	0.13
	Outbound	30	51	1.69	51	1.70	58	1.93

^aTable 10.a.1.

**Table 10.f.3
PEAK HOUR RIDERSHIP IMPACTS - WEEKDAY EVENING**

Route No.	Direction	Estimated Peak-Hour Capacity ^a	Existing ^a		2021 Build		2026 Build	
			Ridership	V/C	Ridership	V/C	Ridership	V/C
MBTA Subway – Red Line								
Red Line at Alewife	Inbound	12,114	1,006	0.08	1,007	0.08	1,335	0.11
	Outbound	12,114	2,082	0.17	2,087	0.17	2,380	0.20
MBTA Bus Lines								
62	Inbound	69	34	0.49	34	0.49	76	1.10
	Outbound	66	160	2.43	161	2.44	191	2.89
67	Inbound	62	15	0.24	15	0.24	34	0.55
	Outbound	62	58	0.94	58	0.94	70	1.13
74	Inbound	32	6	0.19	6	0.19	15	0.47
	Outbound	47	1	0.02	2	0.04	9	0.19
76	Inbound	46	30	0.66	30	0.65	55	1.20
	Outbound	49	95	1.95	95	1.94	111	2.27
78	Inbound	52	8	0.15	9	0.17	29	0.56
	Outbound	48	3	0.06	4	0.08	20	0.42
79	Inbound	84	21	0.25	21	0.25	40	0.48
	Outbound	84	85	1.01	85	1.01	97	1.15
84	Inbound	60	8	0.13	8	0.13	26	0.43
	Outbound	60	89	1.48	89	1.48	100	1.67
350	Inbound	61	34	0.56	34	0.56	61	1.00
	Outbound	59	65	1.11	65	1.10	82	1.39
351	Inbound	30	33	1.09	33	1.10	40	1.33
	Outbound	30	0	0.00	0	0.00	5	0.17

^aTable 10.a.1

10.g PRIVATE TRANSIT ANALYSIS

A utilization of the private transit services has also been conducted to support this Project. An analysis of the existing Alewife TMA shuttle was conducted. The analysis includes evaluation of 22 days of the month ridership data from January 2020 (included in the Appendix). Currently, the site is served by the Alewife TMA shuttle at the 110 Fawcett Street and 10 Wilson Road stops (see Figure 1.d.2). The shuttle operates as drop-off only in the morning and pick-up only in the evening at this location as it serves office buildings. Inbound shuttles are destined from Alewife Station to the developments along Concord Avenue in the Quadrangle area, and outbound shuttles are destined to Alewife Station from Concord Avenue.

Table 10.g.1 shows the existing shuttle system’s daily passenger capacity and Table 10.g.2 shows the existing shuttle system’s peak-hour passenger capacity

Table 10.g.1
EXISTING ALEWIFE TMA SHUTTLE DAILY CAPACITY

Route No.	Estimated Daily Capacity ^a	Existing Daily Ridership	On-Time Performance Adjustment ^c	Adjusted 2020 Existing Daily Ridership	V/C ^d
MBTA Subway					
Alewife TMA Shuttle	576	75	NA	75	0.13

^aTable 2.e.1.

^bTMA bus ridership data from January 2020.

^cNo reliability time Rate is applied to Private transit

^dVolume-to-capacity ratio.

Table 10.g.2
EXISTING ALEWIFE TMA SHUTTLE PEAK HOUR CAPACITY^a

Route No.	Direction	Frequency Peak Hour ^a	Passengers per Vehicle	Estimated Peak-Hour Capacity	Morning Peak-Hour Ridership	Evening Peak-Hour Ridership	Morning Peak V/C ^b	Evening Peak V/C ^b
Alewife TMA Shuttle	Inbound	2	18	32	24	0	0.75	0.00
	Outbound	2	18	32	0	8	0.00	0.25

^aNumber of vehicle trips per hour, obtained from TMA Ridership data – Jan 2020.

^bVolume-to-capacity ratio.

11.0 PEDESTRIAN ANALYSIS

A pedestrian impact analysis was conducted at the study area intersections under 2021 Baseline conditions, 2021 Build, and 2026 Future conditions, as required in the scoping letter. For signalized intersections, the pedestrian level-of-service calculations measure the adequacy of the pedestrian phases (exclusive or concurrent) for sufficient time to cross major or minor streets. The analysis methodology was based on procedures outlined in the 2000 *Highway Capacity Manual (HCM)*⁸ for signalized intersections and is provided in the Appendix. Table 11.a.1 summarizes the results of the pedestrian analysis at the signalized intersections and Table 11.a.2 summarizes the results of the pedestrian analysis at the unsignalized intersections. The pedestrian level-of-service ratings for the intersections are also graphically shown on Figures 11.a.1 and 11.a.2 for the weekday morning and weekday evening peak hours.

⁸*Highway Capacity Manual*, Special Report 209; Transportation Research Board; Washington, D.C.; 2000.

**Table 11.a.1
PEDESTRIAN LEVEL-OF-SERVICE SUMMARY – SIGNALIZED INTERSECTIONS**

Intersection/Time Period/Crossing Path	2021 Baseline Condition			2021 Build			2026 Future	
	Demand ^a	Delay ^b	PLOS ^c	Demand	Delay	PLOS	Delay	PLOS
Concord Avenue at Blanchard Road:								
<i>Weekday Morning:</i>								
Concord Avenue (West)	7	35.5	D	7	35.5	D	35.5	D
Concord Avenue (East)	4	35.5	D	6	35.5	D	35.5	D
Blanchard Road (North)	7	47.7	E	13	47.7	E	47.7	E
Blanchard Road (South)	19	47.7	E	21	47.7	E	47.7	E
<i>Weekday Evening:</i>								
Concord Avenue (West)	2	49.5	E	13	49.5	E	49.5	E
Concord Avenue (East)	9	49.5	E	9	49.5	E	49.5	E
Blanchard Road (North)	17	50.6	E	21	50.6	E	50.6	E
Blanchard Road (South)	11	50.3	E	12	50.3	E	50.3	E
Concord Avenue at Moulton Street and Private Drive:								
<i>Weekday Morning:</i>								
Concord Avenue (East)	2	27.2	C	2	27.2	C	27.2	C
Moulton Street (North)	9	27.2	C	11	27.2	C	27.2	C
Private Drive (South)	3	27.2	C	3	27.2	C	27.2	C
<i>Weekday Evening:</i>								
Concord Avenue (East)	7	27.2	C	7	27.2	C	27.2	C
Moulton Street (North)	33	27.2	C	35	27.2	C	27.2	C
Private Drive (South)	12	27.2	C	12	27.2	C	27.2	C
Concord Avenue at Fawcett Street:								
<i>Weekday Morning:</i>								
Concord Avenue (East)							26.5	C
Fawcett Street (North)							26.5	C
<i>Weekday Evening:</i>								
Concord Avenue (East)							26.5	C
Fawcett Street (North)							26.5	C

^aDemand in pedestrians per hour.

^bAverage delay per pedestrian (in seconds).

^cPedestrian level of service.

Table 11.a.2
PEDESTRIAN LEVEL-OF-SERVICE SUMMARY – UNSIGNALIZED INTERSECTIONS

Intersection/Time Period/Crossing Path	2021 Baseline Condition			2021 Build			2026 Future		
	Demand ^a	Delay ^b	LOS ^c	Demand	Delay	LOS	Demand	Delay	LOS
Concord Avenue at Smith Place:									
<i>Weekday Morning:</i>									
Concord Avenue (West)	2	>45.1	F	4	>45.1	F	4	>45.1	F
Smith Place (North)	15	3.9	A	17	4.5	A	17	8.3	B
<i>Weekday Evening:</i>									
Concord Avenue (West)	19	>45.1	F	22	>45.1	F	22	>45.1	F
Smith Place (North)	20	5.7	B	22	6.3	B	22	11.2	C
Concord Avenue at Fawcett Street:									
<i>Weekday Morning:</i>									
Concord Avenue (West)	16	>45.1	F	16	>45.1	F	See Table 11.a.1		
Fawcett Street (North)	15	8.3	B	17	9.2	B			
<i>Weekday Evening:</i>									
Concord Avenue (West)	17	>45.1	F	17	>45.1	F			
Fawcett Street (North)	39	7.8	B	39	8.5	B			
Smith Place at Fawcett Street and Private Drive:									
<i>Weekday Morning:</i>									
Private Drive ^d (West)	2	0.1	A	4	0.1	A	4	0.1	A
Fawcett Street (East)	1	2.3	A	4	2.9	A	4	3.0	A
Smith Place (North)	1	2.2	A	3	2.2	A	3	2.2	A
Smith Place ^d (South)	2	2.0	A	3	2.5	A	3	2.6	A
<i>Weekday Evening:</i>									
Private Drive ^d (West)	5	1.0	A	7	1.1	A	7	1.0	A
Fawcett Street (East)	9	2.0	A	15	1.9	A	15	2.6	A
Smith Place (North)	13	2.8	A	15	2.8	A	15	2.9	A
Smith Place ^d (South)	2	3.4	A	1	3.9	A	1	4.0	A

^aDemand in pedestrians per hour.

^bAverage delay per pedestrian (in seconds).

^cPedestrian level of service.

^dCrossing is analyzed but no crosswalk exists.

12.0 BICYCLE ANALYSIS

A review of bicycle conditions was conducted at the affected intersections and street segments. Concord Avenue provides on-street bike lanes and separate bike lanes. Other city streets in the study area such as Smith Place and Fawcett Street are wide enough to permit bicycle travel but do not provide exclusive bicycle lanes. It is important to note that as part of the 101 Smith place project an exclusive bike line will be provided along Smith Place. State roadways such as Alewife Brook Parkway do provide a multiuse pathway exclusive lane.

12.a VEHICLE TURNING VOLUME CONFLICTS

Conflicting vehicle turning movements at the study area intersections are presented and summarized in Table 12.a.1 for 2021 Baseline Condition, 2021 Build, and 2026 Future conditions.

Table 12.a.1
BICYCLE-VEHICLE VOLUME CONFLICTS

Roadway/Intersecting Street/Time Period	Bicycle Volume Existing Peak Hour	Conflicting Vehicles Turning Volume					
		2021 Baseline condition		2021 Build		2026 Build	
		Advancing Volumes	Opposing Volumes	Advancing Volumes	Opposing Volumes	Advancing Volumes	Opposing Volumes
<i>Concord Avenue at Blanchard Street:</i>							
<i>Weekday Morning:</i>							
Concord Avenue EB	14	602	25	607	25	713	25
Concord Avenue WB	4	428	225	435	230	493	247
Blanchard Street NB	4	439	376	444	382	466	407
Blanchard Street SB	13	711	220	717	220	750	225
<i>Weekday Evening:</i>							
Concord Avenue EB	6	698	232	713	237	793	253
Concord Avenue WB	33	276	325	278	330	332	360
Blanchard Street NB	6	427	159	428	161	448	176
Blanchard Street SB	6	432	303	434	303	456	310

See notes in the end of the Table

Table 12.a.1(Continued)
BICYCLE-VEHICLE VOLUME CONFLICTS

Roadway/Time Period/Intersecting Street	Bicycle Volume Existing Peak Hour	Conflicting Vehicles Turning Volume					
		2021 Baseline condition		2021 Build		2026 Build	
		Advancing Volumes	Opposing Volumes	Advancing Volumes	Opposing Volumes	Advancing Volumes	Opposing Volumes
Concord Avenue at Smith Place and Bike Path:							
<i>Weekday Morning:</i>							
Concord Avenue EB	37	--	--	--	--	--	--
Concord Avenue WB	10	--	188	--	212	--	339
Bike Pathway NB	6	--	1,529	--	1,534	--	1,698
Smith Place SB	0	85	--	91	--	123	--
<i>Weekday Evening:</i>							
Concord Avenue EB	11	--	--	--	--	--	--
Concord Avenue WB	34	--	255	--	278	--	416
Bike Pathway NB	5	--	1,206	--	1,224	--	1,428
Smith Place SB	3	180	1,160	198	1,168	315	1,324
Concord Avenue at Moulton Street and Private Drive:							
<i>Weekday Morning:</i>							
Concord Avenue EB	31	--	31	--	31	--	31
Concord Avenue WB	13	--	731	--	731	--	865
Private Drive NB	2	6	41	6	41	6	42
Moulton Street SB	0	52	--	52	--	53	--
<i>Weekday Evening:</i>							
Concord Avenue EB	17	--	15	--	15	--	15
Concord Avenue WB	36	--	10	--	10	--	10
Private Drive NB	0	32	32	32	32	32	32
Moulton Street SB	1	136	--	136	--	139	--
Concord Avenue at Fawcett Street:							
<i>Weekday Morning:</i>							
Concord Avenue EB	33	--	--	--	--	--	--
Concord Avenue WB	26	--	275	--	296	--	362
Fawcett Street SB	4	104	1,673	108	1,678	158	1,936
<i>Weekday Evening:</i>							
Concord Avenue EB	22	--	--	--	--	--	--
Concord Avenue WB	44	--	263	--	279	--	359
Fawcett Street SB	11	142	1,243	154	1,258	186	1,450
Smith Place at Fawcett Street and Private Drive:							
<i>Weekday Morning:</i>							
Private Drive WB	0	8	--	8	--	8	--
Fawcett Street EB	2	64	27	70	27	72	28
Smith Place NB	2	59	--	77	--	79	--
Smith Place SB	0	44	14	44	14	45	14
<i>Weekday Evening:</i>							
Private Drive WB	0	16	--	16	--	16	--
Fawcett Street EB	1	59	224	77	242	79	247
Smith Place NB	4	84	245	89	268	91	274
Smith Place SB	1	87	75	87	98	89	100

NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound;

12.b FUTURE BICYCLE CONNECTIONS – BRIDGE

Separate from this application, a proposed multi-use pathway bridge is planned to connect the quadrangle neighborhood to Cambridge Park Drive and the Alewife Station. The proposed connection will facilitate the pedestrian and bicycle access to the Alewife Station. With the proposed bridge the distance from the Project site to the Alewife Station will be approximately 0.5 miles or 10 minutes or less walking and 5 minutes or less by bike. An exclusive on-street bike lane is provided along Cambridge Park Drive along both sides of the street.

13.0 ARTICLE 19 SPECIAL PERMIT CRITERIA ANALYSIS

Under Section 19.25.1, the Planning Board shall only grant a Section 19.20 Project Review Special Permit upon finding that the Project will have no substantial adverse impact on City traffic within the study area analyzed in the TIS. Substantial adverse impact is measured by reference to the Special Permit Criteria, which consist of five traffic impact indicators used to evaluate Project impacts. The indicators are: (1) project vehicle-trip generation weekdays for a twenty-four hour period and morning and evening peak-vehicle trips generated; (2) change in level of service at identified intersections; (3) increased volume of trips on residential streets; (4) increase of length of vehicle queues at identified signalized intersections; and (5) lack of sufficient pedestrian and bicycle facilities. The methodology for the analysis of the traffic impact indicators is from the Cambridge “Guidelines for Presenting Information to the Planning Board”, approved November 27, 2001, and revised in 2004. Referenced in the guidelines are capacity analysis procedures presented in the HCM and summarized in the Appendix. Exceedance of one or more indicators suggests a potentially substantial adverse impact on City traffic; however, the Planning Board should also consider proposed Project mitigation in making its finding. The following section summarizes the 87 measurements analyzed in applying the five indicators to the proposed Project and the proposed Project mitigation.

13.a INDICATOR 1: PROJECT VEHICLE – TRIP GENERATION

As shown on Table 13.a.1, the Project is expected to exceed the Planning Board Criteria for daily, morning peak hour, and evening peak-hour Project vehicle-trip generation under the Build program.

**Table 13.a.1
INDICATOR 1 - PROJECT VEHICLE-TRIP GENERATION**

<u>Time Period</u>	<u>Proposed Project Vehicle New Trips</u>	<u>Criteria Threshold</u>	<u>Exceeds Criteria?</u>
Weekday Daily	356	2,000	No
Weekday Morning Peak Hour	45	240	No
Weekday Evening Peak Hour	39	240	No

13.b INDICATOR 2: PROJECT VEHICLE – LEVEL OF SERVICE

The Project satisfies 9 of 10 City standards for Indicator 2 regarding vehicle level of service as demonstrated by the measurements detailed in Table 13.b.1.

**Table 13.b.1
INDICATOR 2 - PROJECT VEHICLE-LEVEL-OF-SERVICE**

Intersection	Weekday Morning Peak Hour				Weekday Evening Peak Hour			
	Existing	With Project	Traffic increase	Exceeds Criteria?	Existing	With Project	Traffic increase	Exceeds Criteria?
Concord Avenue at Blanchard Road	F	F	1.0%	No	E	E	1.0%	No
Concord Avenue at Moulton Street	A	A	--	No	A	A	--	No
Concord Avenue at Smith Place	D	E	--	Yes	D	D	0.2%	No
Concord Avenue at Fawcett Street	F	F	1.9%	No	E	E	1.3%	No
Smith Place at Fawcett Street and Private Drive	A	A	--	No	B	B	--	No

13.c INDICATOR 3: TRAFFIC ON RESIDENTIAL STREETS

The Project satisfies 18 of 18 City standards for Indicator 3 regarding traffic on residential streets as demonstrated by the measurements detailed in Table 13.c.1.

**Table 13.c.1
INDICATOR 3: TRAFFIC ON RESIDENTIAL STREETS**

Roadway	Reviewed Segment	Amount of Residential	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
			Existing Two-Way Traffic	Increase due to Project	Exceeds Criteria?	Existing Two-Way Traffic	Increase due to Project	Exceeds Criteria?
Blanchard Road	Colby St/S Normandy Av to Concord Av.	1/2 or more	1,093	8	No	994	7	No
	Mannix Circle to Concord Av.	>1/3 but <1/2	900	6	No	899	5	No
Concord Avenue	Blanchard road to Smith Place	1/3 or less	1,580	23	No	1203	20	No
	Smith Place to Moulton Street	1/3 or less	1,541	1	No	1142	3	No
	Moulton Street to Fawcett Street	1/3 or less	1,601	1	No	1204	3	No
	Fawcett Street to Wheeler Street	1/3 or less	1,800	22	No	1320	19	No
Smith Place	Concord Avenue to Fawcett Street	1/3 or less	188	24	No	255	23	No
Fawcett Street	Concord Avenue to Connection Road	>1/3 but 1/2	275	21	No	263	16	No
	Connection Road to Smith Place	1/3 or less	110	24	No	95	23	No

13.d INDICATOR 4: LANE QUEUE

The Project satisfies 26 of 26 City standards for Indicator 4 regarding lane queues as demonstrated by the measurements detailed in Table 13.d.1.

**Table 13.d.1
INDICATOR 4: LANE QUEUE**

Intersection/Lane	Weekday Morning Peak Hour				Weekday Evening Peak Hour			
	Existing	With Project	Difference in Queue	Exceeds Criteria?	Existing	With Project	Difference in Queue	Exceeds Criteria?
<i>Concord Avenue at Blanchard Road:</i>								
Concord Avenue EB LT/TH	6	6	0	No	5	5	0	No
Concord Avenue EB TH/RT	4	4	0	No	3	3	0	No
Concord Avenue WB L	5	5	0	No	5	5	0	No
Concord Avenue WB T	5	5	0	No	5	5	0	No
Concord Avenue WB R	2	2	0	No	2	2	0	No
Blanchard Road NB LT/TH	6	6	0	No	13	13	0	No
Blanchard Road NB RT	2	2	0	No	2	2	0	No
Blanchard Road SB LT/TH/RT	8	8	0	No	7	7	0	No
<i>Concord Avenue at Moulton Street:</i>								
Concord Avenue EB LT/TH	4	4	0	No	3	3	0	No
Concord Avenue EB TH/RT	4	4	0	No	3	4	1	No
Concord Avenue WB LT/TH/RT	3	4	1	No	4	4	0	No
Private Driveway NB LT/TH/RT	0	0	0	No	1	1	0	No
Moulton Street SB LT/TH/RT	1	1	0	No	2	2	0	No

13.e INDICATOR 5: LACK OF SUFFICIENT PEDESTRIAN AND BICYCLE FACILITIES

The Project satisfies 18 of 30 City standards for Indicator 5A, 5B, and 5C regarding pedestrian and bicycle facilities as demonstrated by the measurements detailed in Table 13.e.1, Table 13.e.2 and Table 13.e.3.

**Table 13.e.1
INDICATOR 5A – PEDESTRIAN LEVEL OF SERVICE –
SIGNALIZED INTERSECTION**

Intersection	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	Existing	With Project	Exceeds Criteria?	Existing	With Project	Exceeds Criteria?
<i>Concord Avenue at Blanchard Road:</i>						
Concord Avenue (West)	D	D	No	E	E	Yes
Concord Avenue (East)	D	D	No	E	E	Yes
Blanchard Road (North)	E	E	Yes	E	E	Yes
Blanchard Road (South)	E	E	Yes	E	E	Yes
<i>Concord Avenue at Moulton Street and Private Drive:</i>						
Concord Avenue (East)	C	C	No	C	C	No
Private Drive (North)	C	C	No	C	C	No
Moulton Street (South)	C	C	No	C	C	No

**Table 13.e.2
INDICATOR 5A – PEDESTRIAN LEVEL OF SERVICE –
UNSIGNALIZED INTERSECTION**

Intersection	Weekday Morning Peak Hour			Weekday Evening Peak Hour		
	Existing	With Project	Exceeds Criteria?	Existing	With Project	Exceeds Criteria?
<i>Concord Avenue at Smith Place:</i>						
Concord Avenue (West)	F	F	Yes	F	F	Yes
Smith Place (North)	A	A	No	B	B	No
<i>Concord Avenue at Fawcett Street:</i>						
Concord Avenue (West)	F	F	Yes	F	F	Yes
Fawcett Street (North)	B	B	No	B	B	No
<i>Smith Place at Fawcett Street and Private Drive:</i>						
Fawcett Street (East)	A	A	No	A	A	No
Smith Place (North)	A	A	No	A	A	No

**Table 13.e.3
INDICATOR 5B AND 5C – PEDESTRIAN AND BICYCLE FACILITIES**

Adjacent Street or Public Right-of-Way	Sidewalks or Walkways Present?	Exceeds Criteria?	Bicycle Facilities or Right-of-Ways Present?	Exceeds Criteria?
Smith Place	Yes	No	No ^a	Yes
Fawcett Street	Yes	No	No	Yes

^aA new bicycle pathway will be proposed as part of the 101 Smith place project

14.0 PROJECT MITIGATION

Generally, the Project's is located near transit facilities such as Alewife Station as well as area shuttle services which significantly encourages transit use by employees of the proposed Project. Mitigation measures as set forth in this section and Section 16 are therefore geared towards measures to encourage Project employees to use alternative transportation that would result in a low SOV rate for the Project. The Project proposes implementation of a TDM Plan as described in Section 16 that outweighs potential adverse impacts of the Project on the surrounding street network. As required by *Cambridge Article 19 -Section 19.20*, the Project has been evaluated against the five indicators as measurements of the Project's expected impact on City traffic. Of the 87 measurements analyzed in connection with the five indicators, only 13 measurements do not satisfy the City standards, resulting in a 15 percent exceedance rate. The Applicant is committed to the implementation of the below Project mitigation strategies in order to lessen any potential impact of the Project on City traffic. Table 14.a.1 lists the 13 measurements that exceed the *Section 19.20* criteria.

Table 14.a.1
ARTICLE 19 SUMMARY OF NON-SATISFIED CRITERIA

Indicator	Location	Exceedance	Mitigation
Indicator 2	Concord Avenue at Smith Place	Build LOS E from Existing LOS D (AM)	Applicant will coordinate with TP&T and City on mitigation at this location.
Indicator 5a	Concord Avenue at Blanchard Road: Concord Avenue (West) Concord Avenue (East) Blanchard Road (North) Blanchard Road (South)	Existing and Build LOS E (PM) Existing and Build LOS E (PM) Existing and Build LOS E (AM/PM) Existing and Build LOS E (AM/PM)	Existing PLOS conditions are maintained at this location with the construction of the Project and do not deteriorate in the Build Condition. No mitigation is proposed as part of this project.
	Concord Avenue at Smith Place: Concord Avenue (West)	Existing and Build LOS F (AM/PM)	Applicant will coordinate with TP&T and City on mitigation at this location.
	Concord Avenue at Fawcett Street: Concord Avenue (West)	Existing and Build LOS F (AM/PM)	Applicant will coordinate with TP&T and City on mitigation at this location.
Indicator 5b/5c	Fawcett Street	Bicycle Facilities	Proposed Bicycle lanes (5' wide) are proposed at Fawcett Street along site frontage.
Indicator 5b/5c	Smith Place	Bicycle Facilities	Proposed Bicycle lanes (5' wide) are proposed at Smith Place along site frontage.

15.0 TRANSPORTATION DEMAND MANAGEMENT PROGRAM

Generally, the location of the Project with the addition of the future access bridge to the Alewife Station will significantly encourage the use of traffic by residents, employees, and visitors of the proposed Project. Mitigation efforts are therefore geared towards measures to improve traffic congestion on these adjacent streets as well as efforts to encourage Project employees and residents towards alternative transportation that would result in a low single occupant vehicle (SOV) rate for the Project. According to Section 10.18.050 (g) of the PTDM ordinance, the Project triggers the requirement to prepare and operate under the elements of a PTDM Plan, which will require approval of the Cambridge PTDM Planning Officer.

Reducing the amount of traffic generated by the Project is an important component of the transportation mitigation plan. The goal of the proposed traffic reduction strategy is to reduce the use of SOVs by encouraging the use of public transportation, car/vanpooling, bicycle commuting, and pedestrian travel. The following measures will be implemented as a part of the proposed Project and by the property management team in an effort to reduce the number of vehicle trips generated by the Project:

- Charge for parking at market rates and offer discounted parking for dedicated HOV vehicles.
- Commit to reserving 10 percent of parking spaces in the garage as carpool/HOV vehicles.
- Establish membership in the Alewife TMA including free access for employees to use shuttle buses operated by the TMA. Provide emergency ride home and ride-matching benefits to all employees through the Alewife TMA or other provider acceptable to TP&T.
- R&D tenants will be encouraged to provide 100 percent transit subsidies to employees.
- The pedestrian nature of the site will also be emphasized, as will the proximity of the Alewife Station.
- In order to encourage the use of public transportation, the property management team will make available public transportation schedules which will be posted in a centralized location for the residents.

- Designate a Transportation Coordinator for the site who will also be responsible for:
 - Aggressively promoting and marketing non-SOV modes of transportation to employees.
 - Overseeing the marketing and promotion of transportation options such as posting information on the Project’s web site, social media, and property newsletters.
 - Responding to individual requests for information.
 - Ensuring that annual transportation surveys are conducted.
 - Coordinating with Alewife TMA.
- Provide Bluebikes_{sm} corporate membership (minimum Gold level) paid by employer for employees that choose to become Bluebikes_{sm} members.
- Require corporate membership paid by the employer to allow employees to use carshare vehicles for work related trips during the day instead of needing to drive private vehicles to work.
- Provide electric vehicle level plug-in stations in the garage for at least 5 vehicles.
- Provide a bicycle repair station to include air pumps and other bike tools.

The Applicant will investigate the implementation of these traffic reduction strategies and will work with the City, the TMA, and area businesses to implement these programs.

16.0 CONCLUSION

As described throughout this TIS, The Project entails construction of a new four-story building (68,993 gross square feet (gsf)) with approximately 57,434 square feet (sf) of gross floor area (GFA) of R&D/laboratory space.

The Project is located in an area close to extensive public transit networks where it is expected that reliance on personal vehicles will become less necessary and through the provision of minimal parking ratios, expanded bicycle parking and storage, aggressive TDM measures, and proximity to expanded transit services and transit connectivity, the overall traffic impact of the Project will be minimized. Additionally, separate from this application, a proposed multi-use pathway bridge is planned to connect the quadrangle neighborhood from the proposed site property to Cambridge Park Drive and the Alewife Station. This improvement will significantly improve pedestrian and bicycle connectivity and existing improved conditions (e.g., lighting), encouraging increased usage of these alternative modes of transportation.

The proposed Project will not result in a public hazard due to substantially increased vehicular traffic or parking in this area. Specifically, the Project is not anticipated to have a significant adverse impact on motorist delays in the area and adequate parking supply will exist at the site to support the Project. Accordingly, this TIS finds that the Project can be accommodated within the existing area infrastructure and on the roadway network with minimal effects, resulting in the ability to implement the Project's planned with the appropriate mitigation measures. The Project proponent is committed to a project which is sensitive to the area and minimizes the impact to the neighborhood.

**TRANSPORTATION IMPACT STUDY
SUPPORTING GRAPHICS VOLUME I OF II
Project Description and Section 1.0**

180 Fawcett Street
Cambridge, Massachusetts

Prepared for:
CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

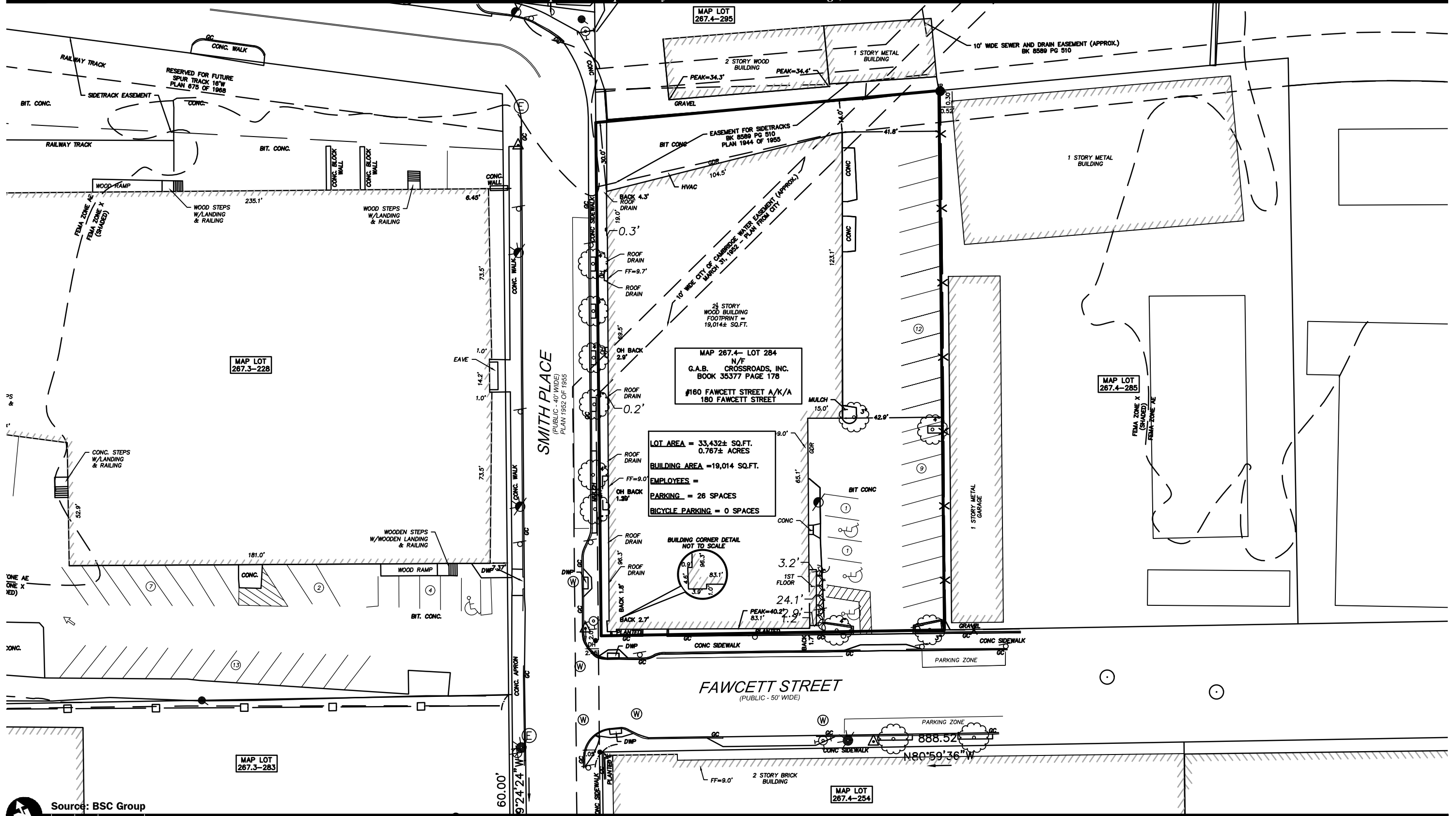
 **Vanasse &
Associates inc**
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810



Figure A
Site Location Map



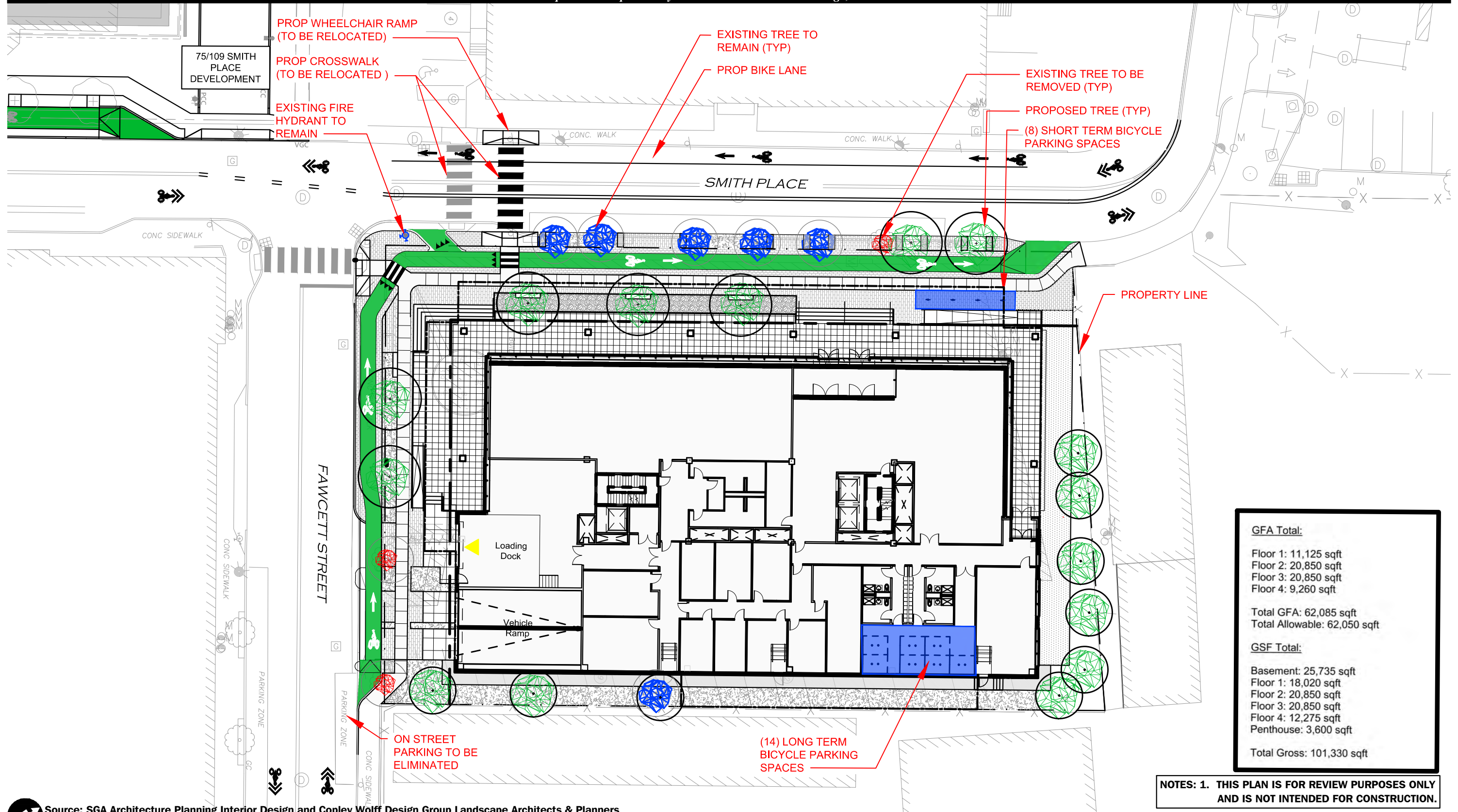


Source: BSC Group
 0 20 40 Scale in Feet



Figure B
 Existing Conditions Survey

R:\8779\0 - 8779 - Fig B - Existing plan.dwg, Mon Jun 7 10:31:16 2021



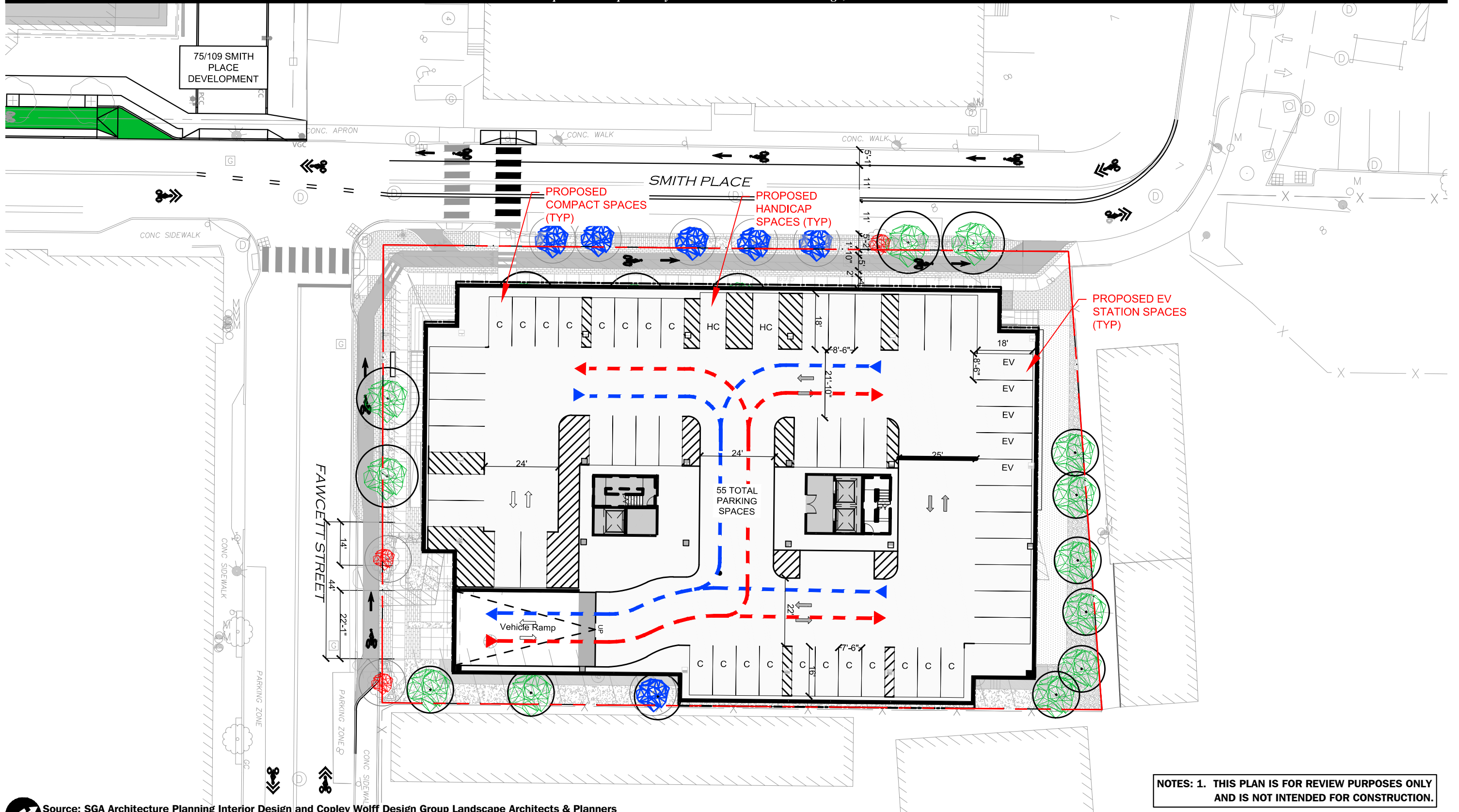
GFA Total:	
Floor 1:	11,125 sqft
Floor 2:	20,850 sqft
Floor 3:	20,850 sqft
Floor 4:	9,260 sqft
Total GFA:	62,085 sqft
Total Allowable:	62,050 sqft
GSF Total:	
Basement:	25,735 sqft
Floor 1:	18,020 sqft
Floor 2:	20,850 sqft
Floor 3:	20,850 sqft
Floor 4:	12,275 sqft
Penthouse:	3,600 sqft
Total Gross:	101,330 sqft

NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION.

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners
 0 15 30 Scale in Feet



Figure C.1
Proposed Site - Day one
Ground Floor Plan

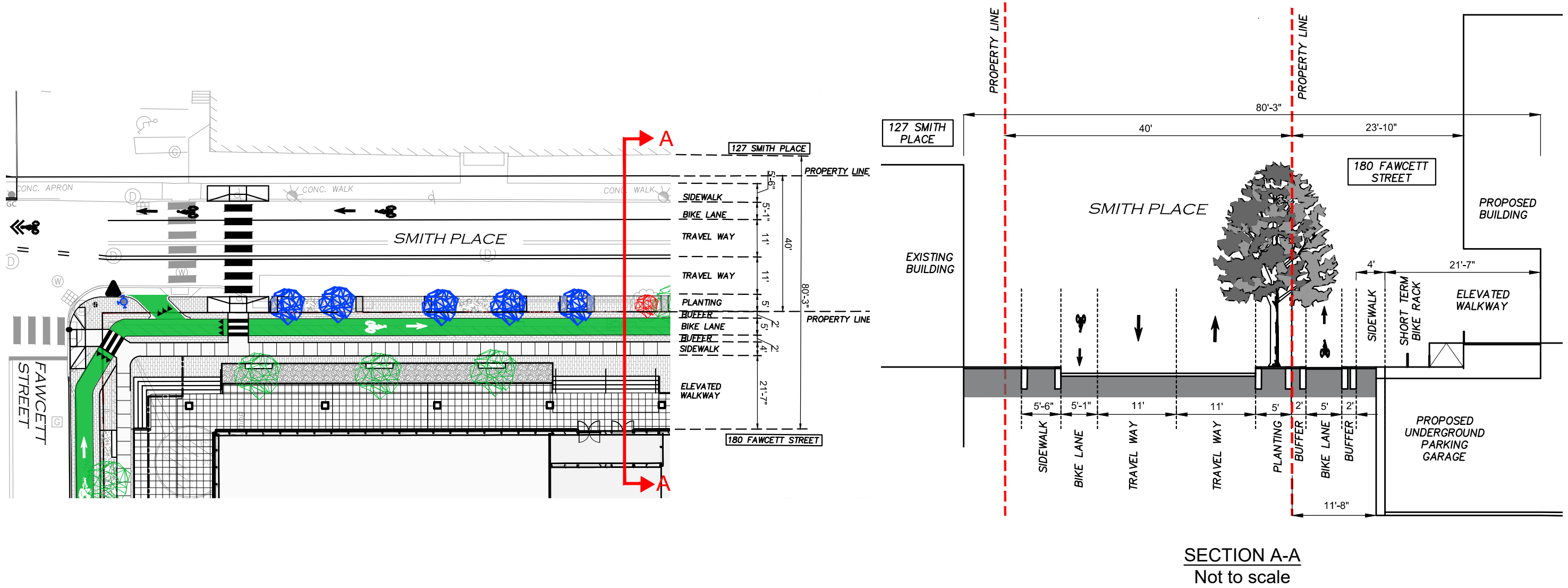


NOTES: 1. THIS PLAN IS FOR REVIEW PURPOSES ONLY AND IS NOT INTENDED FOR CONSTRUCTION.

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners
 0 15 30 Scale in Feet



Figure C.2
 Proposed Site - Day One
 Parking Level Plan



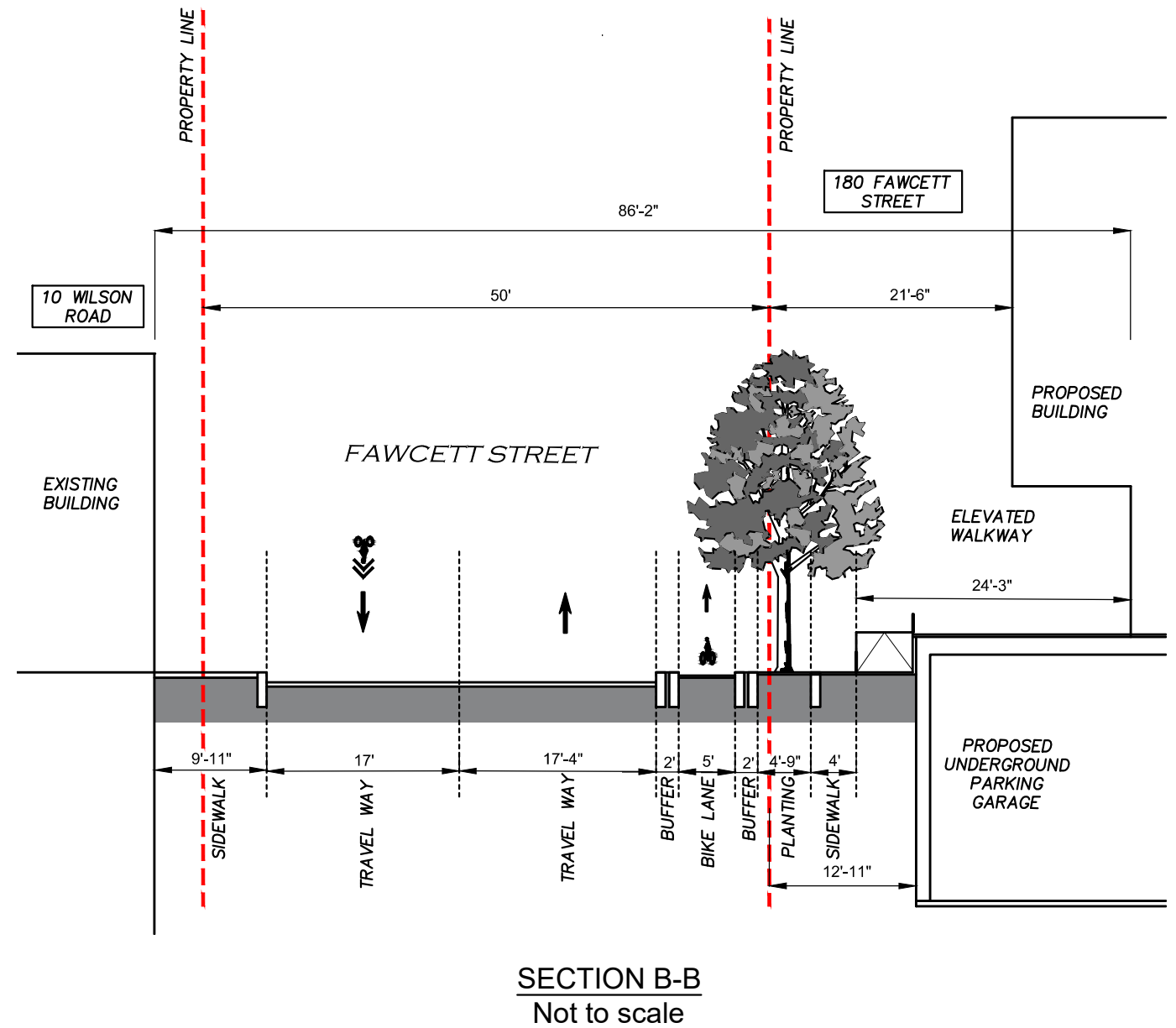
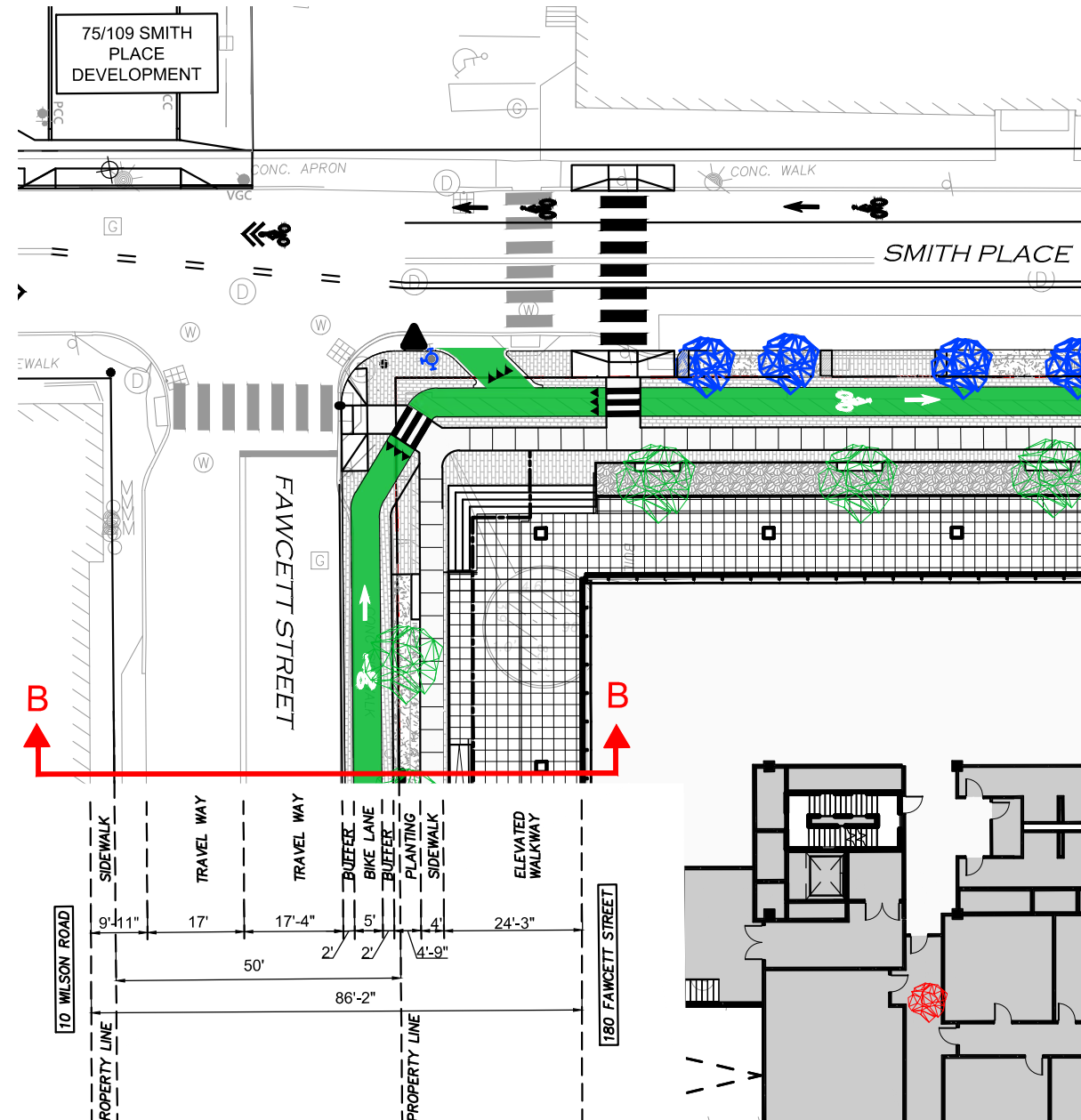
Source: SGA Architecture Planning Interior Design and
Copley Wolff Design Group Landscape Architects & Planners

0 10 20 Scale in Feet



Figure C.3

Proposed Site - Day one
Smith Place Dimensions
Cross section



Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners

0 10 20 Scale in Feet



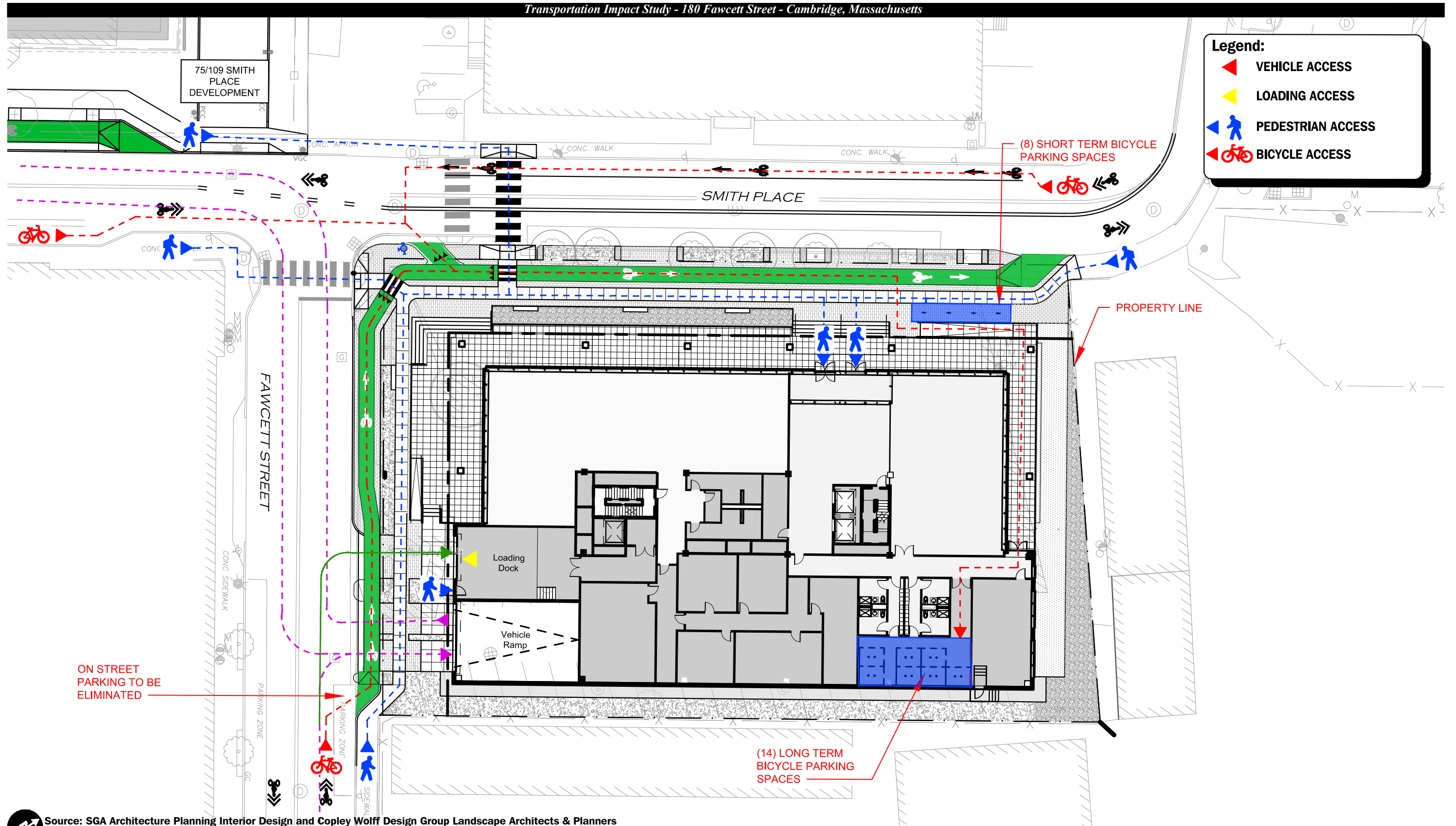
Figure C.4

Proposed Site - Day one Fawcett Street Dimensions Cross section



Figure C.6

Pedestrian/Bicycle Access to the Alewife MBTA Station



Legend:

- ▶ VEHICLE ACCESS
- ▶ LOADING ACCESS
- ▶ PEDESTRIAN ACCESS
- ▶ BICYCLE ACCESS

ON STREET
PARKING TO BE
ELIMINATED

(14) LONG TERM
BICYCLE PARKING
SPACES

(8) SHORT TERM BICYCLE
PARKING SPACES

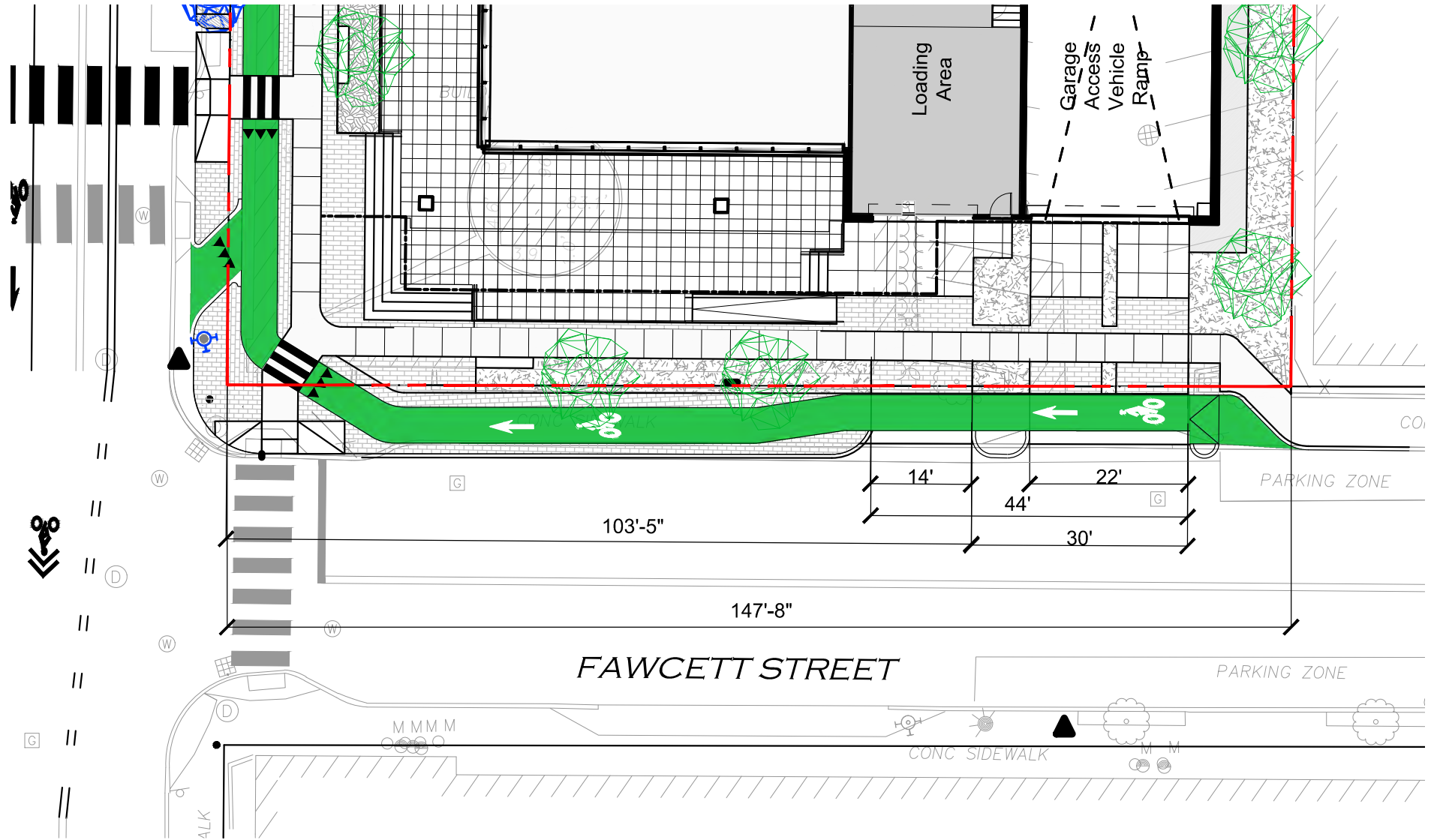
PROPERTY LINE

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners
0 15 30 Scale in Feet



Figure C.5
Proposed Site - Day one
Vehicles, Bicycles and
Pedestrian Access

R:\8779\0 - 8779 - Fig C - Proposed plan C.5 Ped Bike access.dwg, 7/27/2021 2:02:37 PM



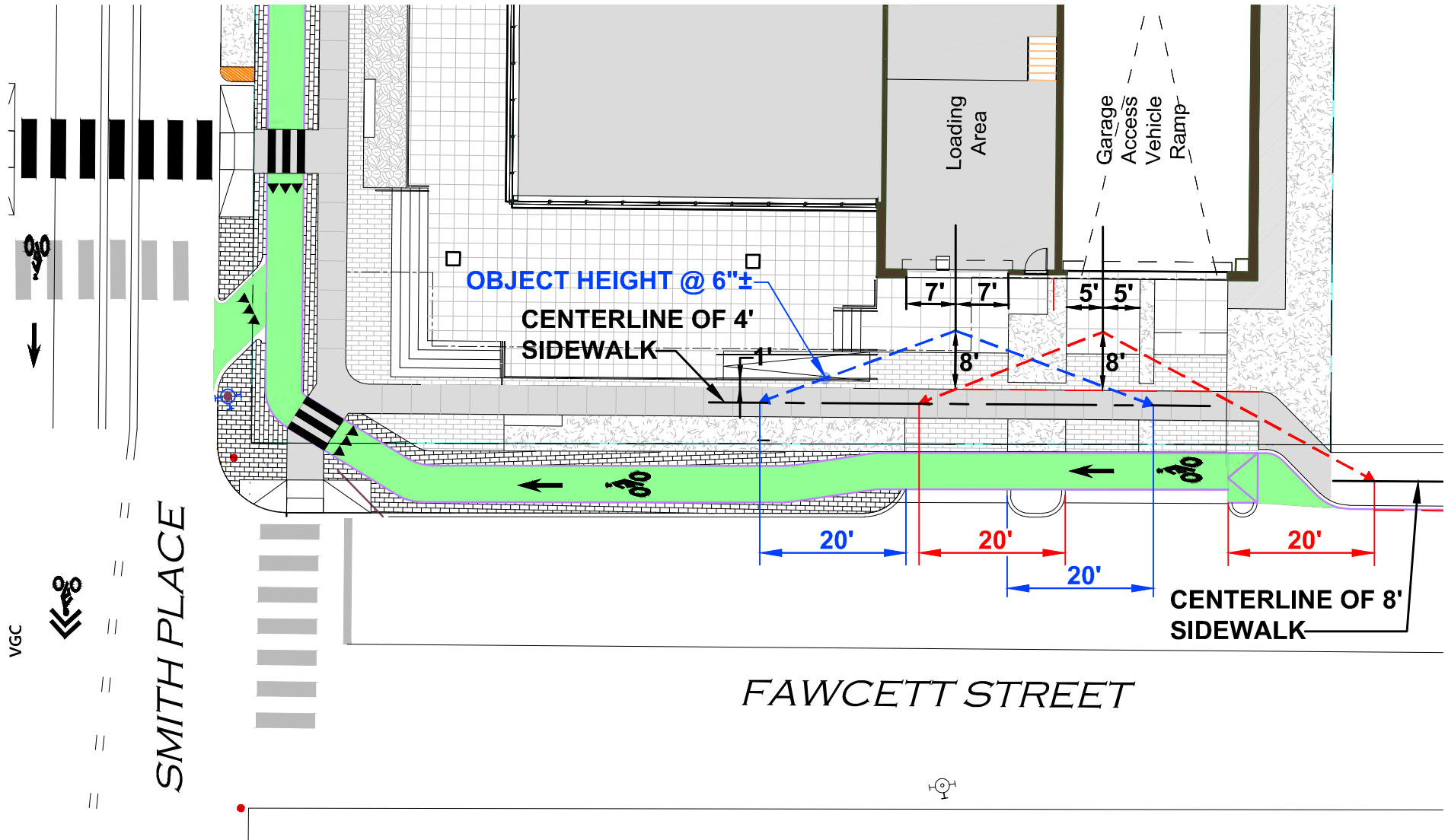
Source: SGA Architecture Planning Interior Design and
Copley Wolff Design Group Landscape Architects & Planners



Figure C.7

Proposed Site - Day one
Proposed Curb Cut





Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners

0 10 20 Scale in Feet



Figure C.8

Sightline Triangles for Vehicles Exiting from Loading and Garage

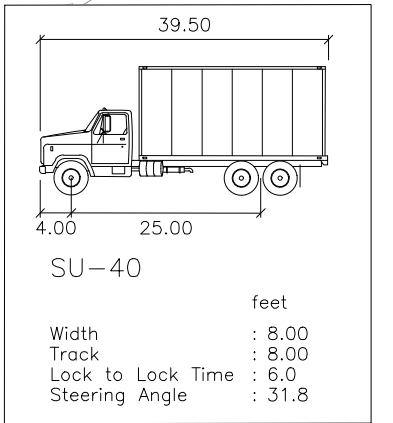
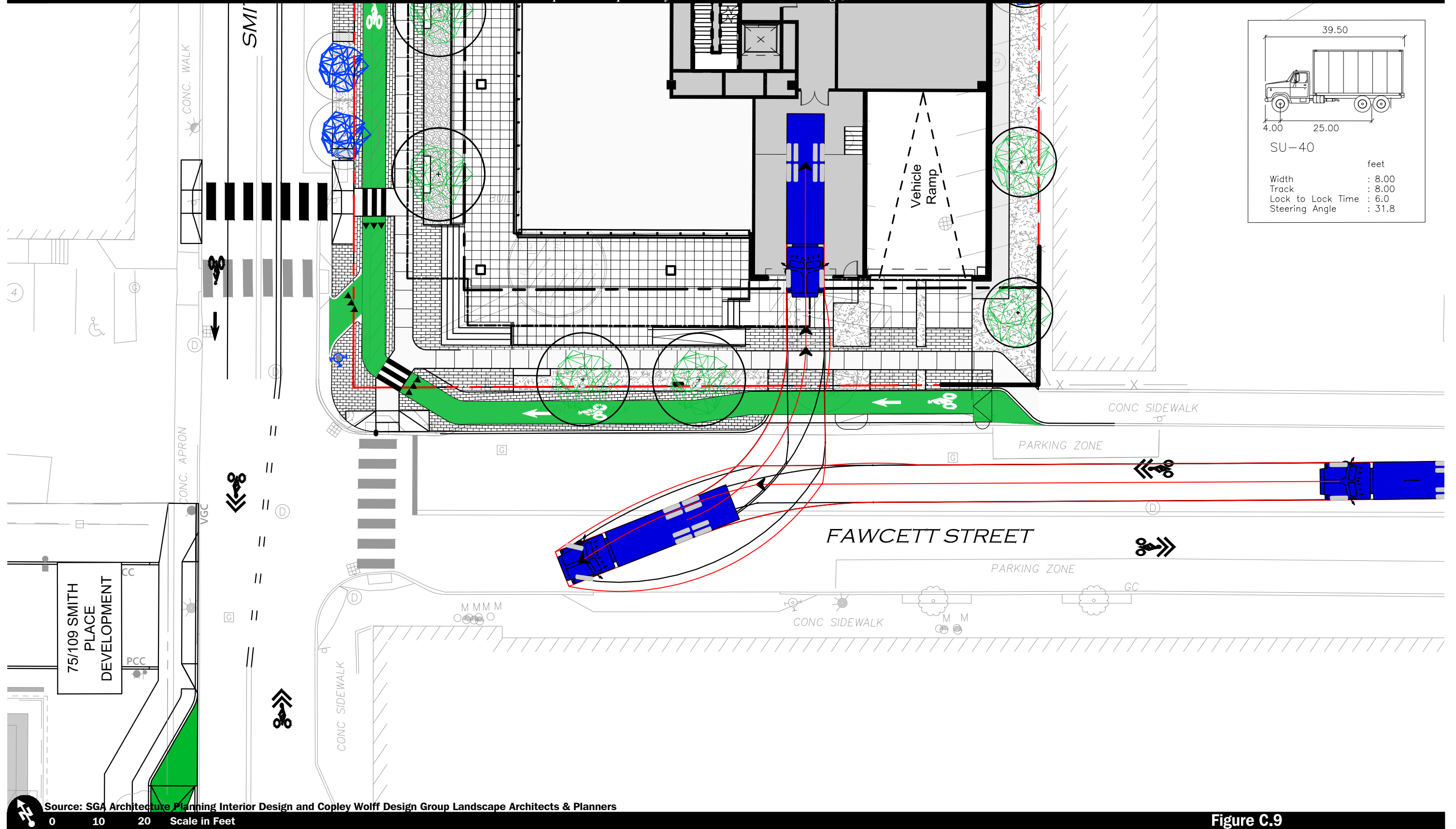


Figure C.9
Proposed Site - Day One
Autoturn Diagram
SU-40 Truck Entering
Loading Area

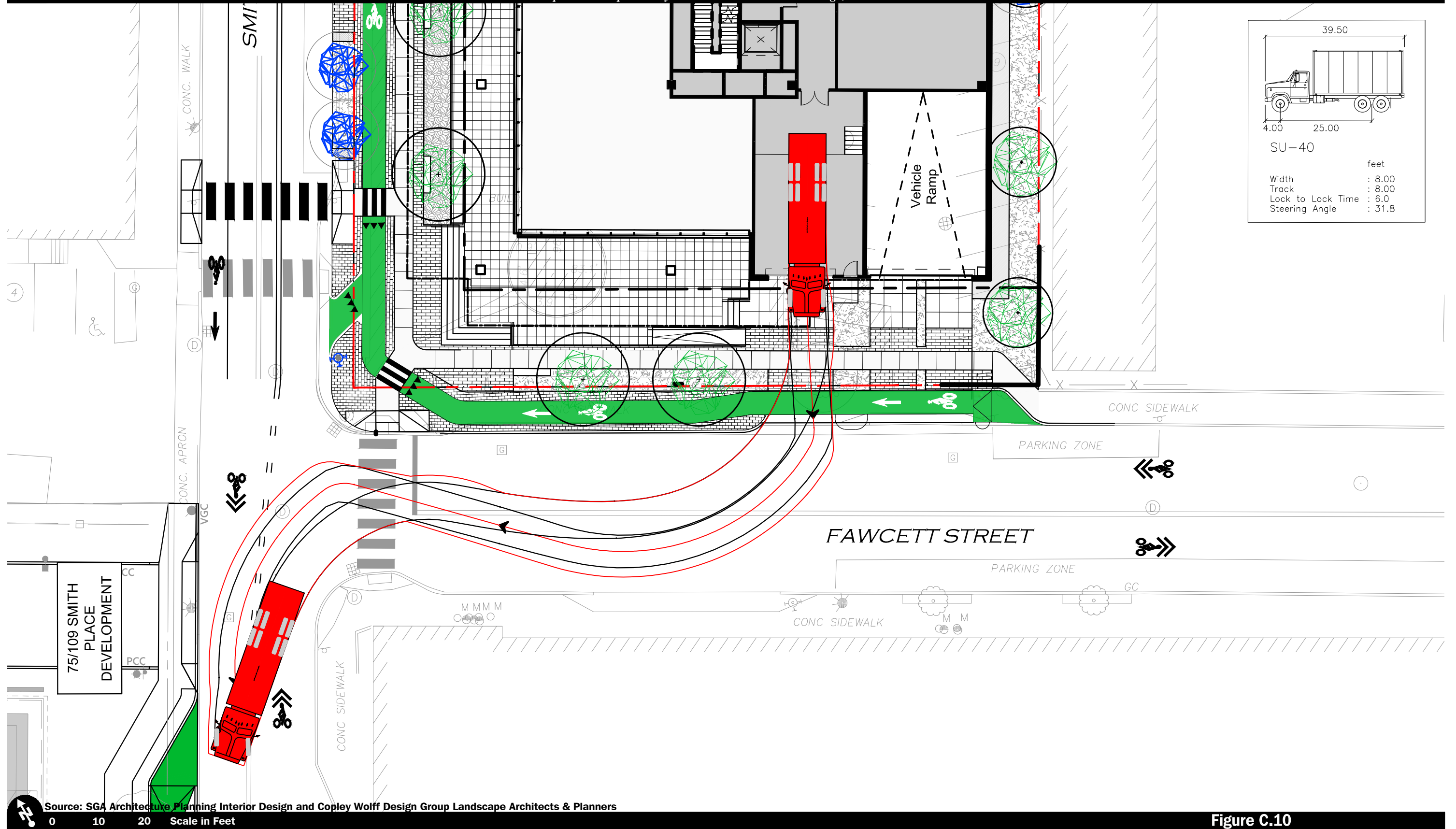


Figure C.10

Proposed Site - Day One
Autoturn Diagram
SU-40 Truck Exiting
Loading Area



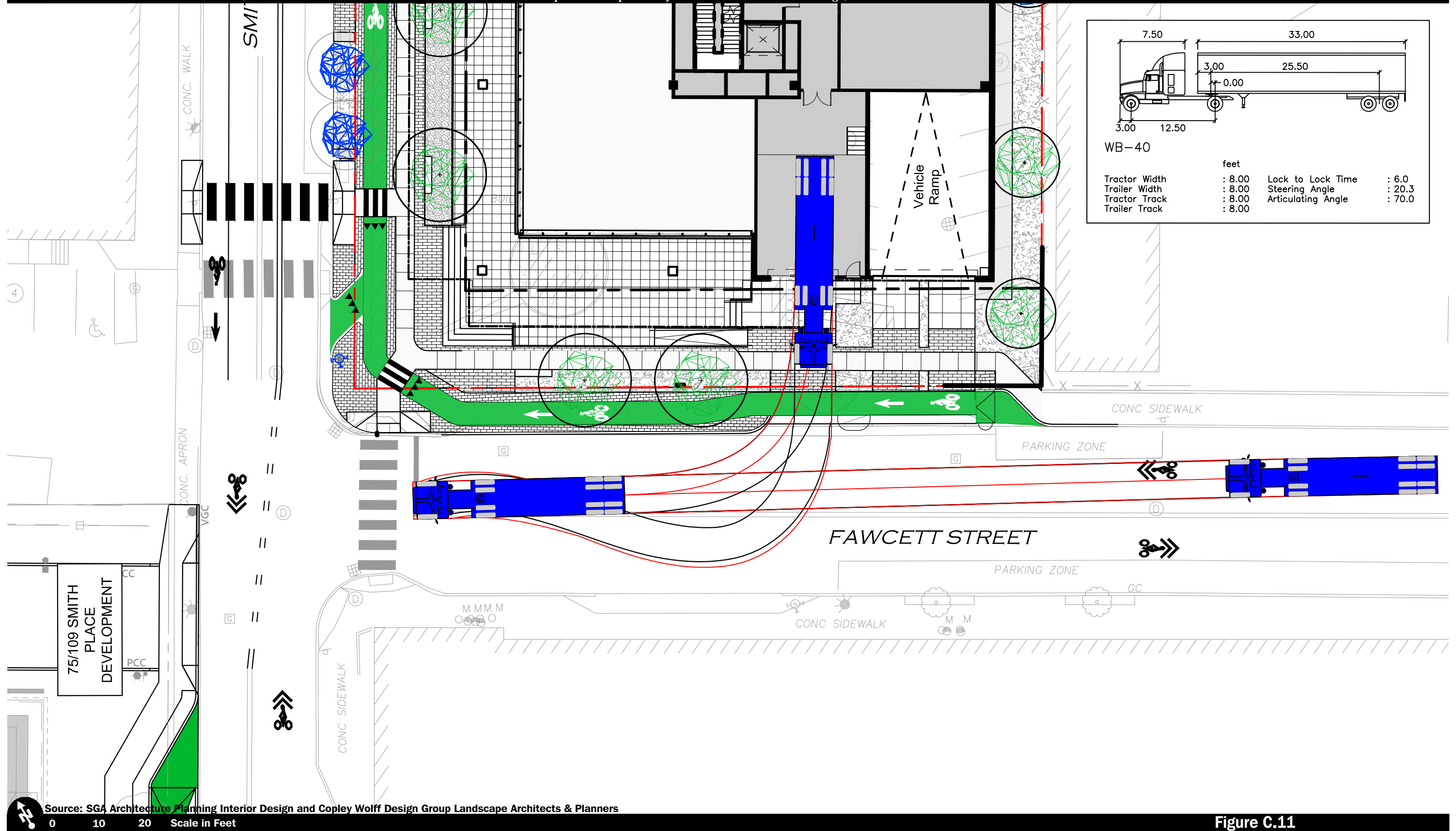


Figure C.11
 Proposed Site - Day One
 Autoturn Diagram
 WB-40 Truck Entering
 Loading Area

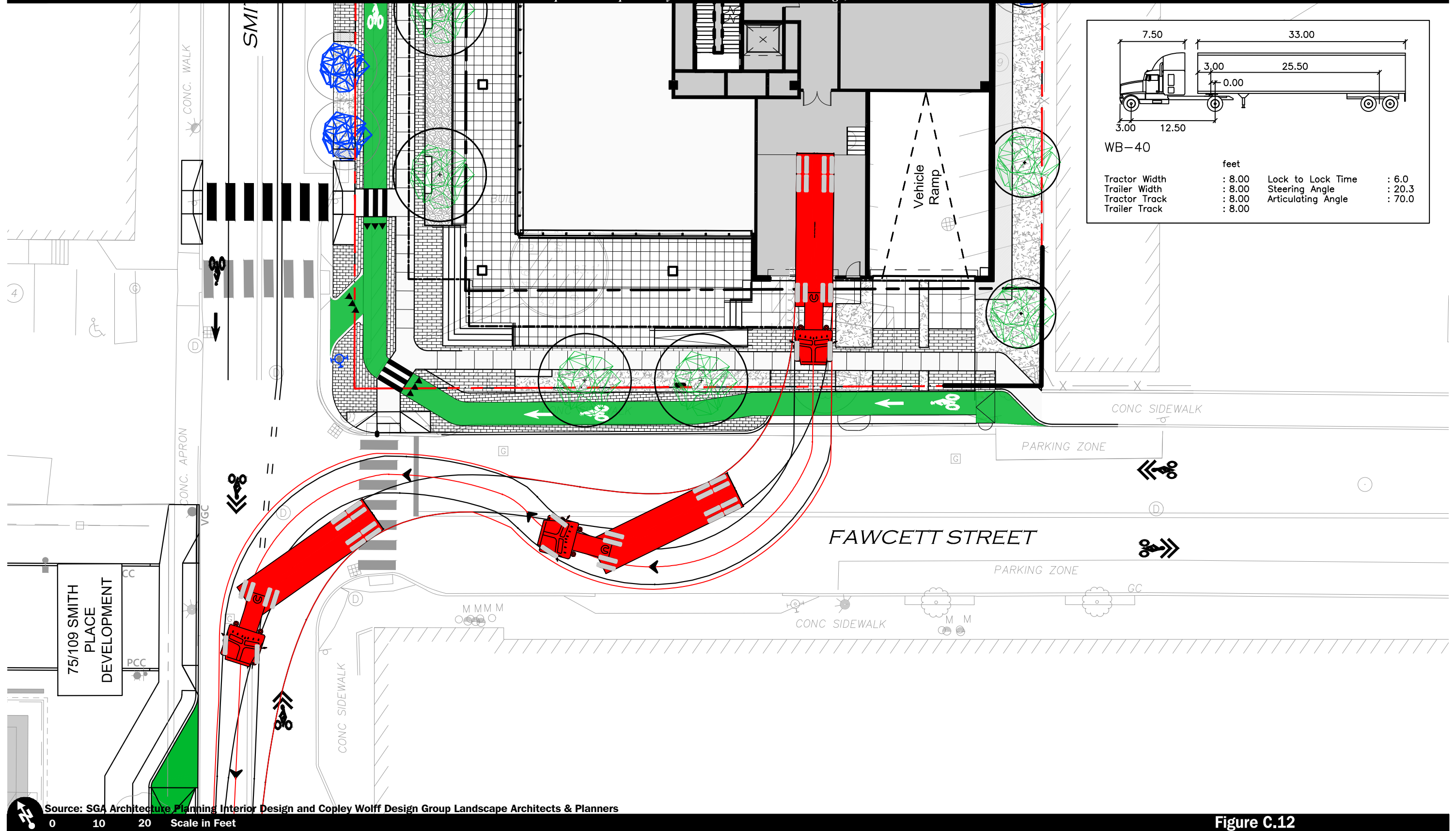
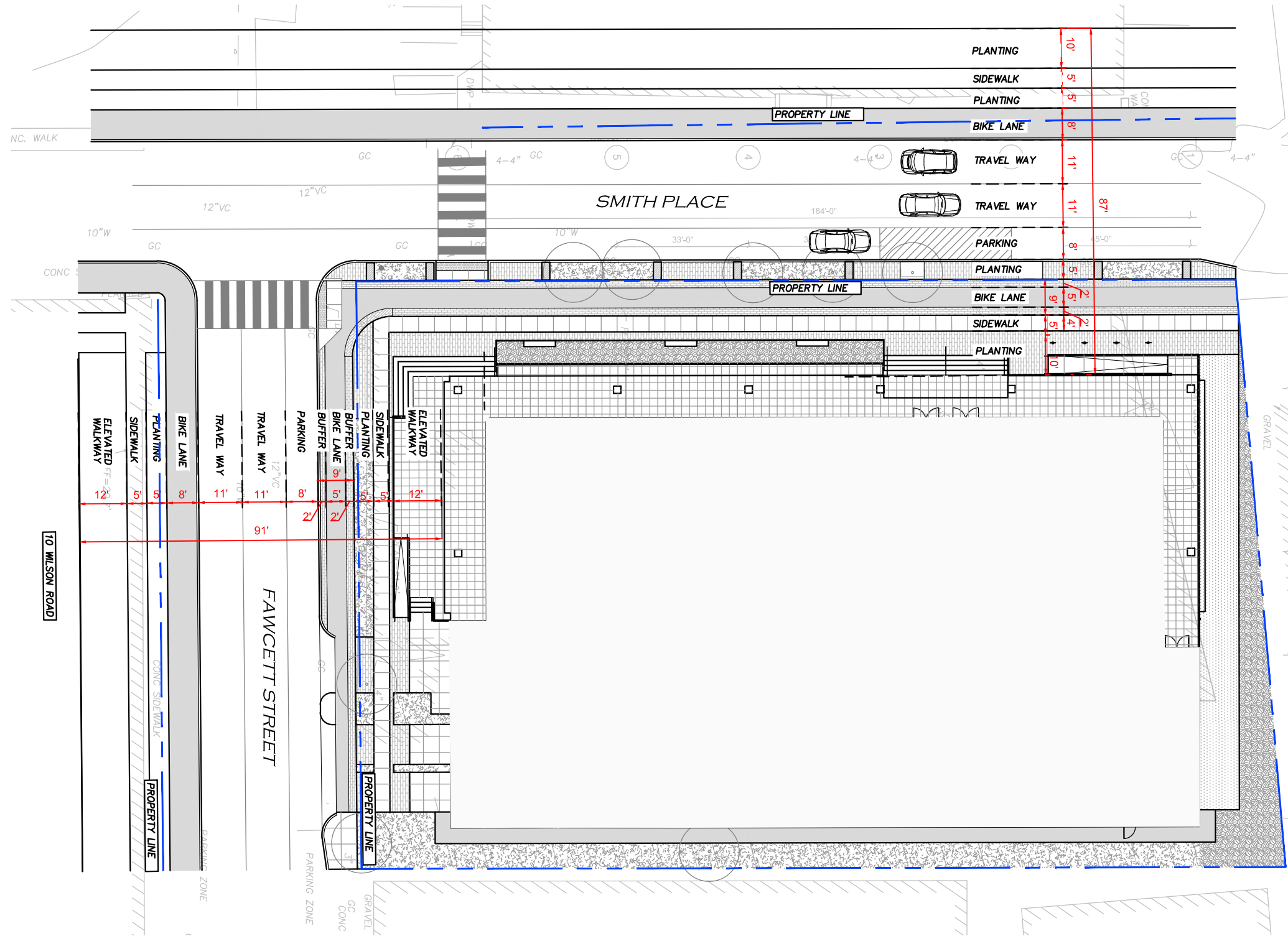


Figure C.12

Proposed Site - Day One
Autoturn Diagram
WB-40 Truck Exiting
Loading Area

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners





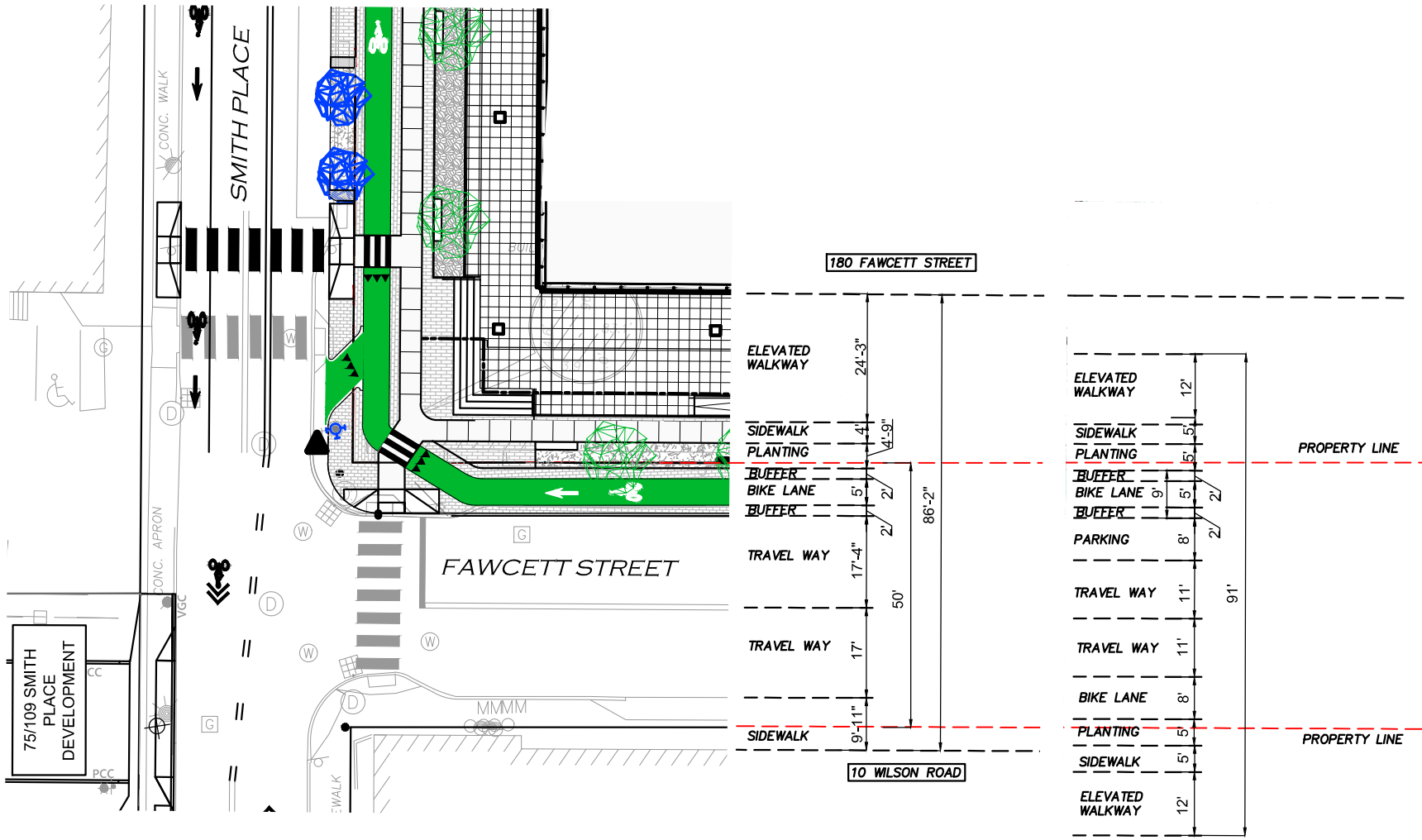
Source: SGA Architecture Planning Interior Design and
Copley Wolff Design Group Landscape Architects & Planners

0 10 20 Scale in Feet



Figure C.13

Proposed Site - Envision
Proposed Ground Floor Plan



DAY ONE

ENVISION PLAN

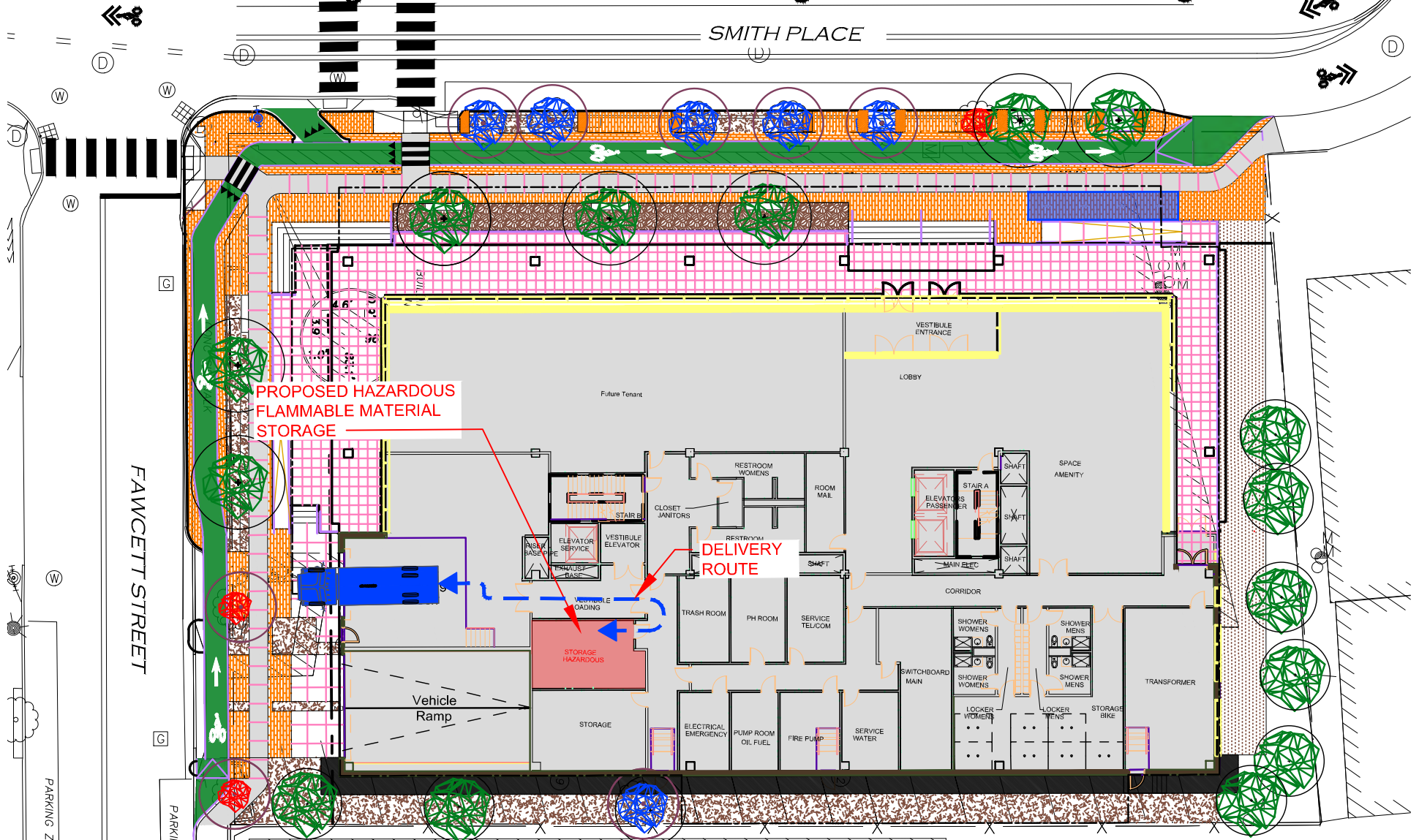
Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners

Scale in Feet



Figure C.15

Proposed Site - Envision Fawcett Street Dimensions



Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners



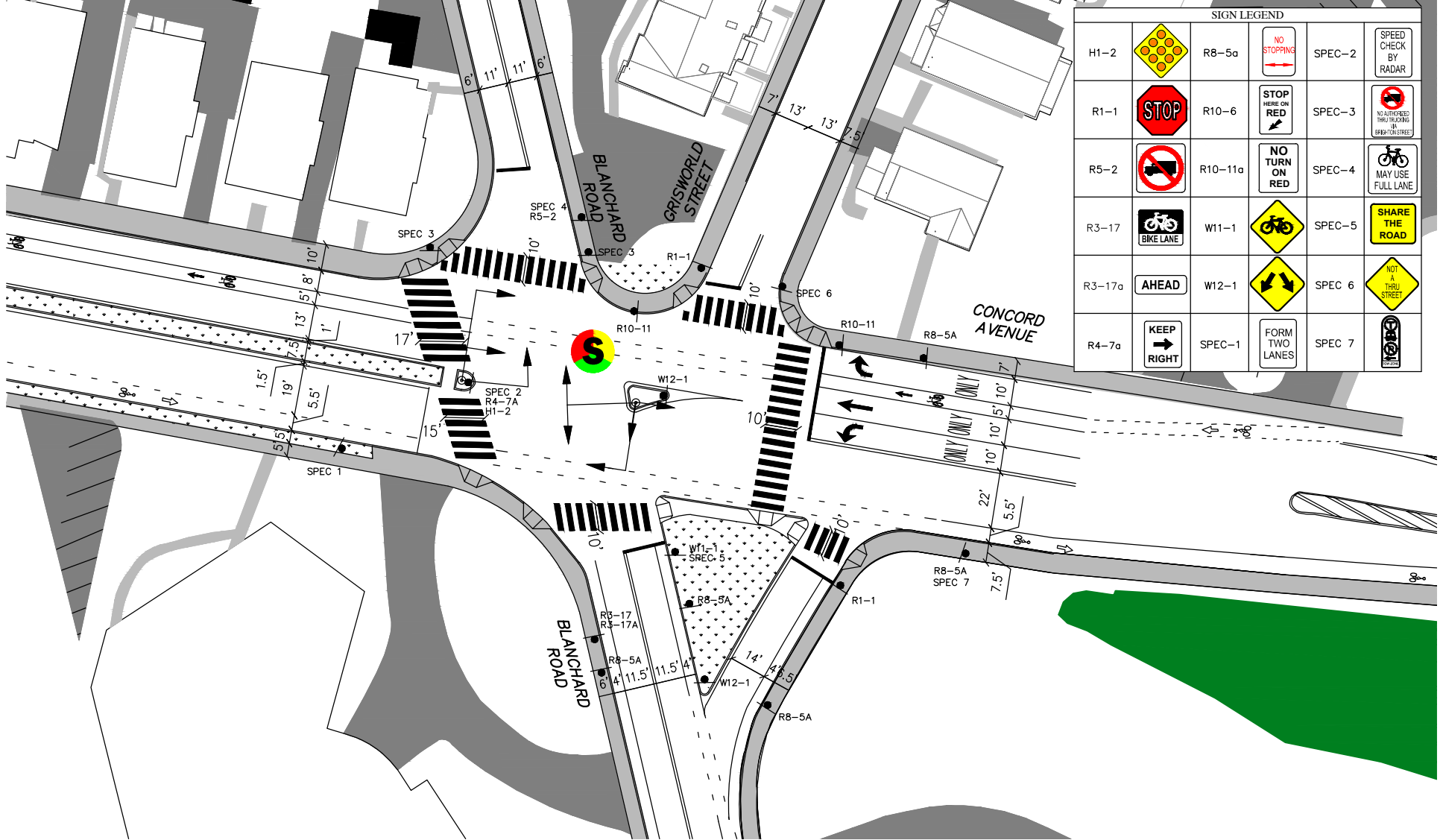
Figure C.16

Proposed Site - Day One Hazardous and Flammable Material Delivery and Storage



R:\8779\0 - 8779 - Fig C - Proposod plan C.16 - Flammable Gas Delivery and Storage.dwg, Thu Aug 12 16:09:00 2021

Transportation Impact Study - 180 Fawcett Street - Cambridge, Massachusetts



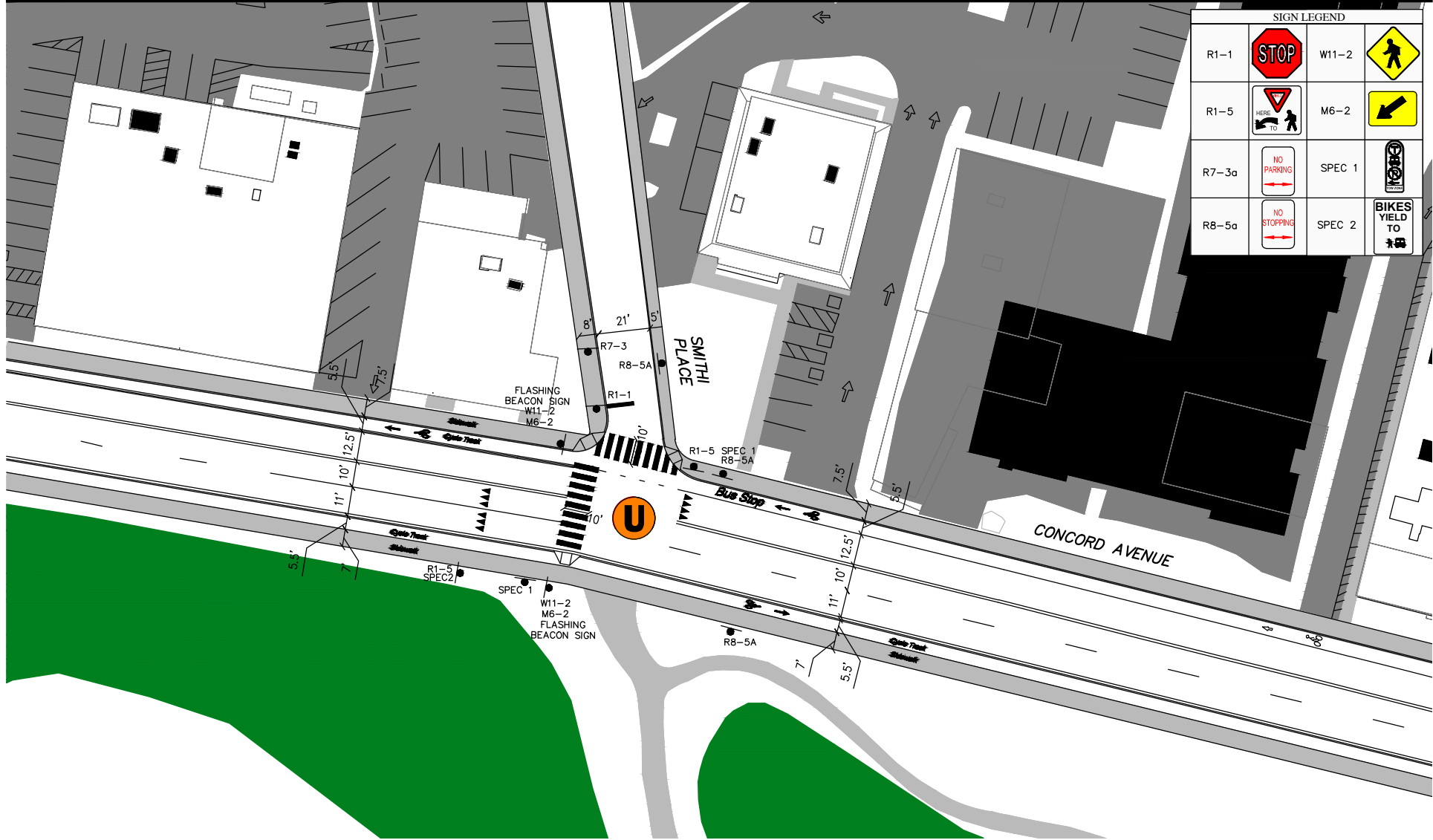
Note: All dimensions and pavement markings are approximate.
 Source: 101 Smith Place - Traffic Study - September 2019

Not to Scale



Figure 1.a.1

Intersection Inventory
 Concord Avenue at
 Blanchard Road/Griswold Street



SIGN LEGEND			
R1-1		W11-2	
R1-5		M6-2	
R7-3a		SPEC 1	
R8-5a		SPEC 2	

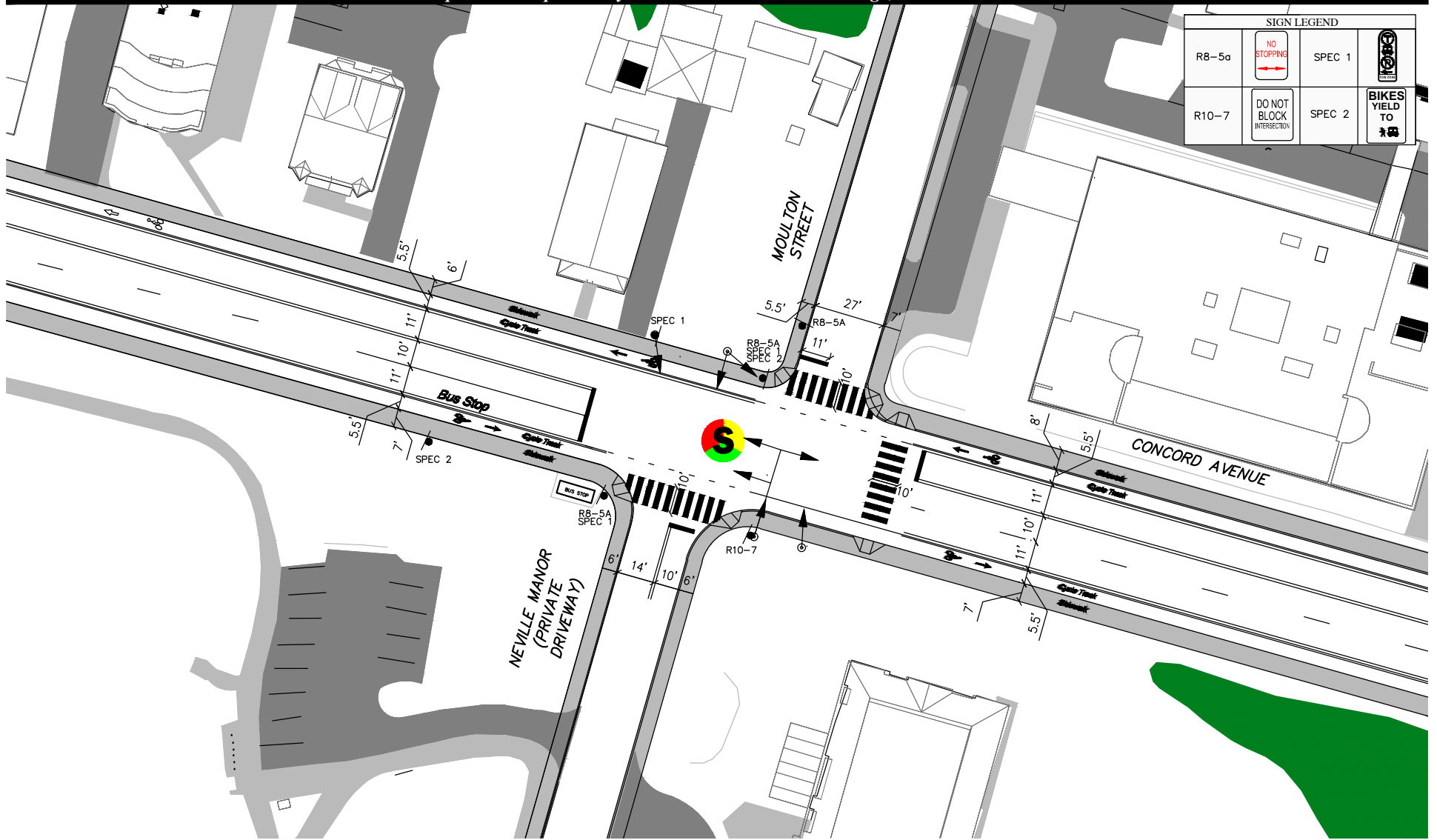
Note: All dimensions and pavement markings are approximate.
 Source: 101 Smith Place - Traffic Study - September 2019

Not to Scale



Figure 1.a.2

Intersection Inventory
 Concord Avenue at
 Smith Place



Note: All dimensions and pavement markings are approximate.
Source: 101 Smith Place - Traffic Study - September 2019

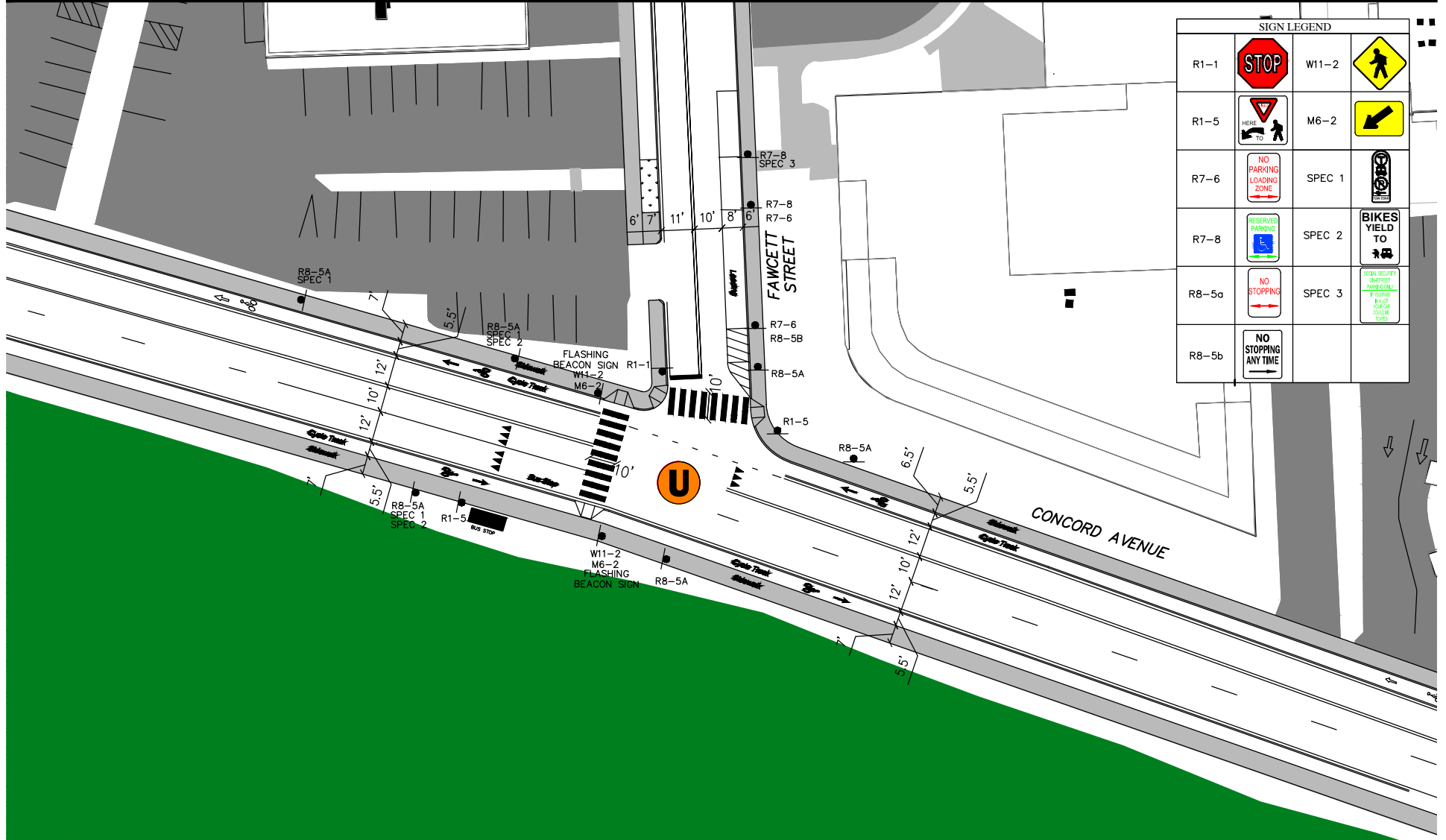
Not to Scale

Figure 1.a.3

Intersection Inventory
Concord Avenue at
Moulton Street



Transportation Impact Study - 180 Fawcett Street - Cambridge, Massachusetts



Note: All dimensions and pavement markings are approximate.
 Source: 101 Smith Place - Traffic Study - September 2019

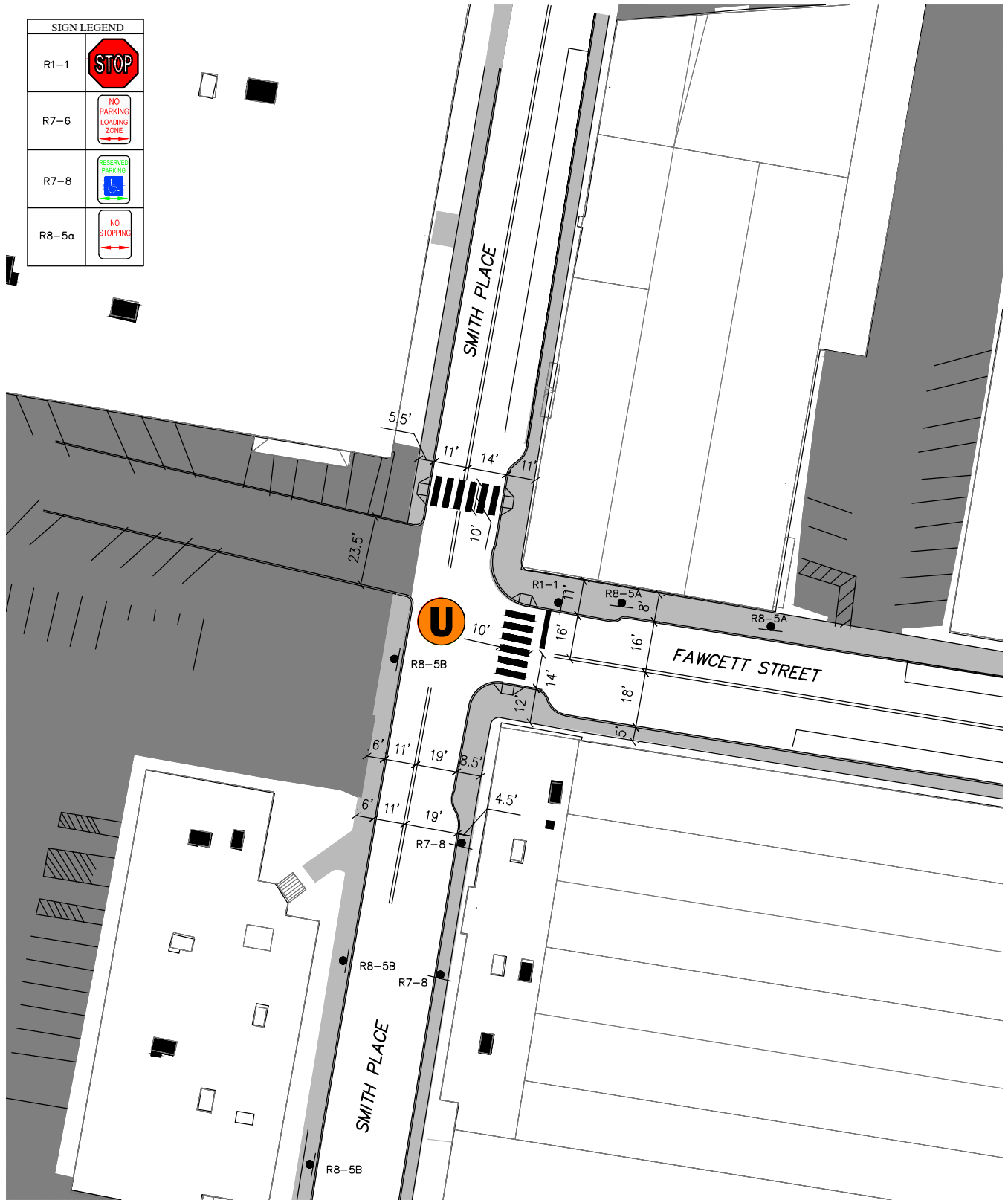
Not to Scale



Figure 1.a.4

Intersection Inventory
 Concord Avenue at
 Fawcett Street

SIGN LEGEND	
R1-1	
R7-6	
R7-8	
R8-5a	



Note: All dimensions and pavement markings are approximate.

Source: Cambridge Community Development Neighborhood Map and field inventory conducted by VAI






Not to Scale

Figure 1.a.5



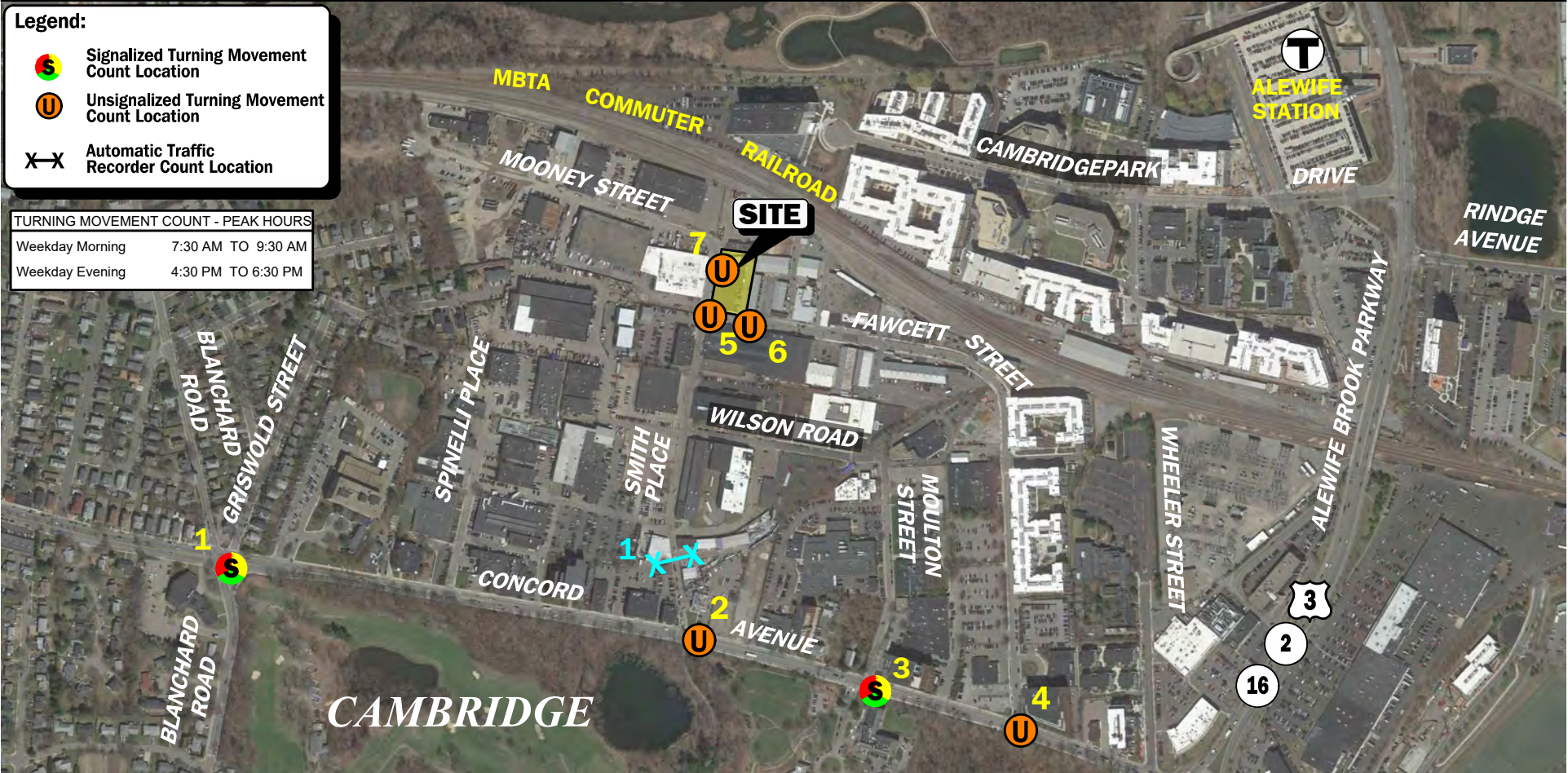
Intersection Inventory
Smith Place at Fawcett Street

Legend:

-  Signalized Turning Movement Count Location
-  Unsignalized Turning Movement Count Location
-  Automatic Traffic Recorder Count Location

TURNING MOVEMENT COUNT - PEAK HOURS

Weekday Morning	7:30 AM TO 9:30 AM
Weekday Evening	4:30 PM TO 6:30 PM



STUDY AREA INTERSECTIONS		
Turning Movement Counts	48-hour Automatic Traffic Recorder (ATR) counts and 12-hour Bicycle and Pedestrian Counts	QUEUE Observation
1. Concord Avenue at Blanchard Road/Griswold Street (counted on 04/02/19) 2. Concord Avenue at Smith Place (counted on 04/02/19) 3. Concord Avenue at Moulton Street (counted on 04/02/19) 4. Concord Avenue at Fawcett Street (counted on 04/02/19) 5. Fawcett Street at Smith Place (counted on 04/02/19)	1. Concord Avenue, west of Smith Place (counted on 04/02/19) 2. Smith Place, north of Concord Avenue (counted on 04/02/19)	1. Concord Avenue at Blanchard Road/Griswold Street (counted on 04/02/19) 2. Concord Avenue at Moulton Street (counted on 04/02/19)

Source: Google Earth

Figure 1.b.1
Site Location and Study Area Map



R:\8779\1 - 8779 - Fig 1.b.1 - Sml.dwg, 5/14/2021 1:27:48 PM

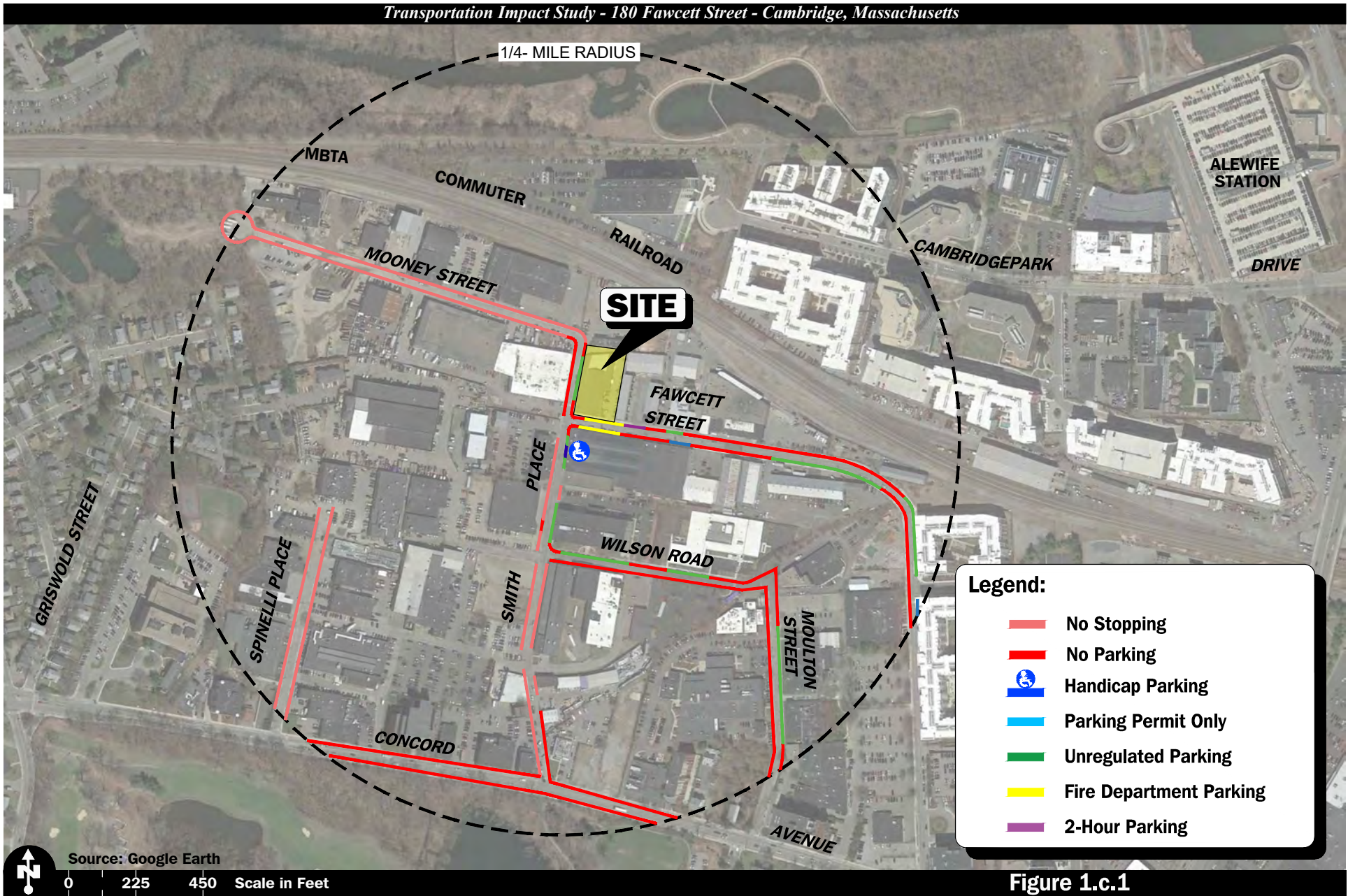


Figure 1.c.1
On-Street Parking Regulations

Transportation Impact Study - 180 Fawcett Street - Cambridge, Massachusetts

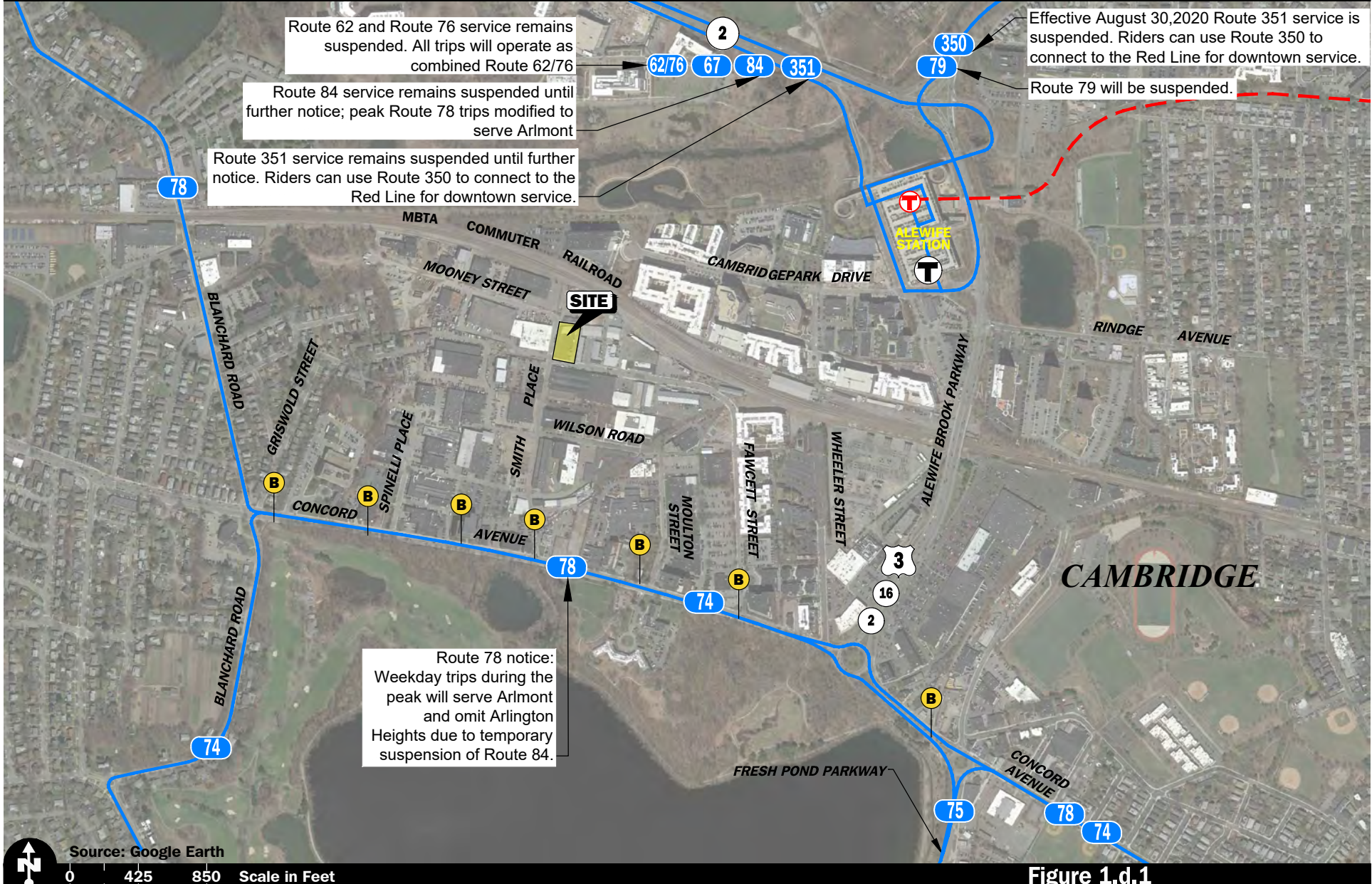


Figure 1.d.1

Public Transit



Legend:

- ① Alewife Station
- ② 10 Fawcett Street
- ③ Atmark Cambridge
- ④ 110 Fawcett Street
- ⑤ 10 Moulton Street
- ⑥ 45 Moulton Street
- ⑦ 75 Moulton Street
- ⑧ 20 Wilson Road
- ⑨ 10 Wilson Road
- ⑩ 733 Concord Avenue
- ⑪ 767C Concord Avenue (WCSP)

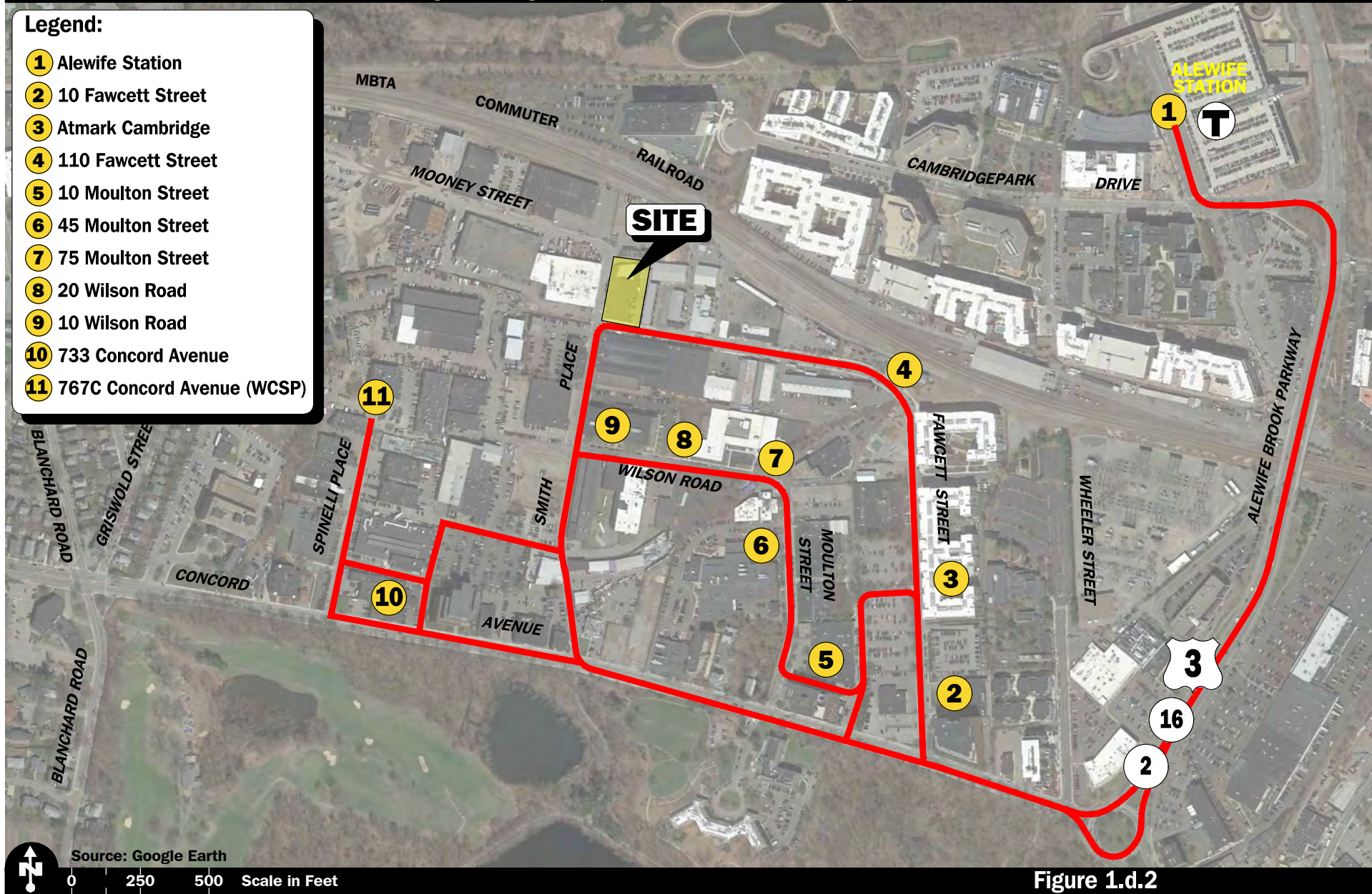


Figure 1.d.2

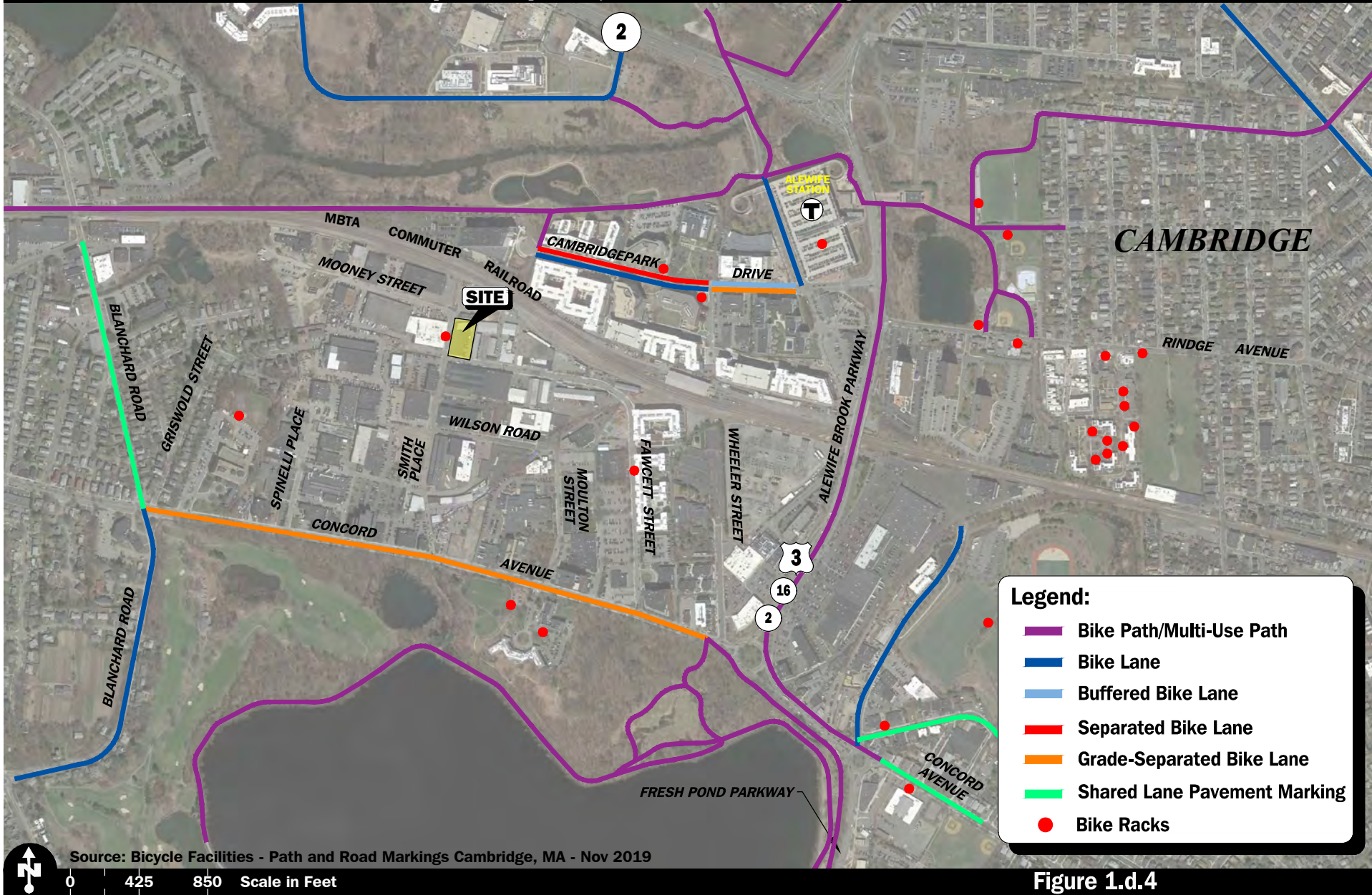
Alewife TMA Shuttle





Figure 1.d.3

Car and Bike Sharing Stations Map



Legend:

- Bike Path/Multi-Use Path
- Bike Lane
- Buffered Bike Lane
- Separated Bike Lane
- Grade-Separated Bike Lane
- Shared Lane Pavement Marking
- Bike Racks

Figure 1.d.4

Bicycle Parking and Route Access Map



R:\8779\1 - 8779 - Fig 1.d.1 - 1.d.4 - Public Transit-Bike -carsharing.dwg, 5/7/2021 4:00:59 PM

Transportation Impact Study - 180 Fawcett Street - Cambridge, Massachusetts

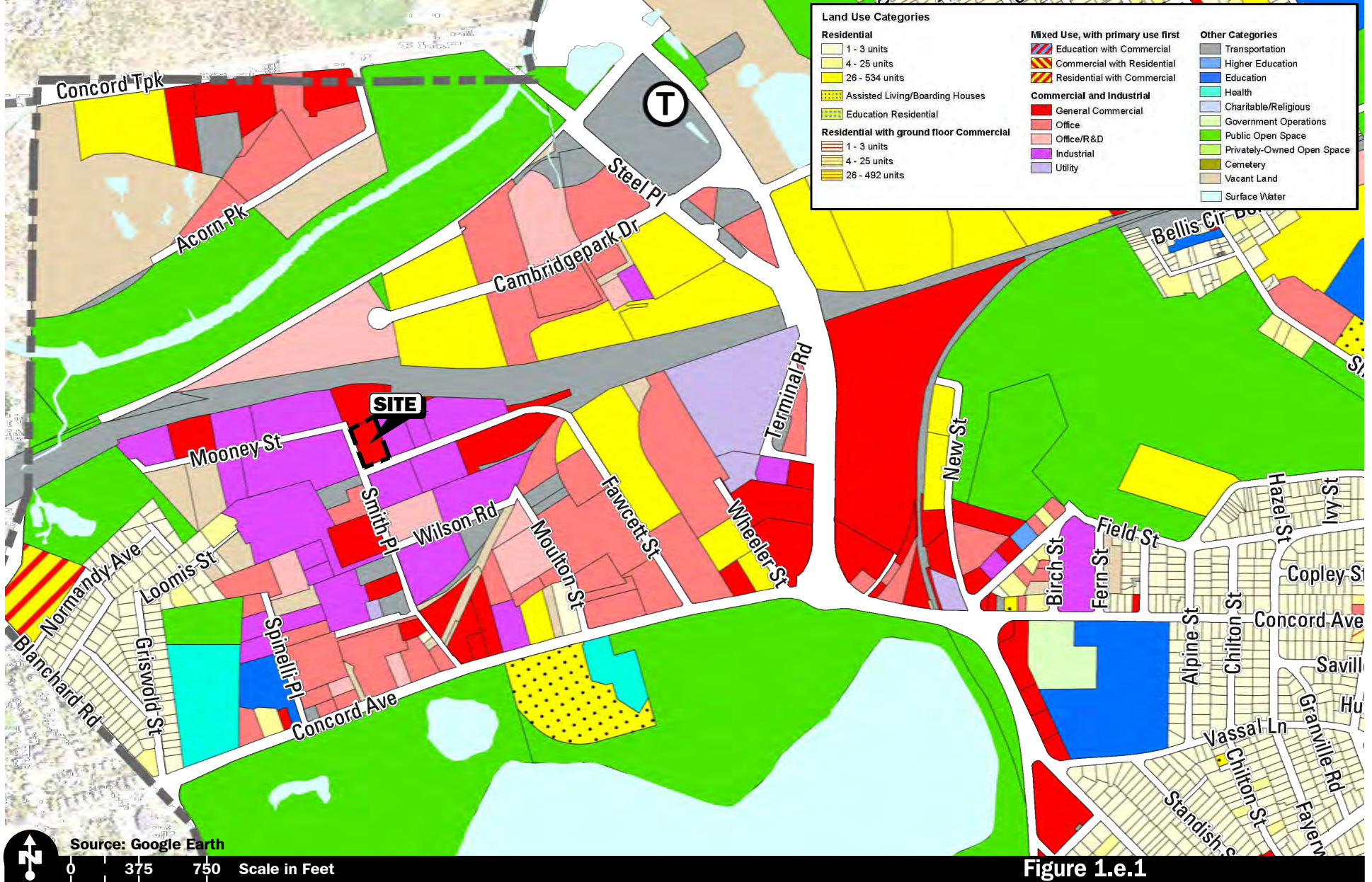


Figure 1.e.1

Land Use Map



**TRANSPORTATION IMPACT STUDY
SUPPORTING GRAPHICS VOLUME II OF II
Section 2.0 through Section 14.0**

180 Fawcett Street
Cambridge, Massachusetts

Prepared for:
CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

 **Vanasse &
Associates inc**
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

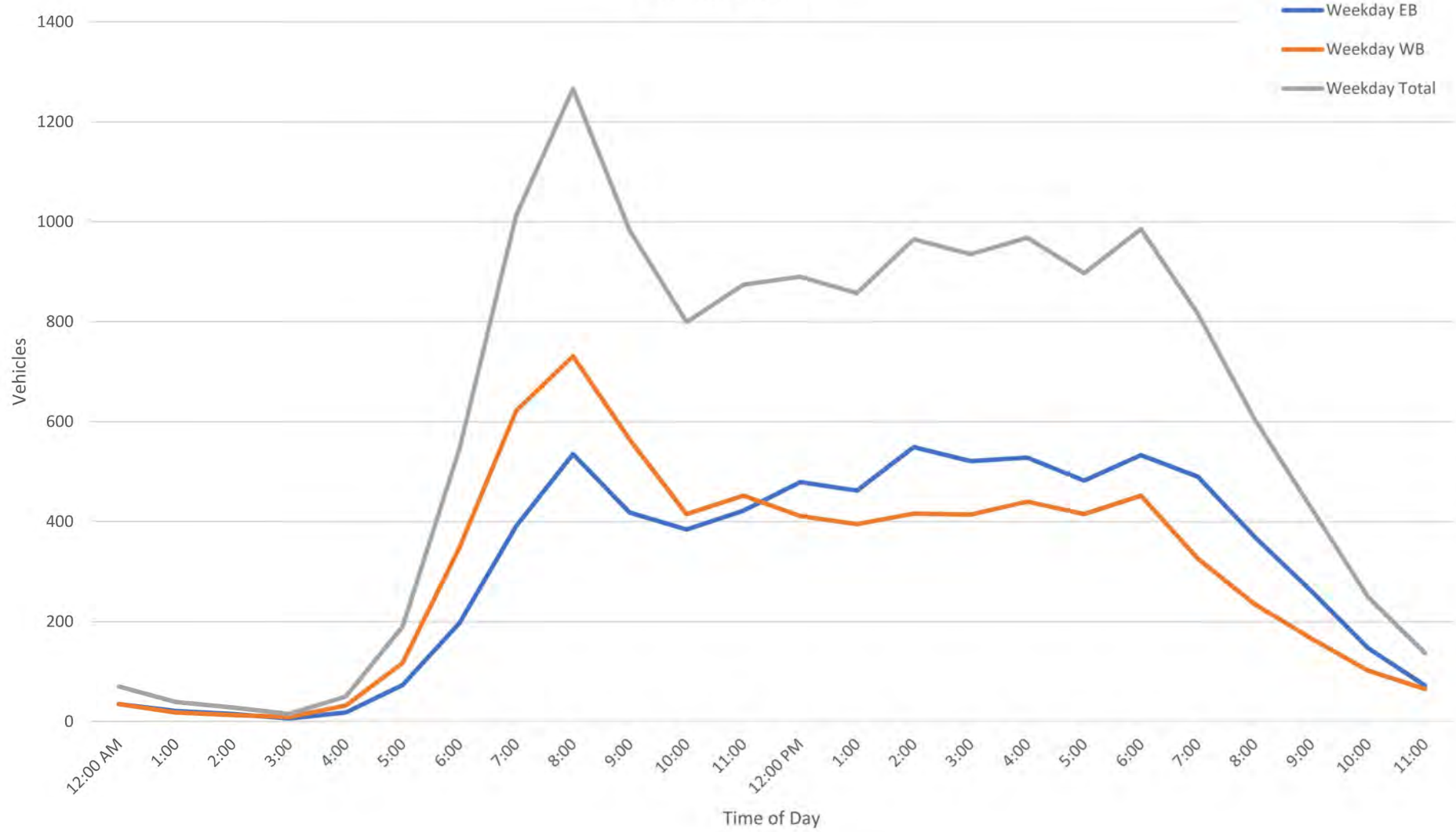


Figure 2.a.1

Average Hourly Traffic Volume
Concord Avenue
Tuesday, April 2 and 3, 2019



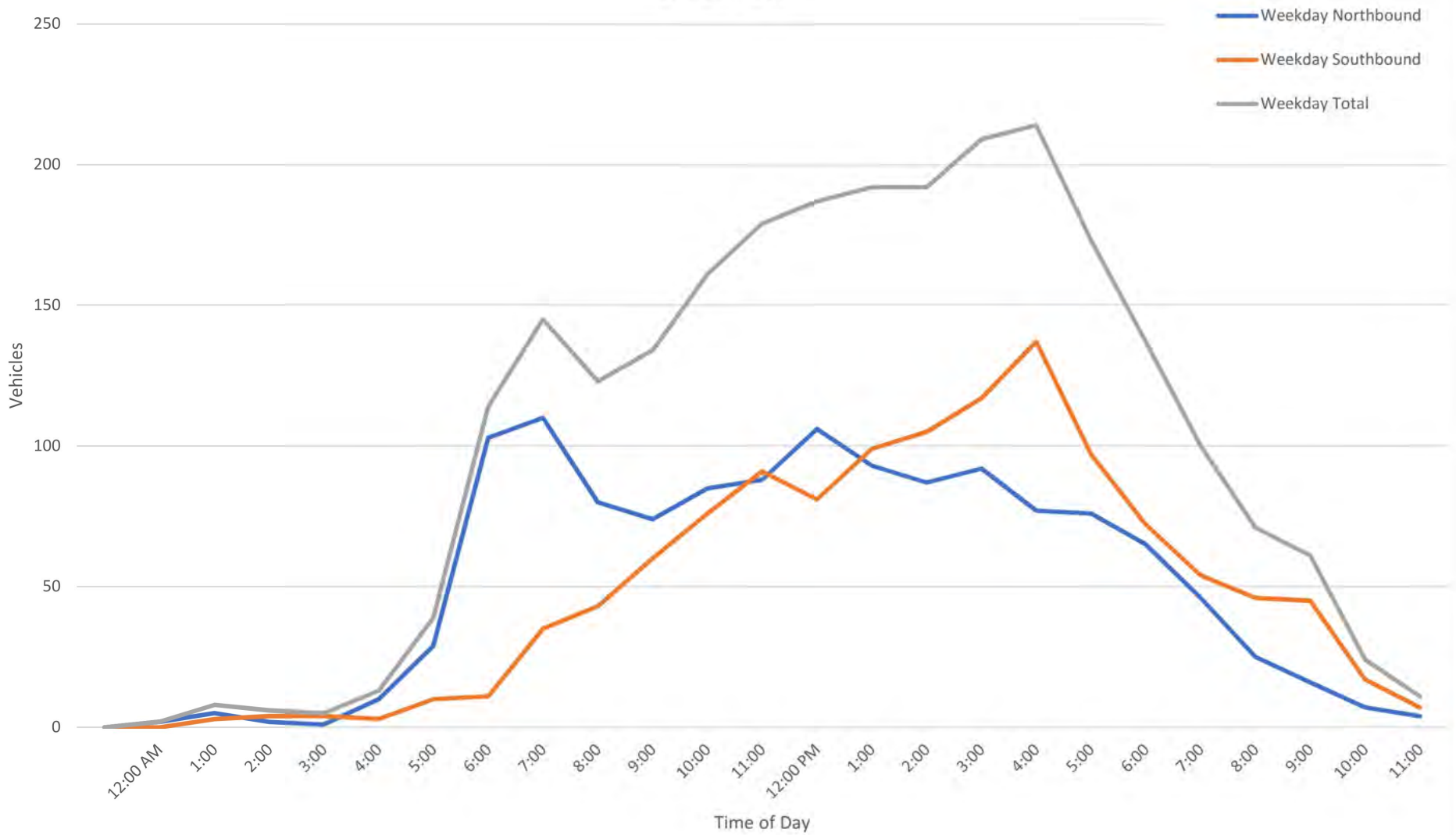
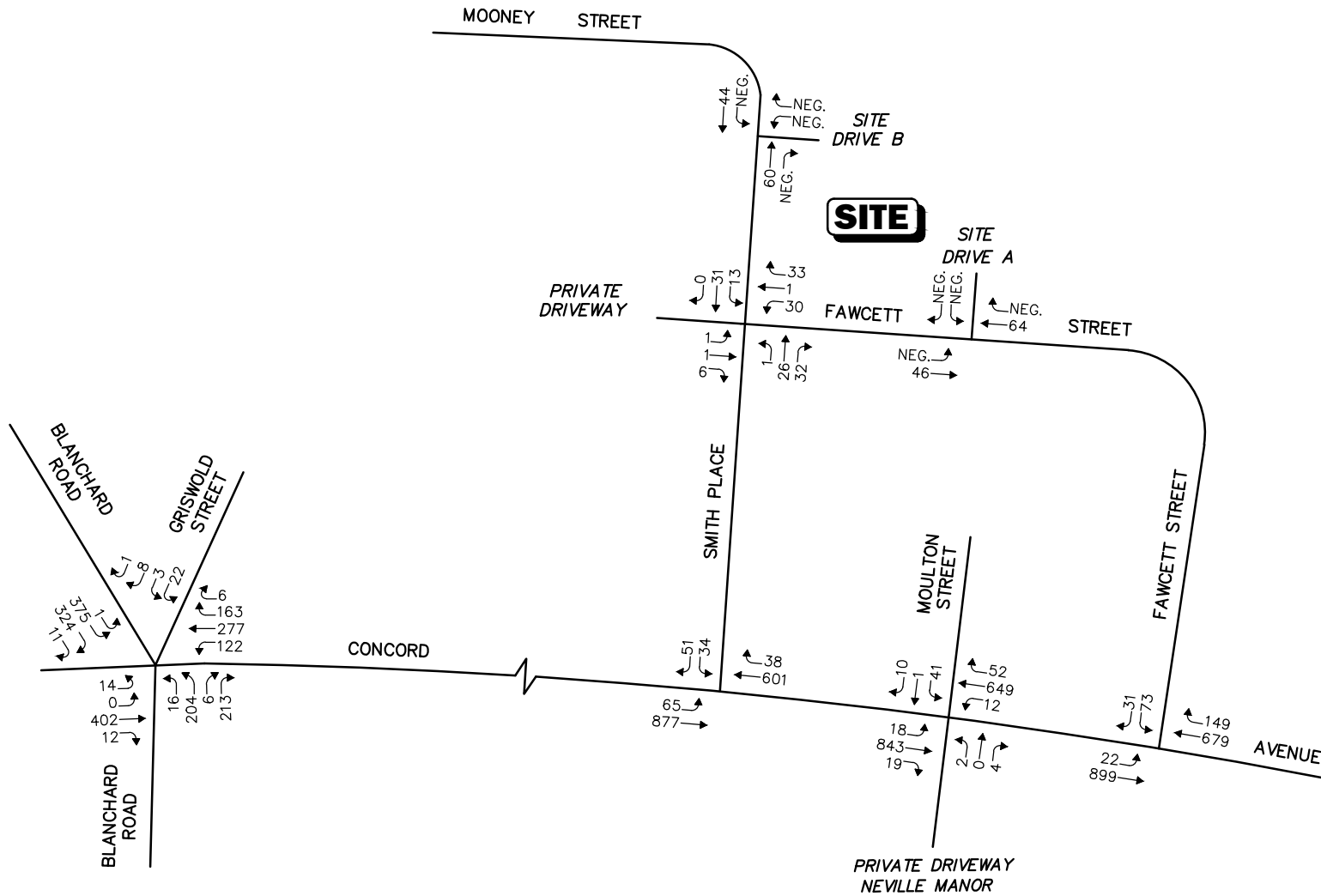


Figure 2.a.2

Average Hourly Traffic Volume
Smith Place
Tuesday, April 2 and 3, 2019



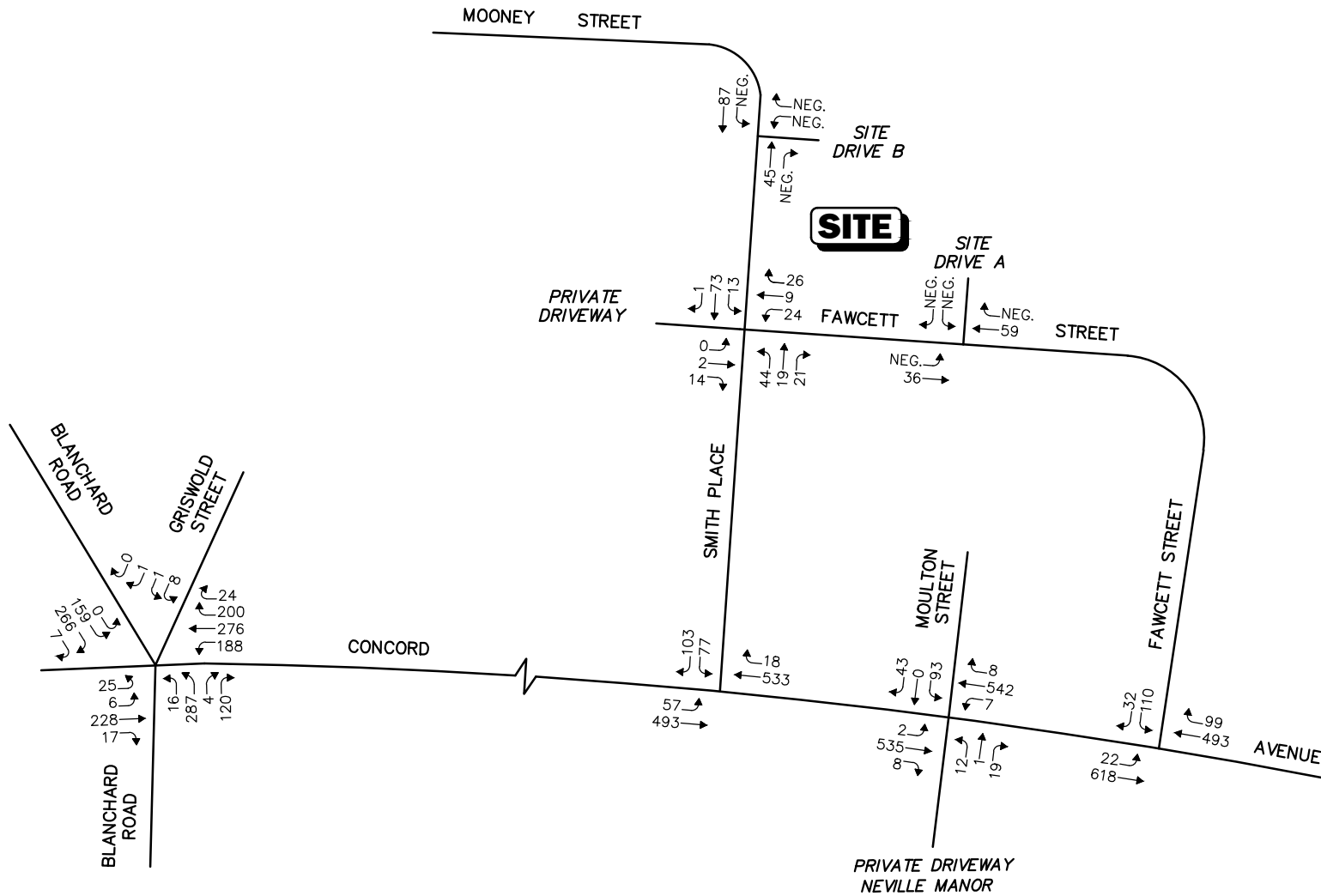


Note: 1 - Imbalances exist due to numerous curb cuts and side streets that are not shown.
 2 - Traffic counted April 2, 2019.
 3 - NEG. = Neglected

Figure 2.c.1

**2021 Baseline Condition
 Weekday Morning
 8:00 - 9:00 AM
 Peak Hour Traffic Volumes**

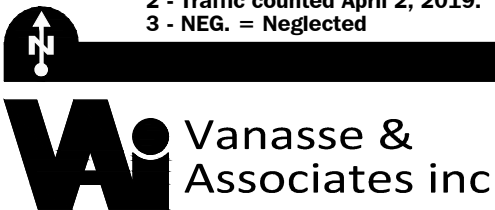


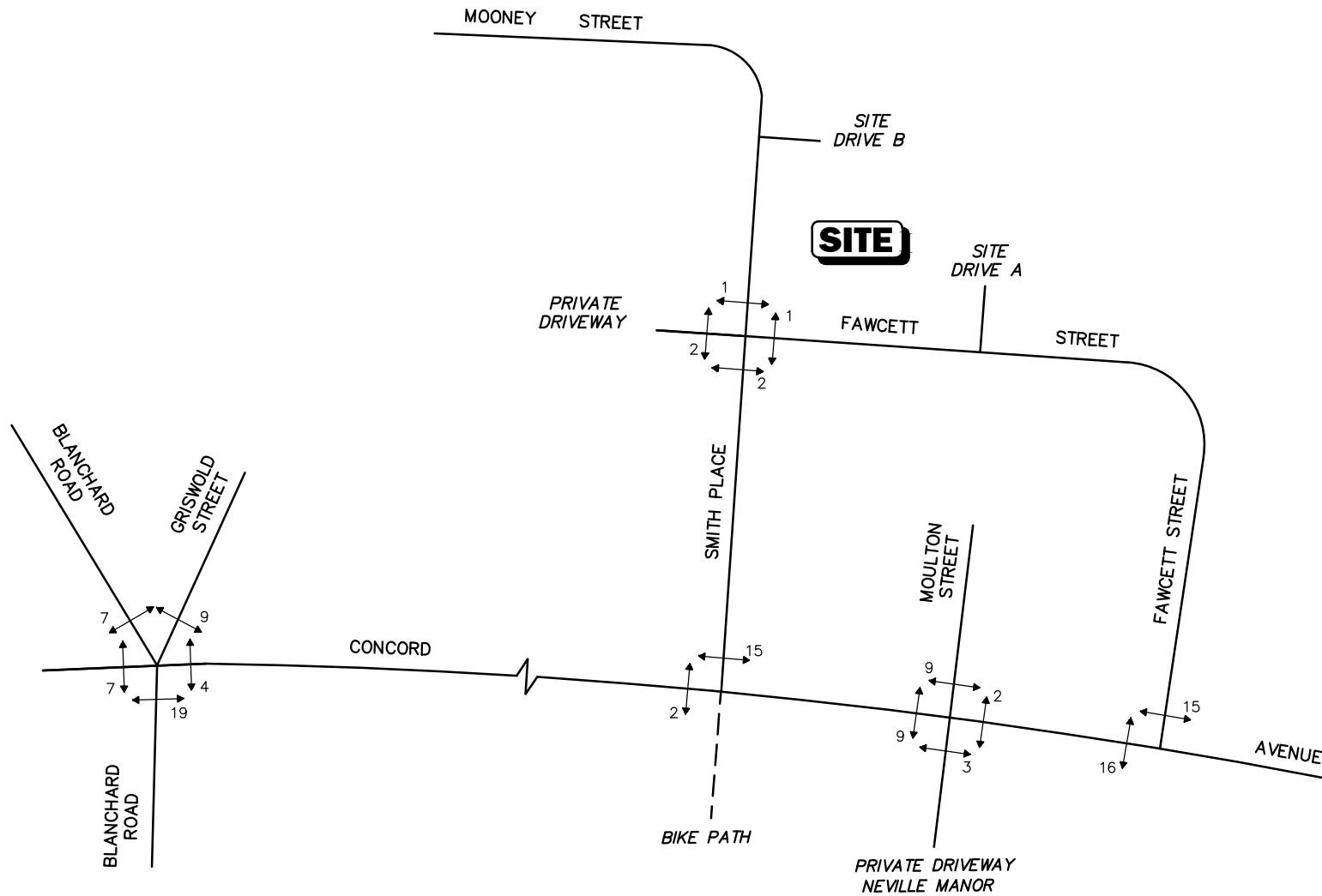


Note: 1 - Imbalances exist due to numerous curb cuts and side streets that are not shown.
 2 - Traffic counted April 2, 2019.
 3 - NEG. = Neglected

Figure 2.c.2

**2021 Existing Condition
 Weekday Evening
 4:45 - 5:45 PM
 Peak Hour Traffic Volumes**



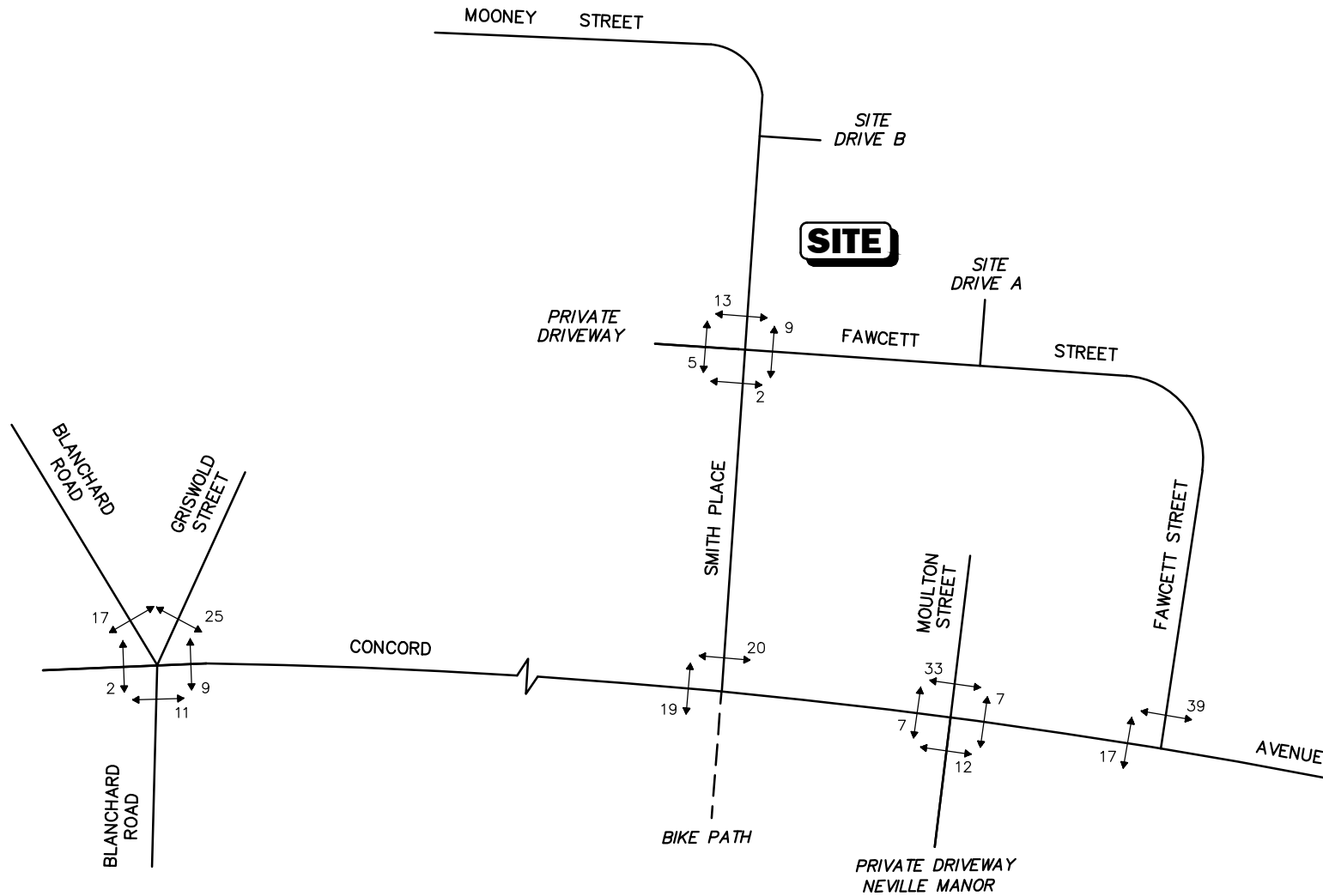


Note: Pedestrian counted April 2, 2019.

Figure 2.c.3

2021 Baseline Condition
 Weekday Morning
 8:00 - 9:00 AM
 Peak Hour Pedestrian Volumes



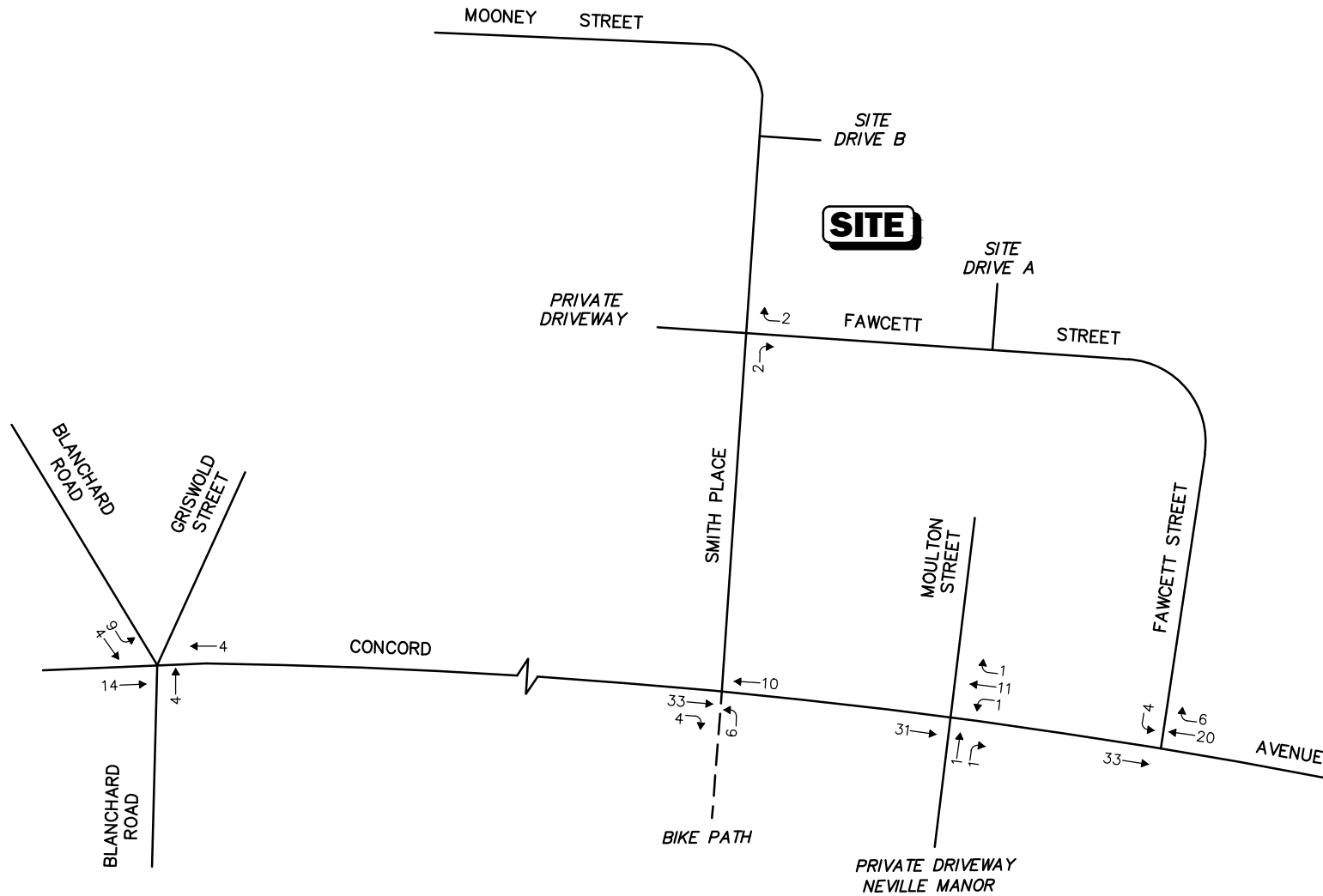


Note: Pedestrian counted April 2, 2019.

Figure 2.c.4

2021 Baseline Condition
 Weekday Evening
 4:45 - 5:45 PM
 Peak Hour Pedestrian Volumes



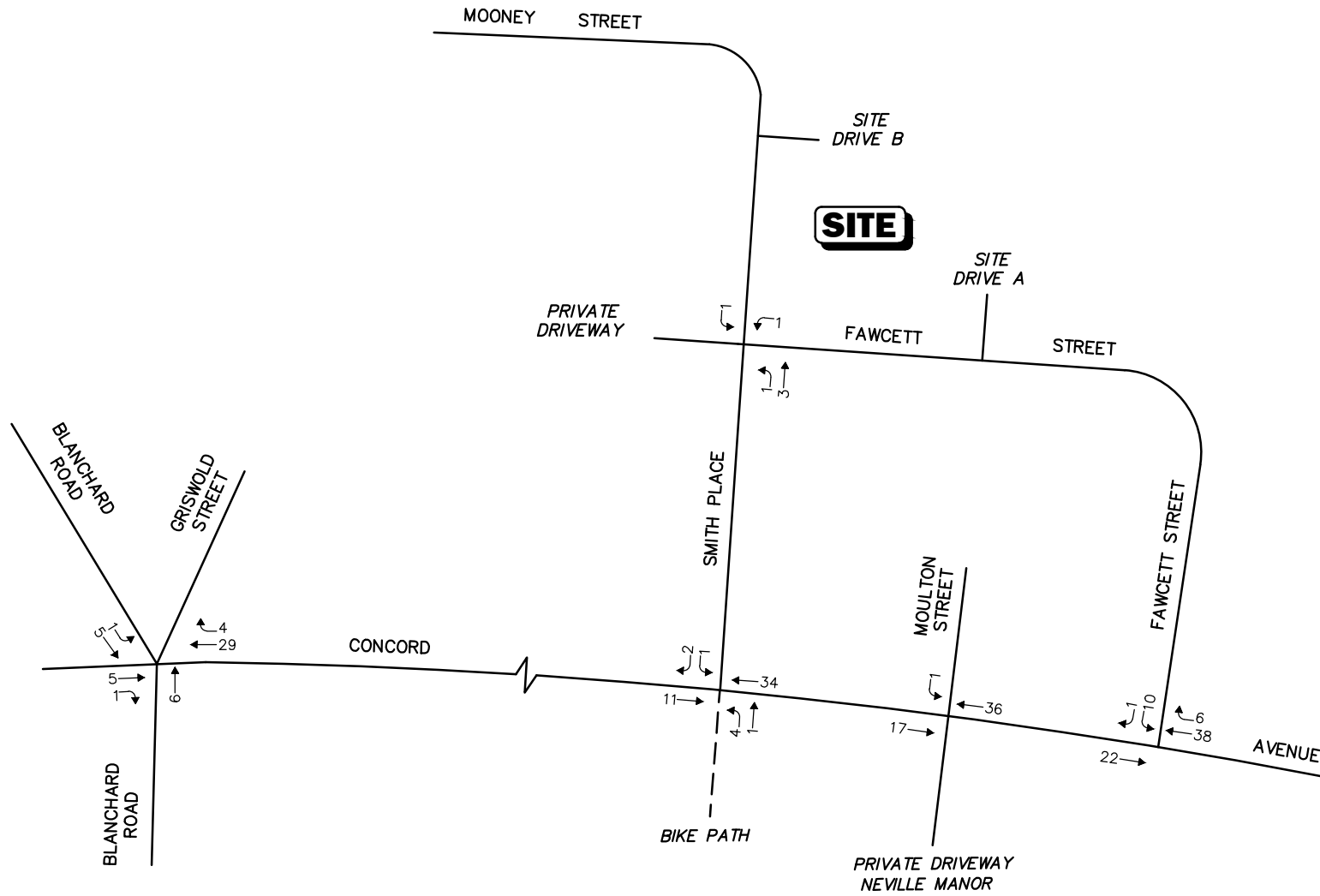


Note: Bicycles counted April 2, 2019.

Figure 2.c.5

2021 Baseline Condition
 Weekday Morning
 8:00 - 9:00 AM
 Peak Hour Bicycle Volume





Note: Bicycles counted April 2, 2019.

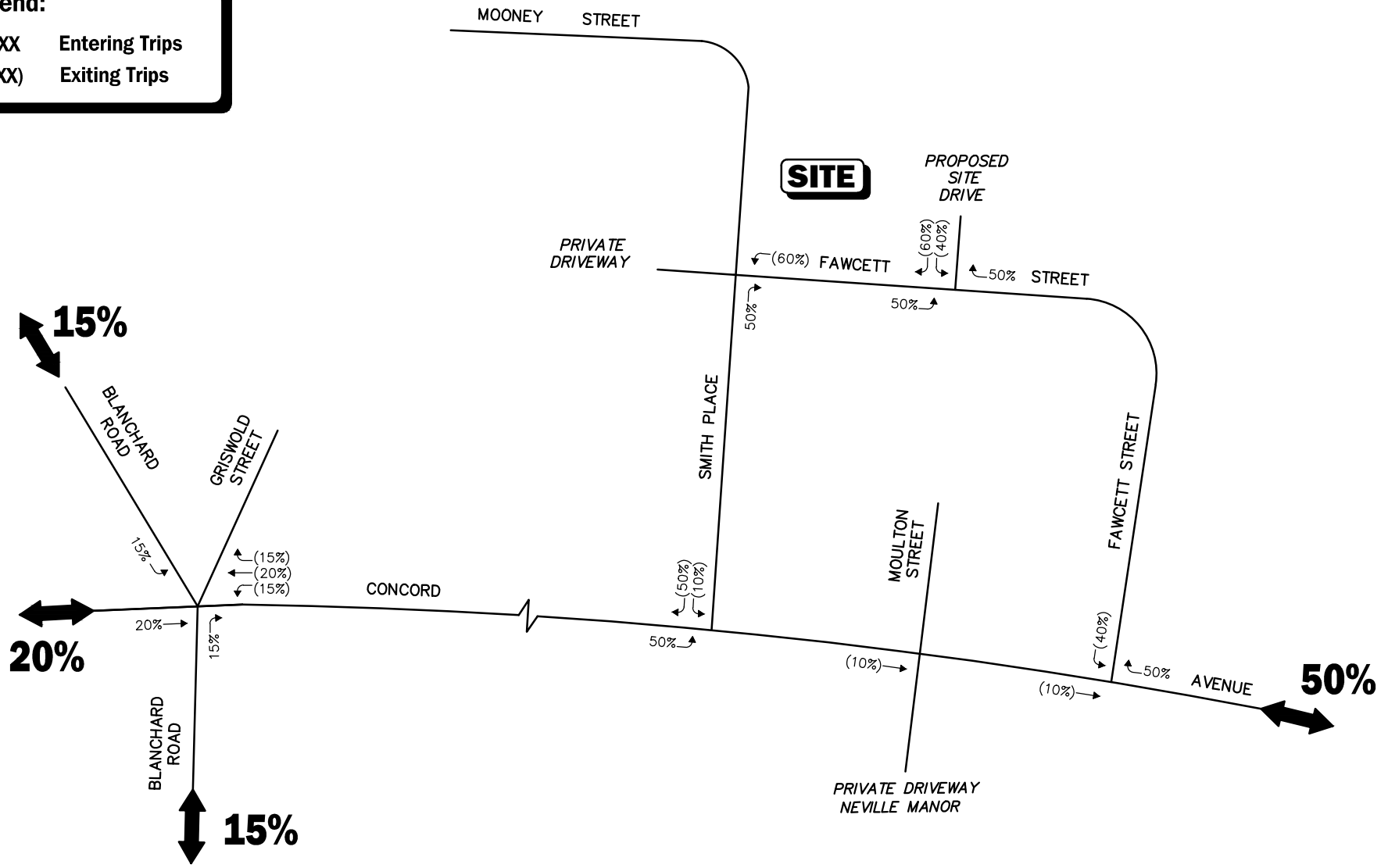
Figure 2.c.6

2021 Baseline Condition
 Weekday Evening
 4:45 - 5:45 PM
 Peak Hour Bicycle Volume



Legend:

- XX Entering Trips
- (XX) Exiting Trips



Source: Alewife Critical Sums Analysis - Revised January 2019

Figure 3.c.1

R&D Trip Distribution Map



Legend:

- XX Entering Trips
- (XX) Exiting Trips

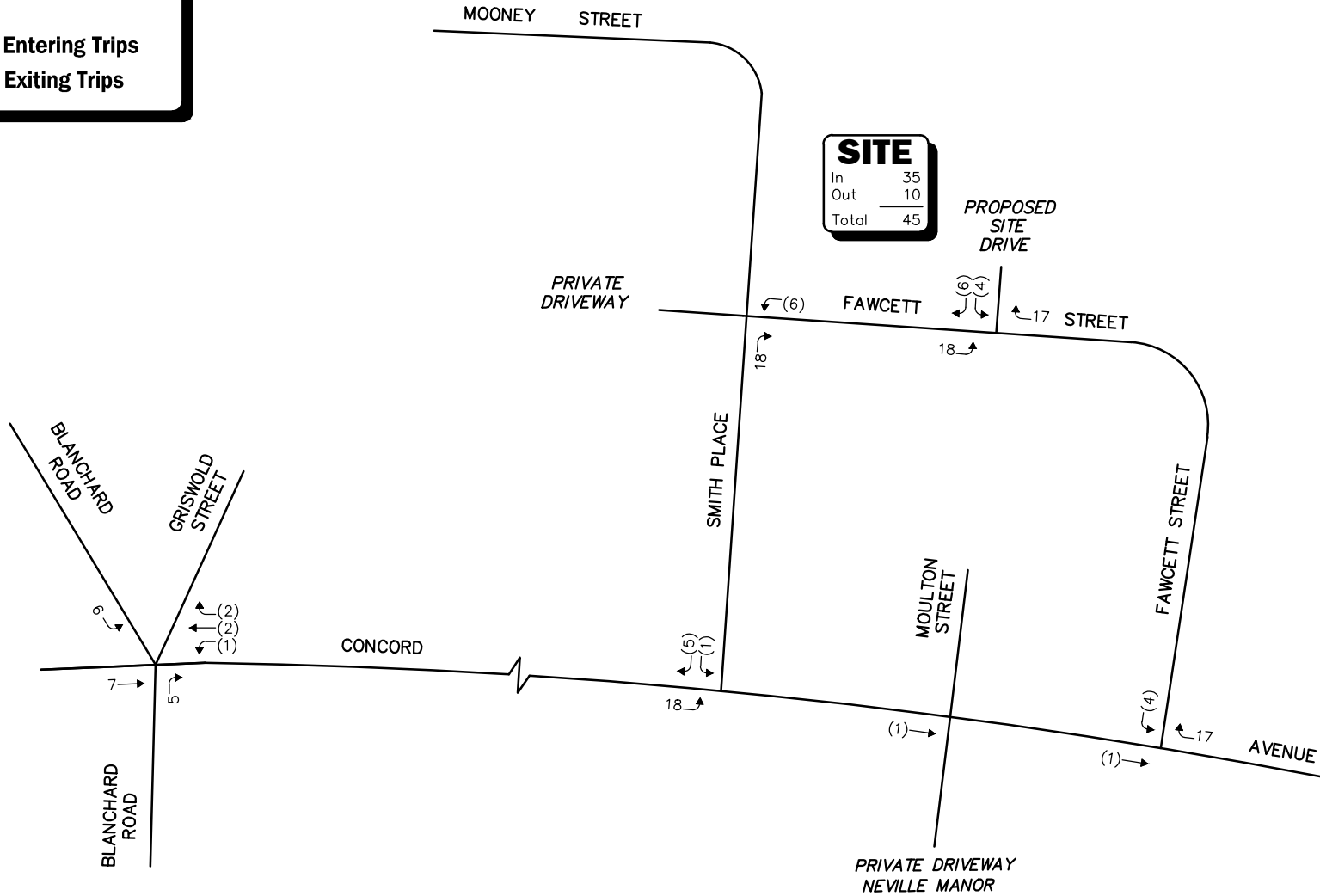


Figure 3.c.2

**Project Generated
Proposed R&D Development
Weekday Morning
Peak Hour Traffic Volume**



Legend:

- XX Entering Trips
- (XX) Exiting Trips

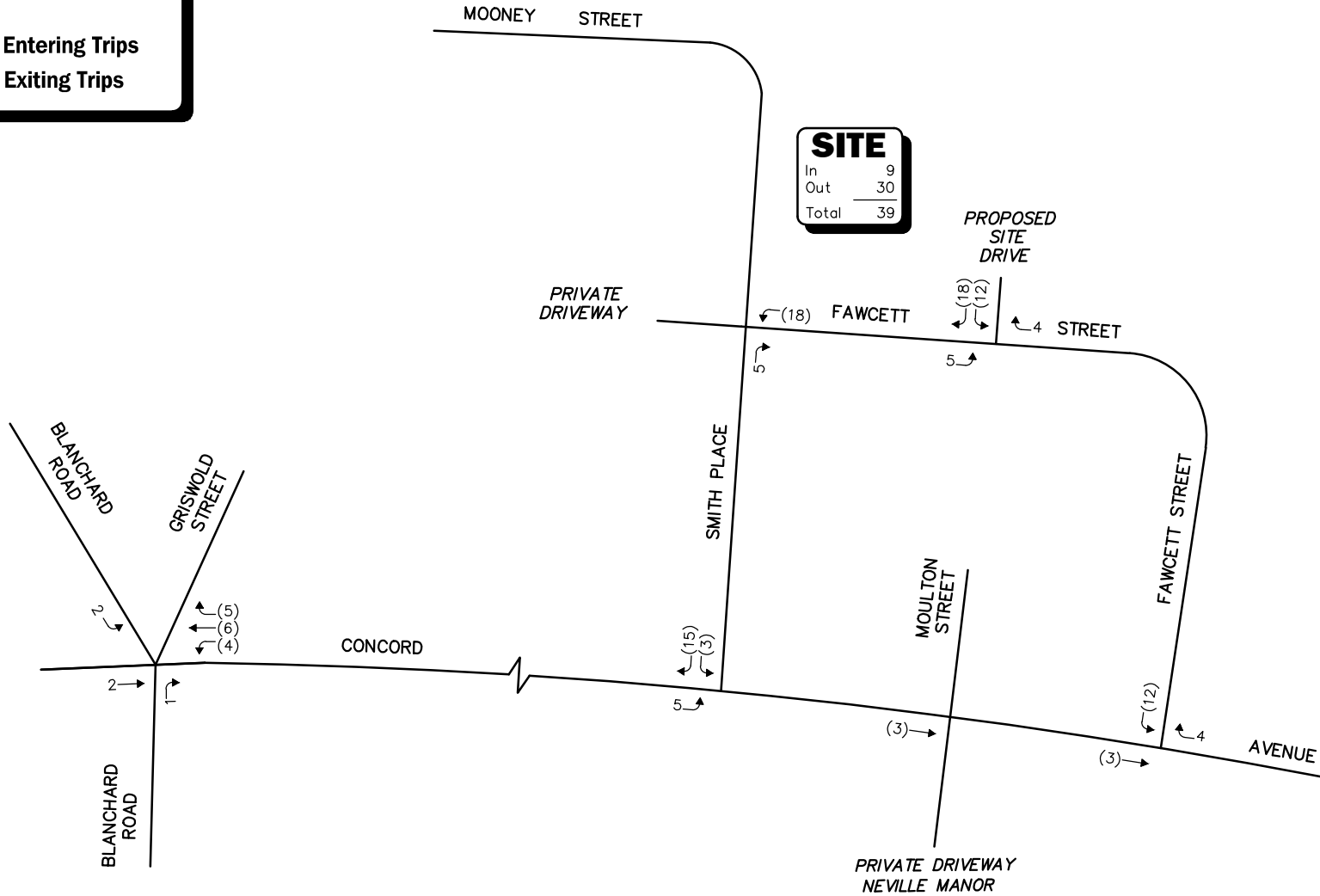
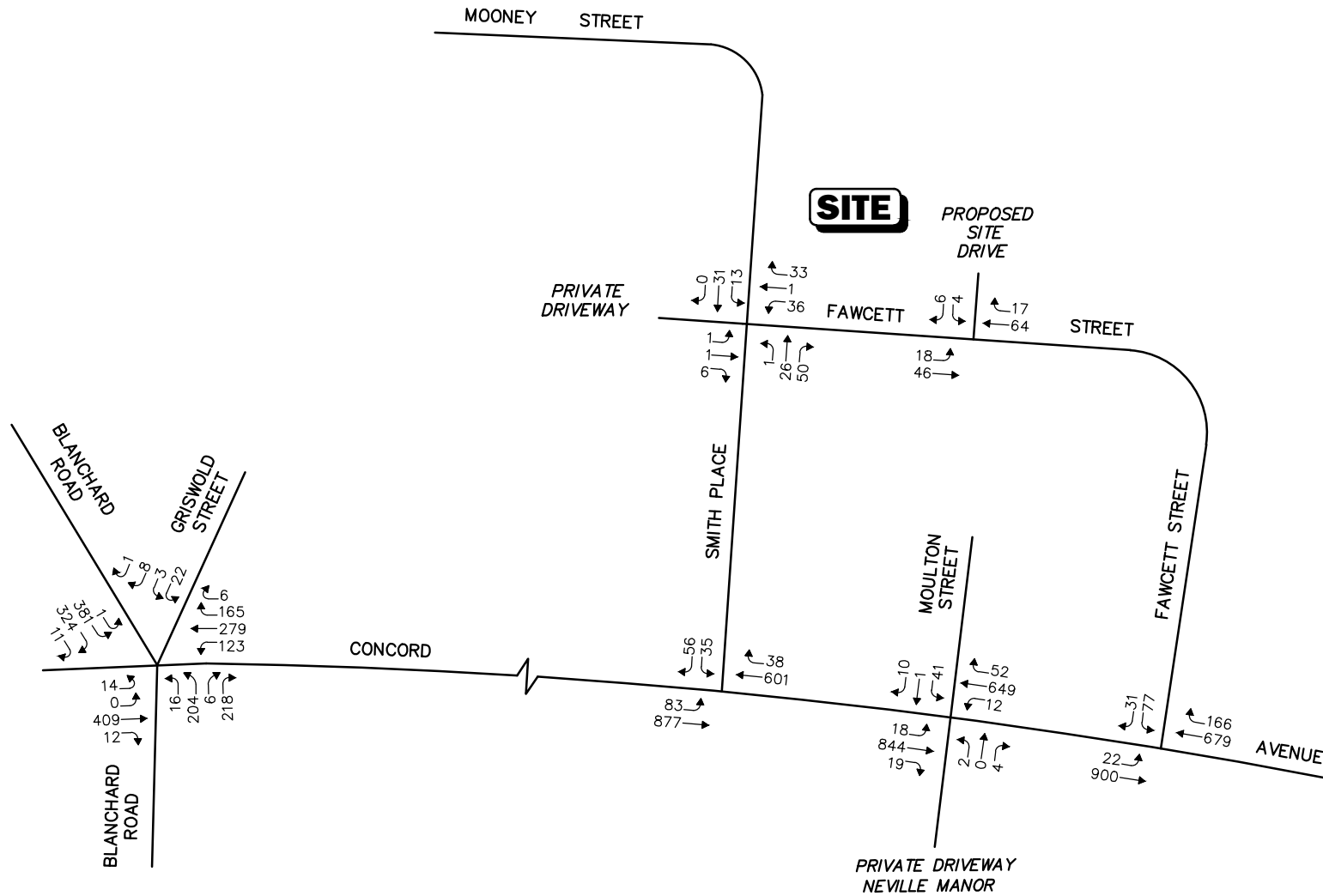


Figure 3.c.3

**Project Generated
Proposed R&D Development
Weekday Evening
Peak Hour Traffic Volume**

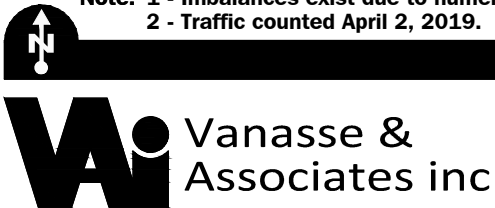


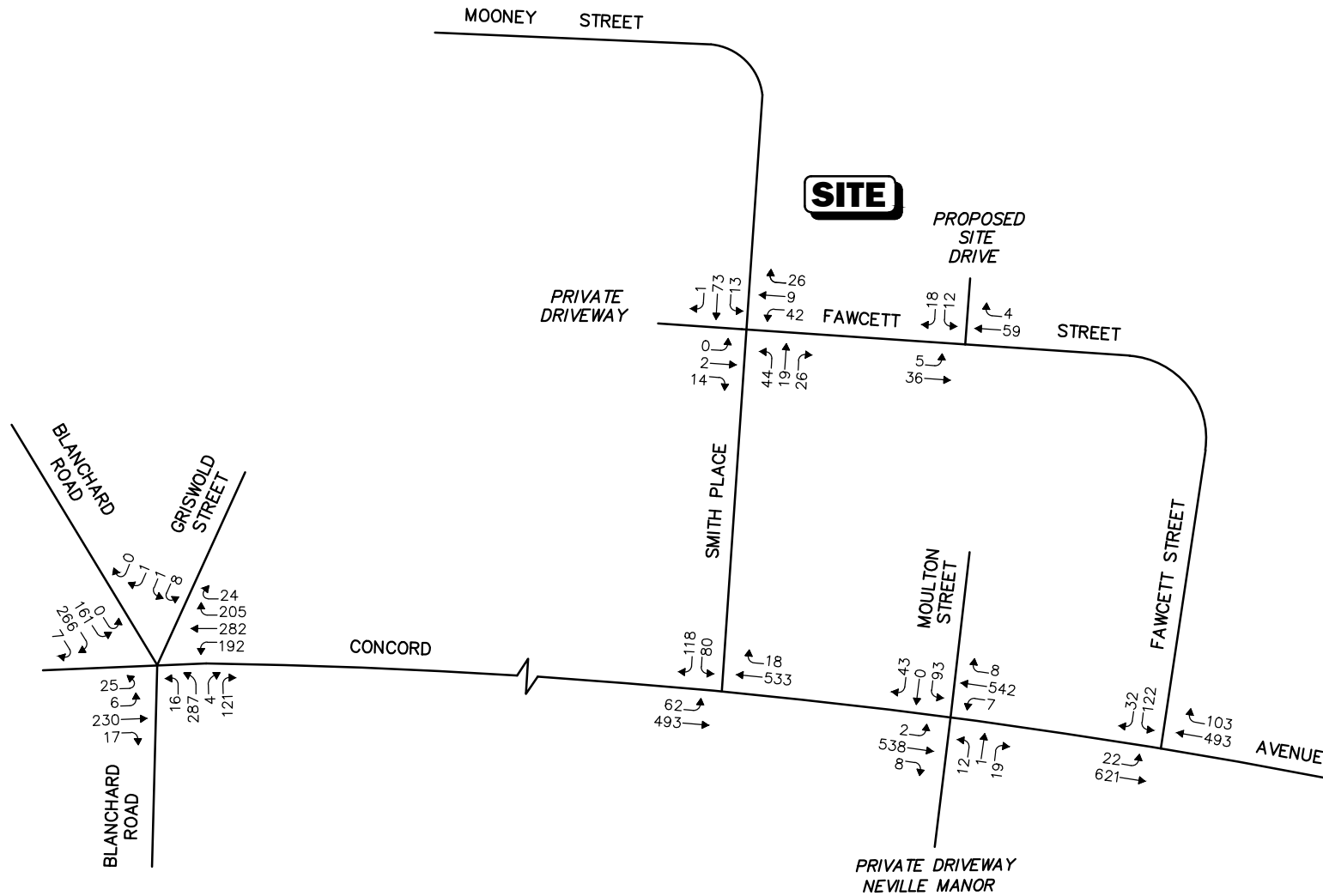


Note: 1 - Imbalances exist due to numerous curb cuts and side streets that are not shown.
 2 - Traffic counted April 2, 2019.

Figure 5.b.1

2021 Build Condition
 Weekday Morning
 Peak Hour Traffic Volumes

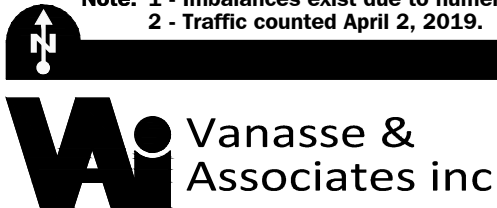




Note: 1 - Imbalances exist due to numerous curb cuts and side streets that are not shown.
 2 - Traffic counted April 2, 2019.

Figure 5.b.2

2021 Build Condition
 Weekday Evening
 Peak Hour Traffic Volumes



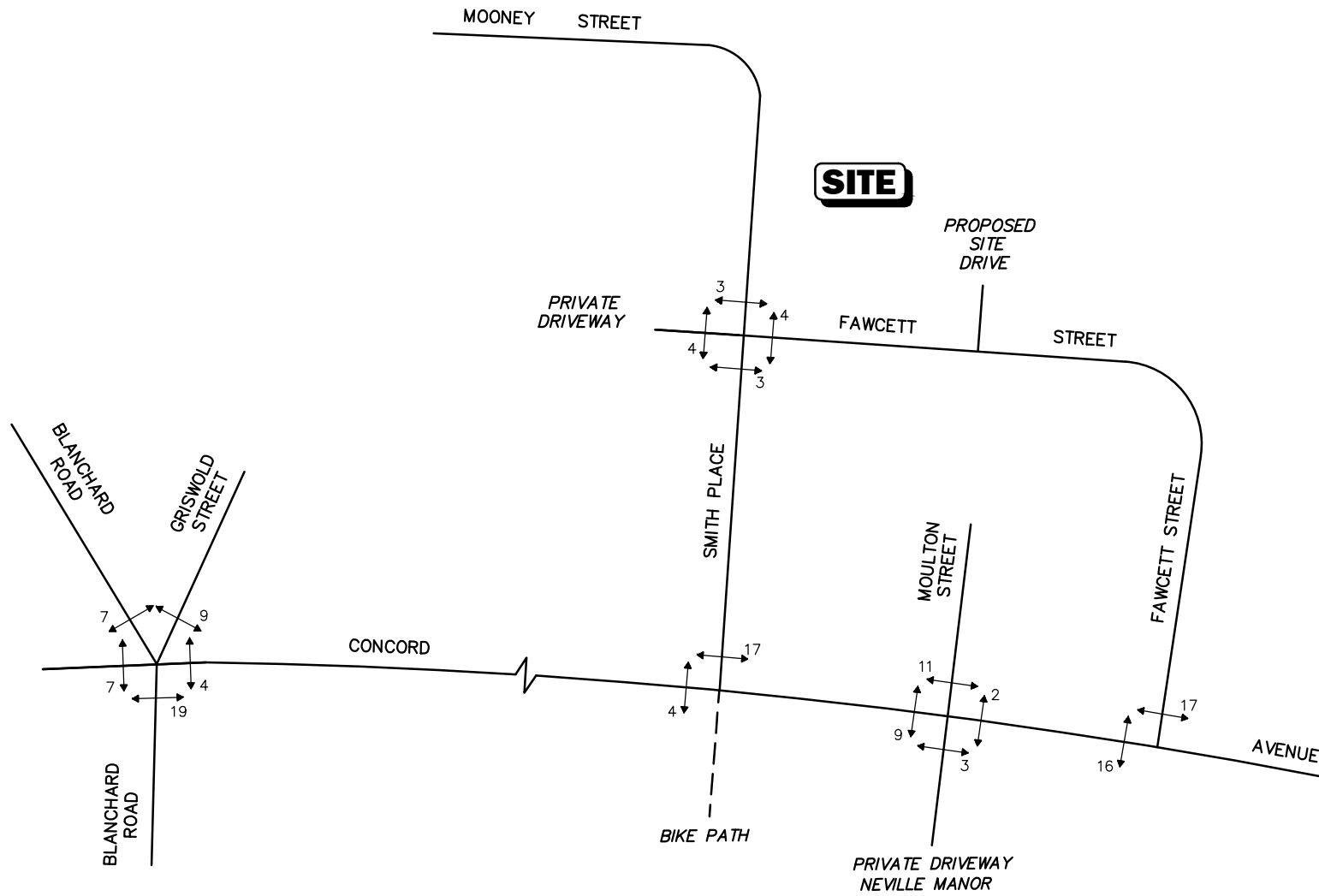


Figure 5.b.3

2021 Build Condition
Weekday Morning
Peak Hour Pedestrian Volumes



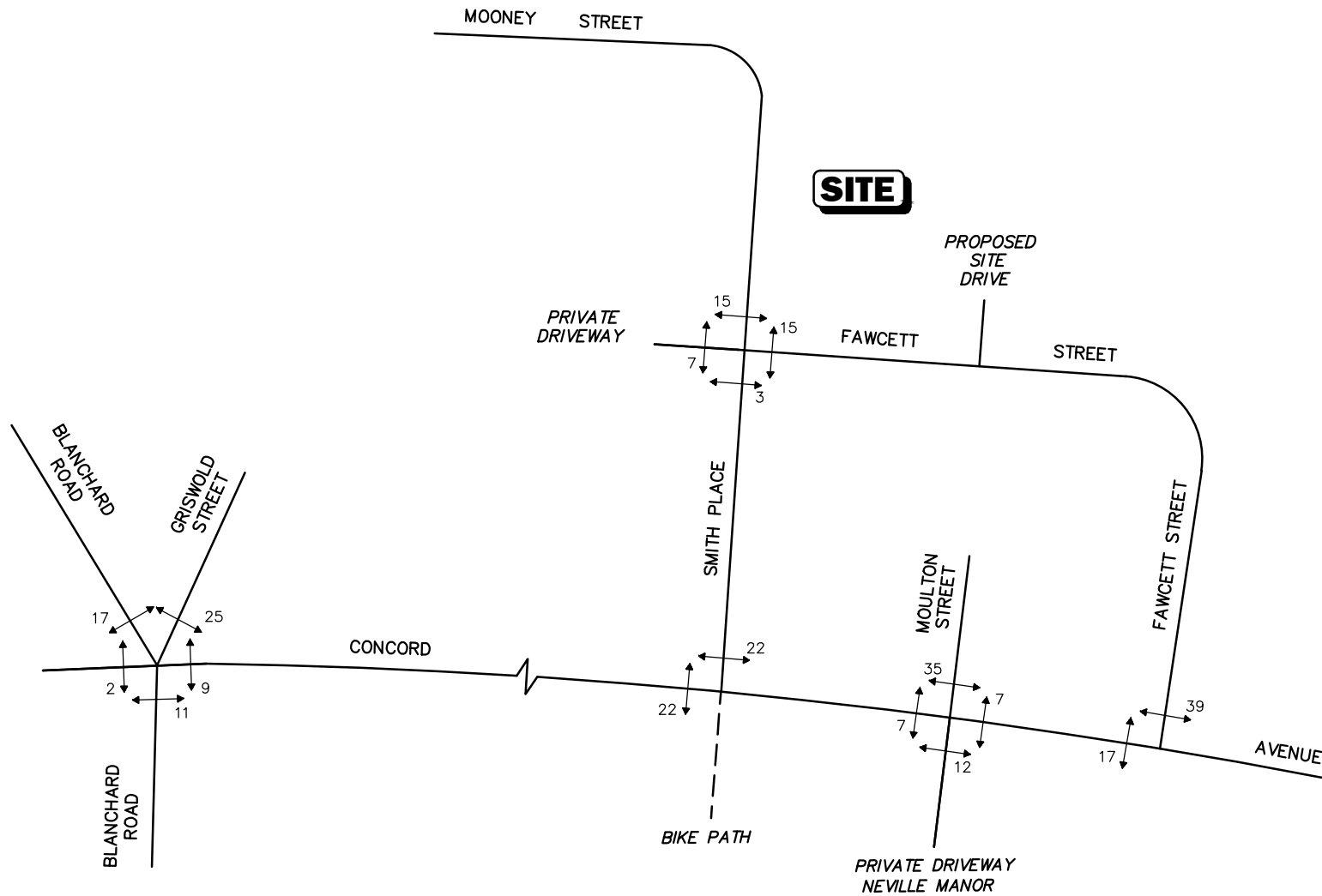
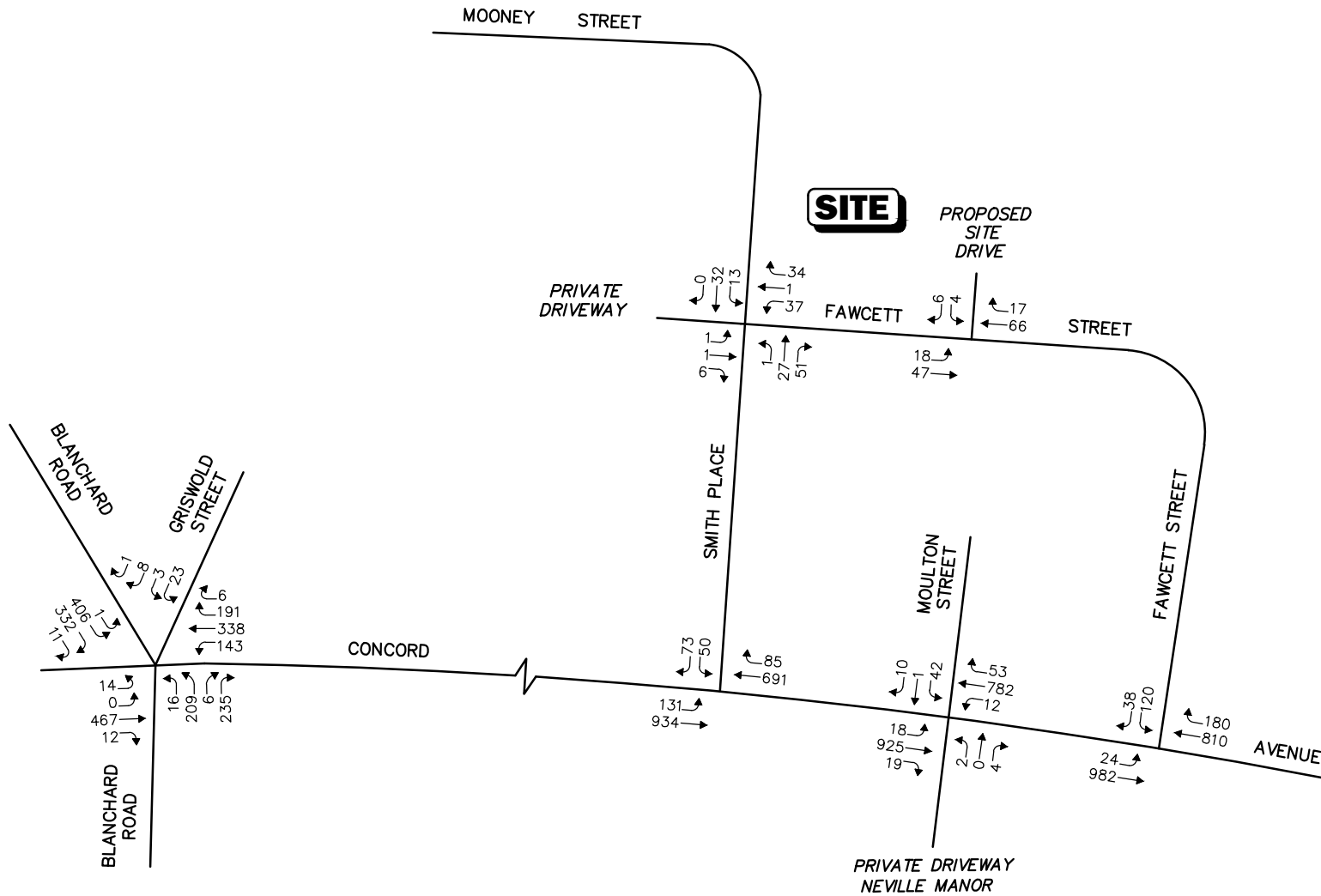


Figure 5.b.4

2021 Build Condition
 Weekday Evening
 Peak Hour Pedestrian Volumes



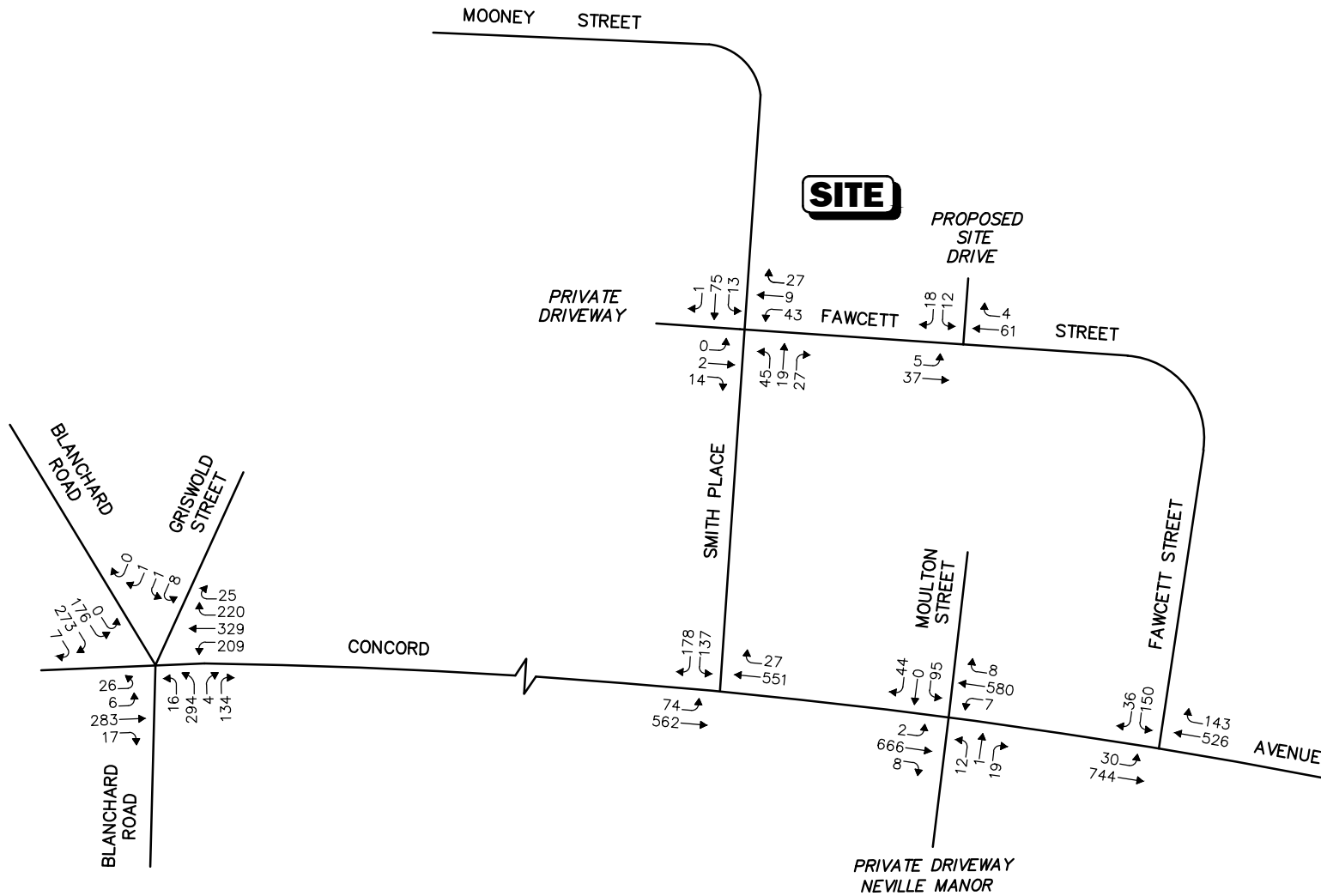


Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Figure 5.c.1

2026 Build Condition
Weekday Morning
Peak Hour Traffic Volumes





Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

Figure 5.c.2

2026 Build Condition
Weekday Evening
Peak Hour Traffic Volumes





Legend:
 Inbound
 Outbound




Figure 5.d.1
 Cumulative Area Developments Impact
 Weekday Morning
 Peak Hour Traffic Volumes



R:\8779\5 - 8779 - Fig 5.d.1 - 5.d.2 - Cumulative Area 2026.dwg, 7/29/2021 9:32:46 AM

Legend:

 Inbound


 Outbound



Figure 5.d.2

Cumulative Area Developments Impact
Weekday Evening
Peak Hour Traffic Volumes



Legend:

- X** 2021 Existing
- X** 2021 Build
- X** 2026 Future

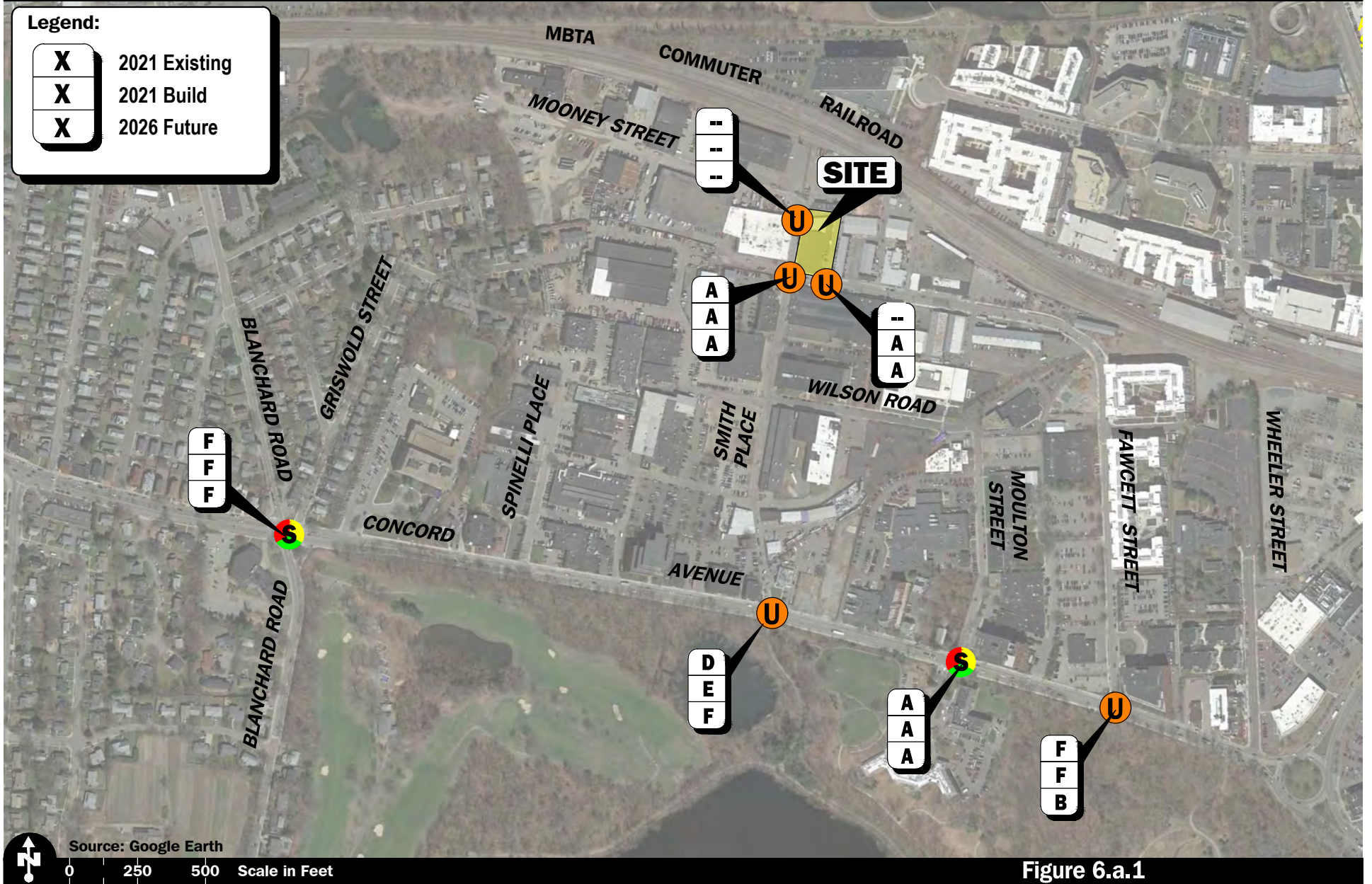


Figure 6.a.1

Vehicle Level-of-Service Map
Weekday Morning
Peak Hour Traffic Volumes



Legend:

X	2021 Existing
X	2021 Build
X	2026 Future

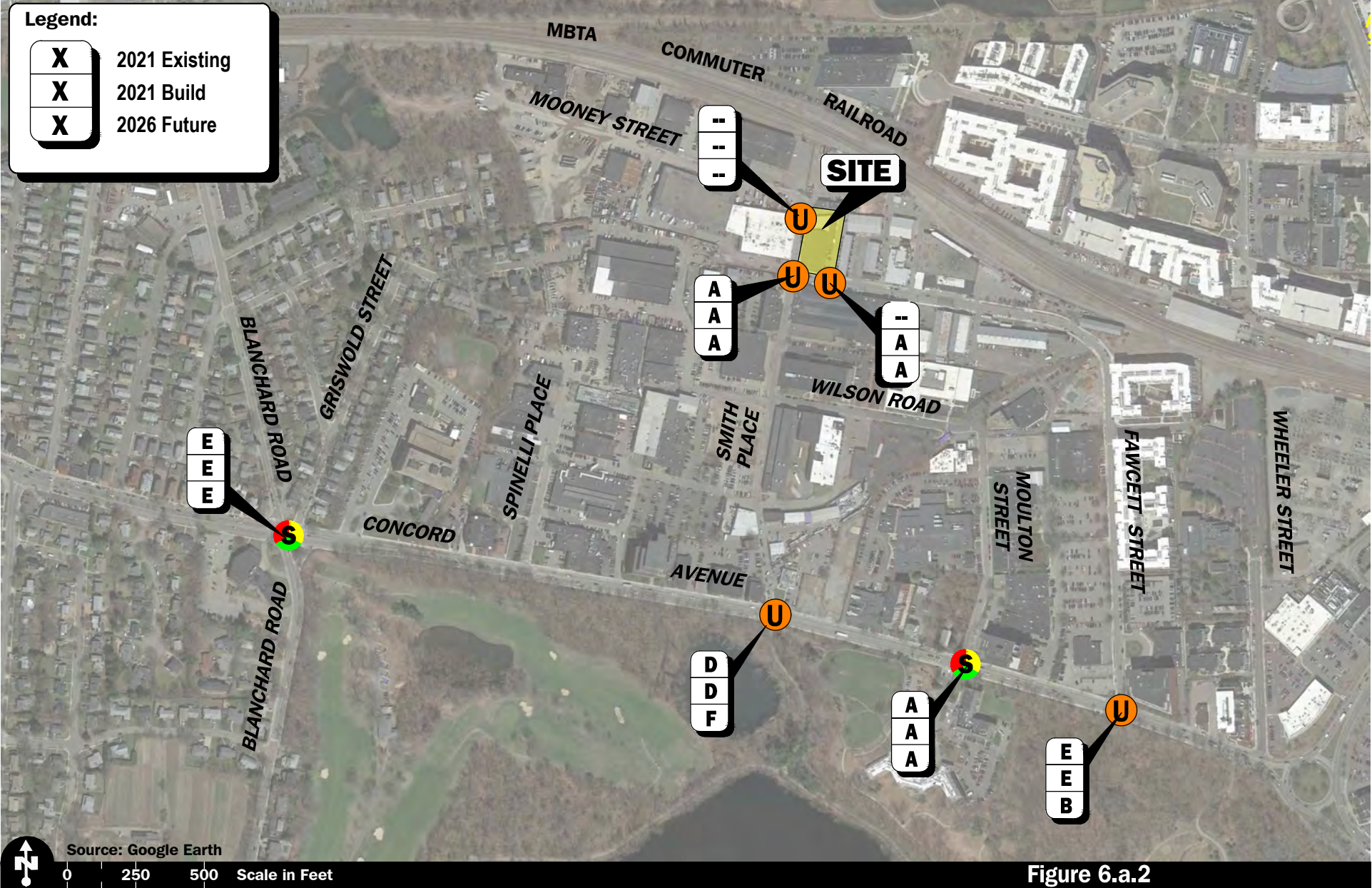





Figure 6.a.2

Vehicle Level-of-Service Map
 Weekday Evening
 Peak Hour Traffic Volumes



Legend:
 Added Delay from Modified Existing Condition

- Build  Future < 10 Seconds
- Build  Future 11 - 19 Seconds
- Build  Future > 20 Seconds

S = Signalized **U** = Signalized **R** = Rotary

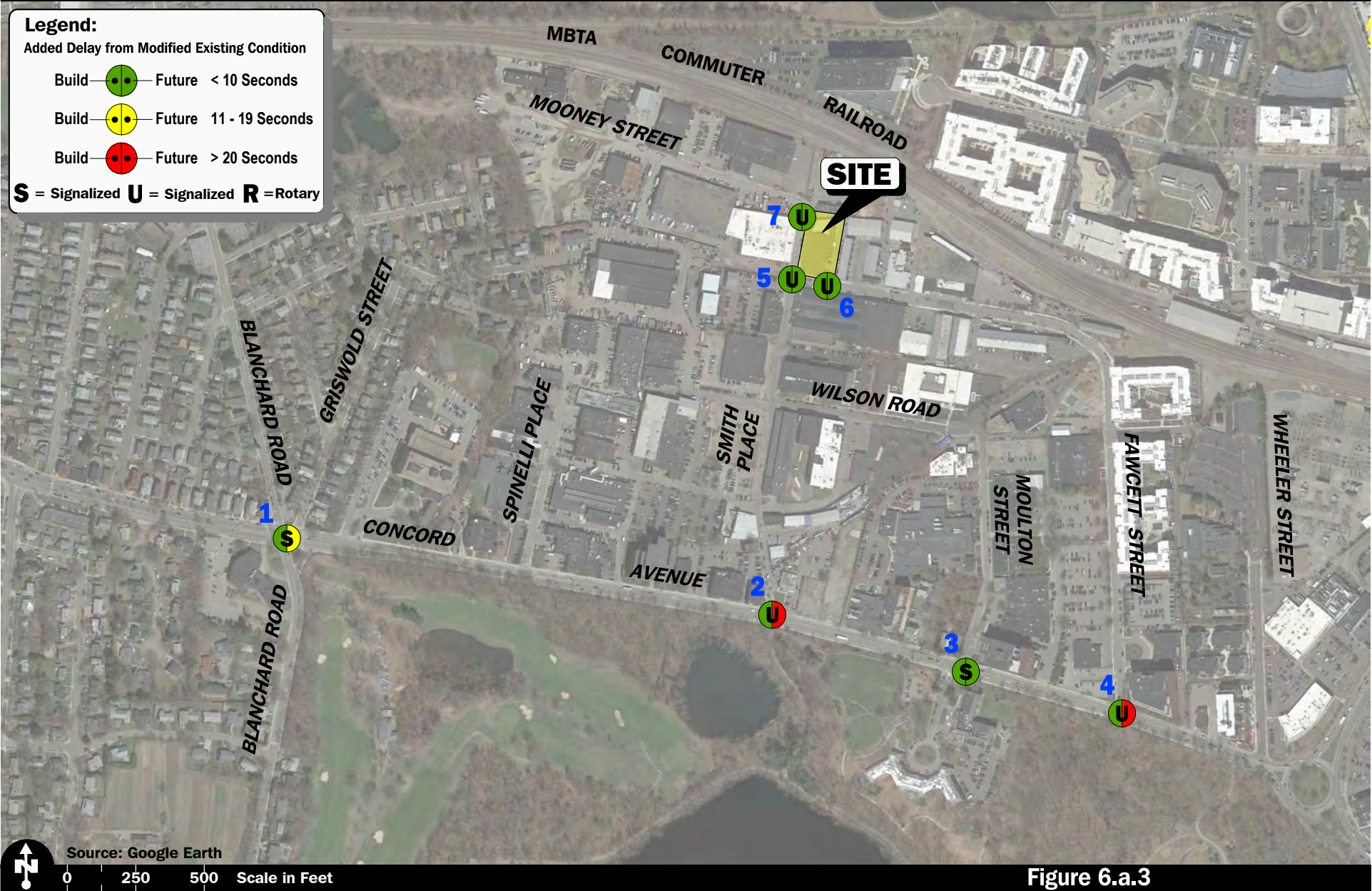





Figure 6.a.3
 Vehicle Delay Change Map
 Weekday Morning
 Peak Hour Traffic Volumes



Legend:
 Added Delay from Modified Existing Condition

- Build  Future < 10 Seconds
- Build  Future 11 - 19 Seconds
- Build  Future > 20 Seconds

S = Signalized **U** = Signalized **R** = Rotary

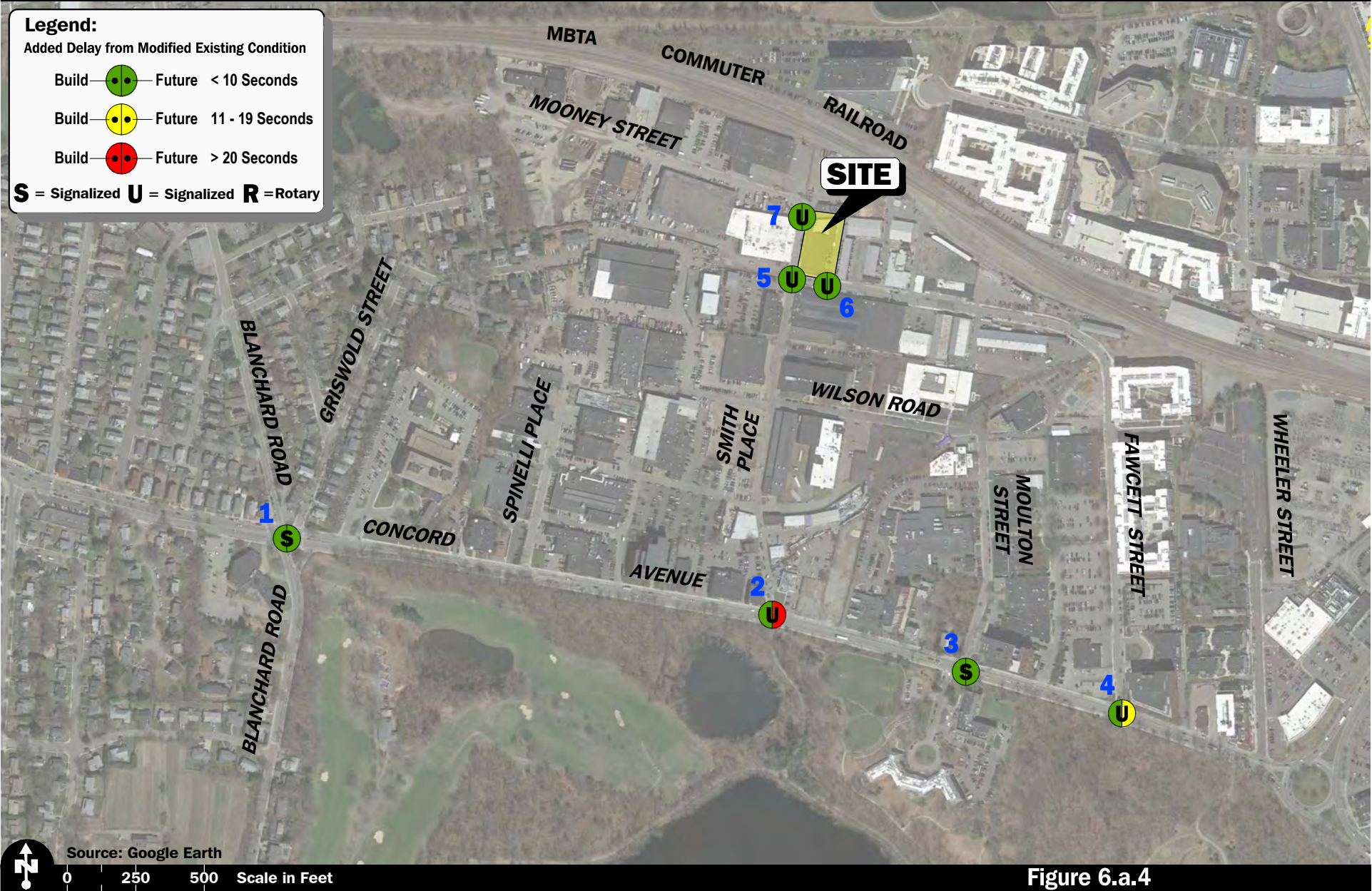


Figure 6.a.4

Vehicle Delay Change Map
 Weekday Evening
 Peak Hour Traffic Volumes

Bicycle Parking Criteria

Use/Category:

- Technical Offices, Research Facilities (Long-Term - N1)
- Laboratories and Research Facilities (Short-Term - N2)

Required Parking:

- Long-Term - N1: 0.22 Space per 1,000 SF
- Short-Term - N2: 0.06 Space per 1,000 SF

Calculation:

62,050 GFA *(0.22 Space / 1,000 SF) = 14 Spaces
 62,050 GFA *(0.06 Space / 1,000 SF) = 4 Spaces

Total Required Spaces: 18 Spaces

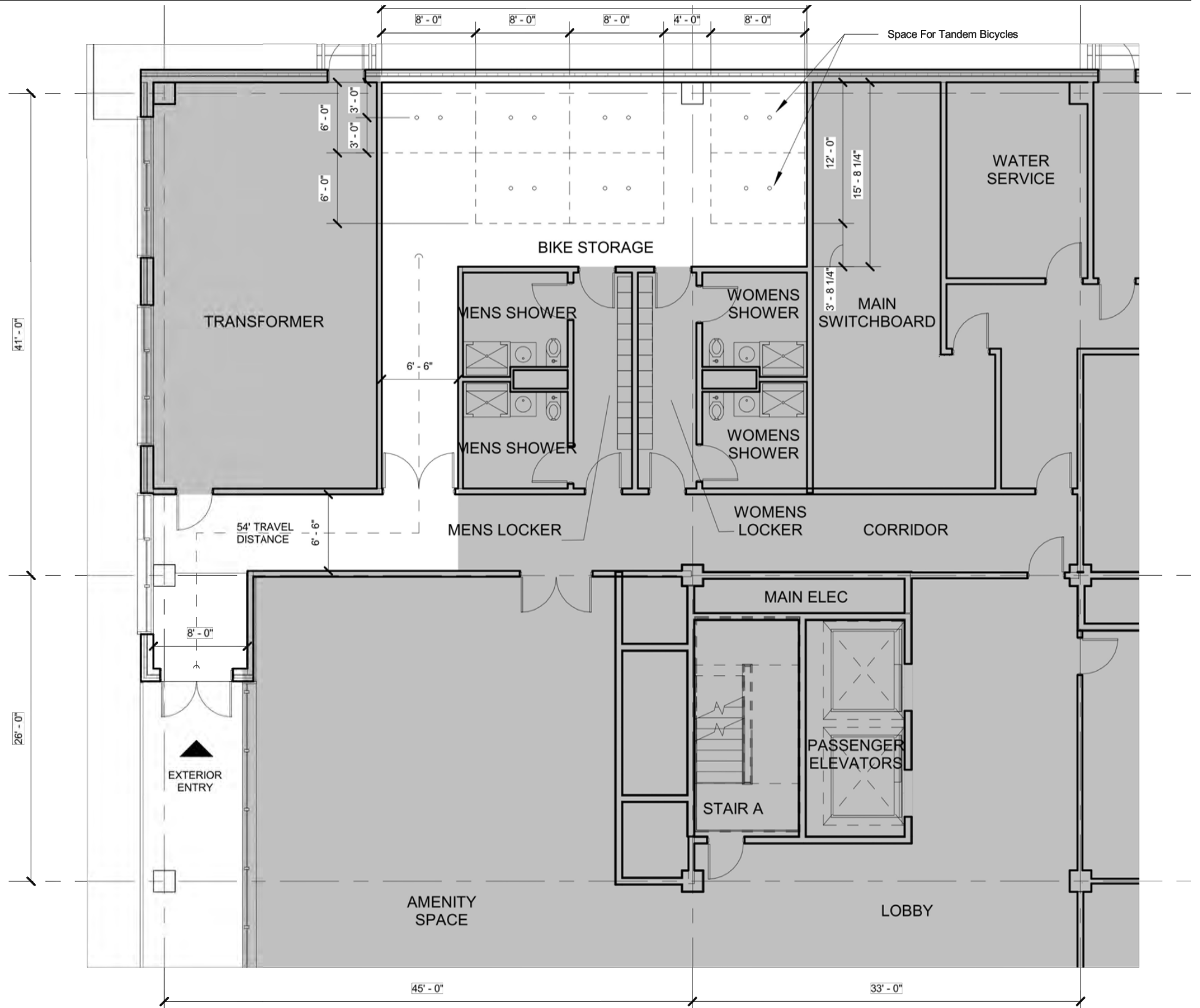
Total Long-Term Spaces Provided: 14 Spaces



Ultrasite Inverted U-Rack, Model # 5801DSM, Powdercoated Black

Note 1: The floor area of an underground parking garage and the floor area of the underground portion of a structure devoted in whole or in part to parking automobiles, shall not be counted as gross floor area and shall be exempt from the requirements as to floor area but shall conform to all other requirements of the district in which it is located.

Note 2: Long-term bicycle parking on a private lot shall be located within the building containing the use that it is intended to serve, or within a structure whose pedestrian entrance is no more than two hundred (200) feet from a pedestrian entrance to such a building.



Source: SGA Architecture Planning Interior Design
 0 5 10 Scale in Feet



Figure 9.d.1

Proposed Site Plan
 Long-Term Bicycle Parking

- CAPACITY** 2 Bikes
-
- MATERIALS** **Centerbeam:** 2" schedule 40 pipe (2.375" OD)
Ring: 1.5" OD 11 gauge tube
-
- FINISHES**
- Galvanized**
An after fabrication hot dipped galvanized finish is our standard option.
 - Powder Coat**
Our powder coat finish assures a high level of adhesion and durability by following these steps:
1. Sandblast
2. Epoxy primer electrostatically applied
3. Final thick TGIC polyester powder coat
 - PVC Dip**
Black PVC
 - Stainless**
Stainless Steel: 304 grade stainless steel material finished in either a high polished shine or a satin finish.
-
- MOUNT OPTIONS**
- Surface**
Foot Mount has a 5" x 6" x .25" foot with four anchors per foot. Specify foot mount for this option. Tamper-resistant fasteners available upon request
 - In-Ground**
In-ground mount is embedded into concrete base. Specify in-ground mount for this option

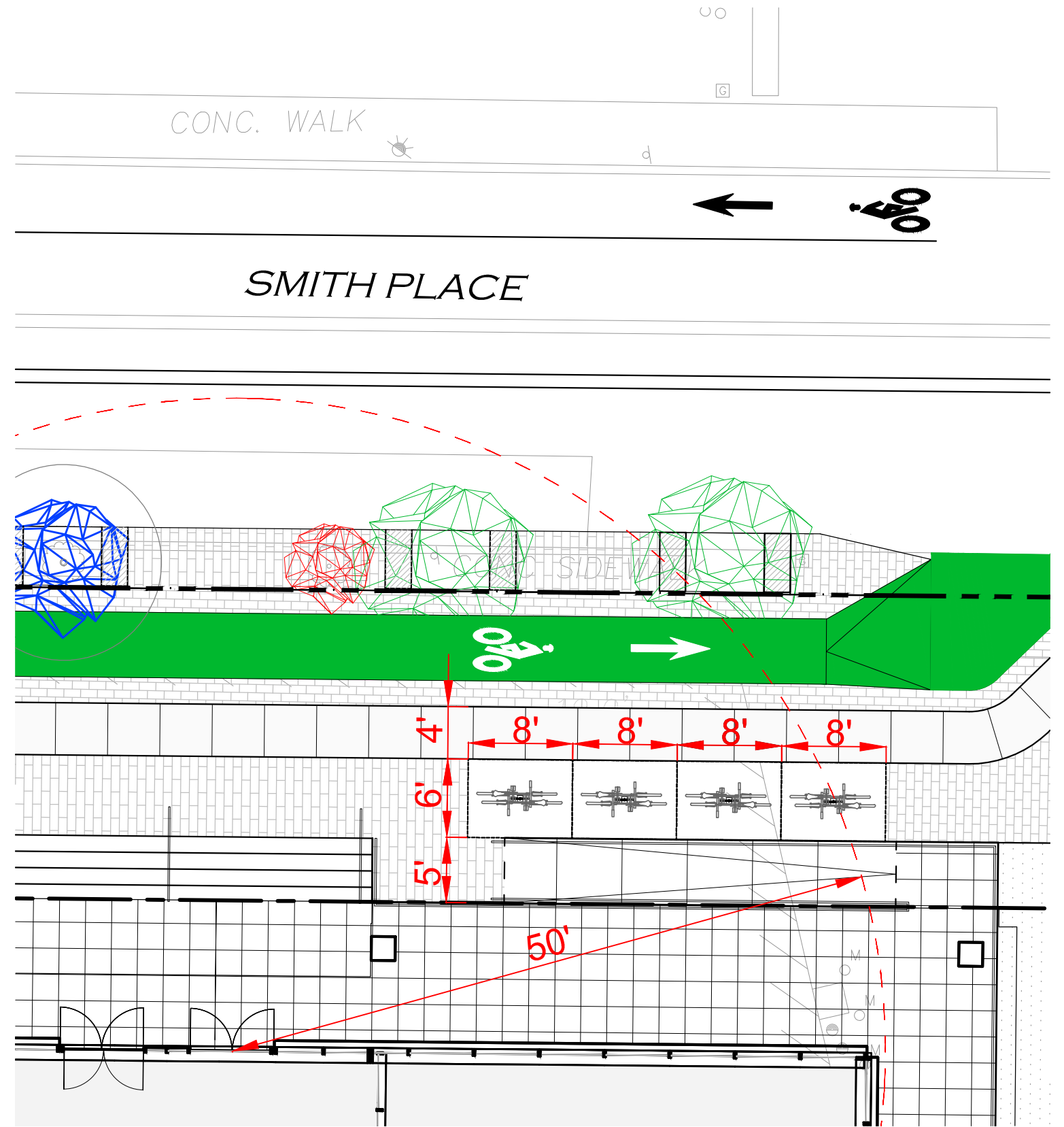
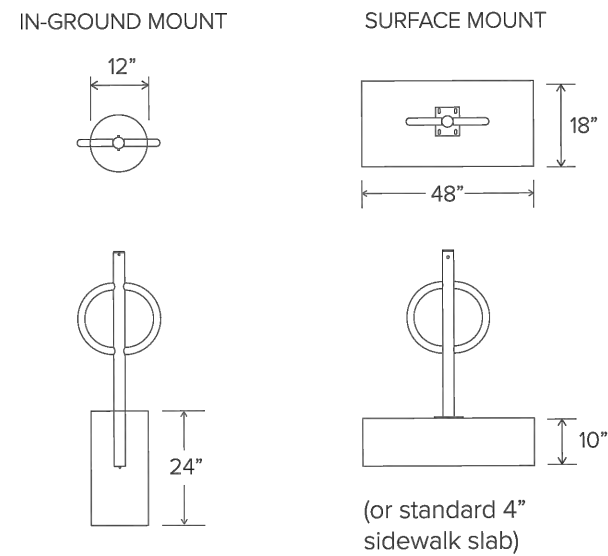
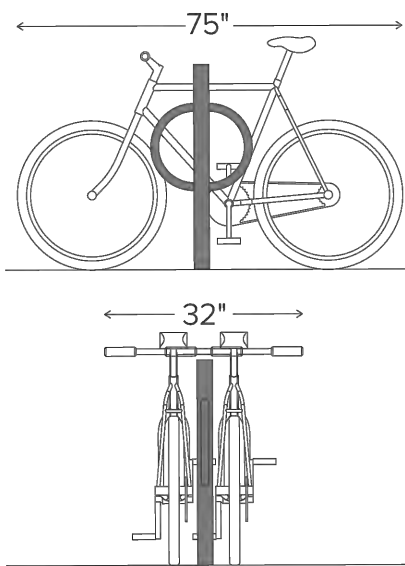
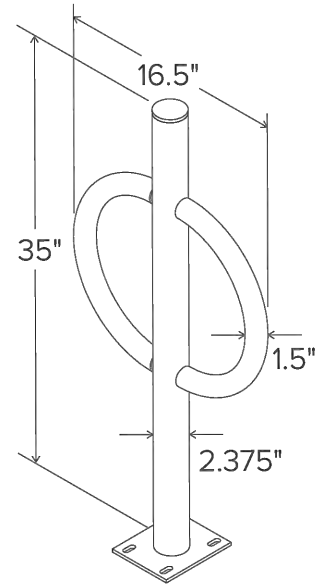


Figure 9.d.2
Proposed Site Plan
Short-Term Bicycle Parking

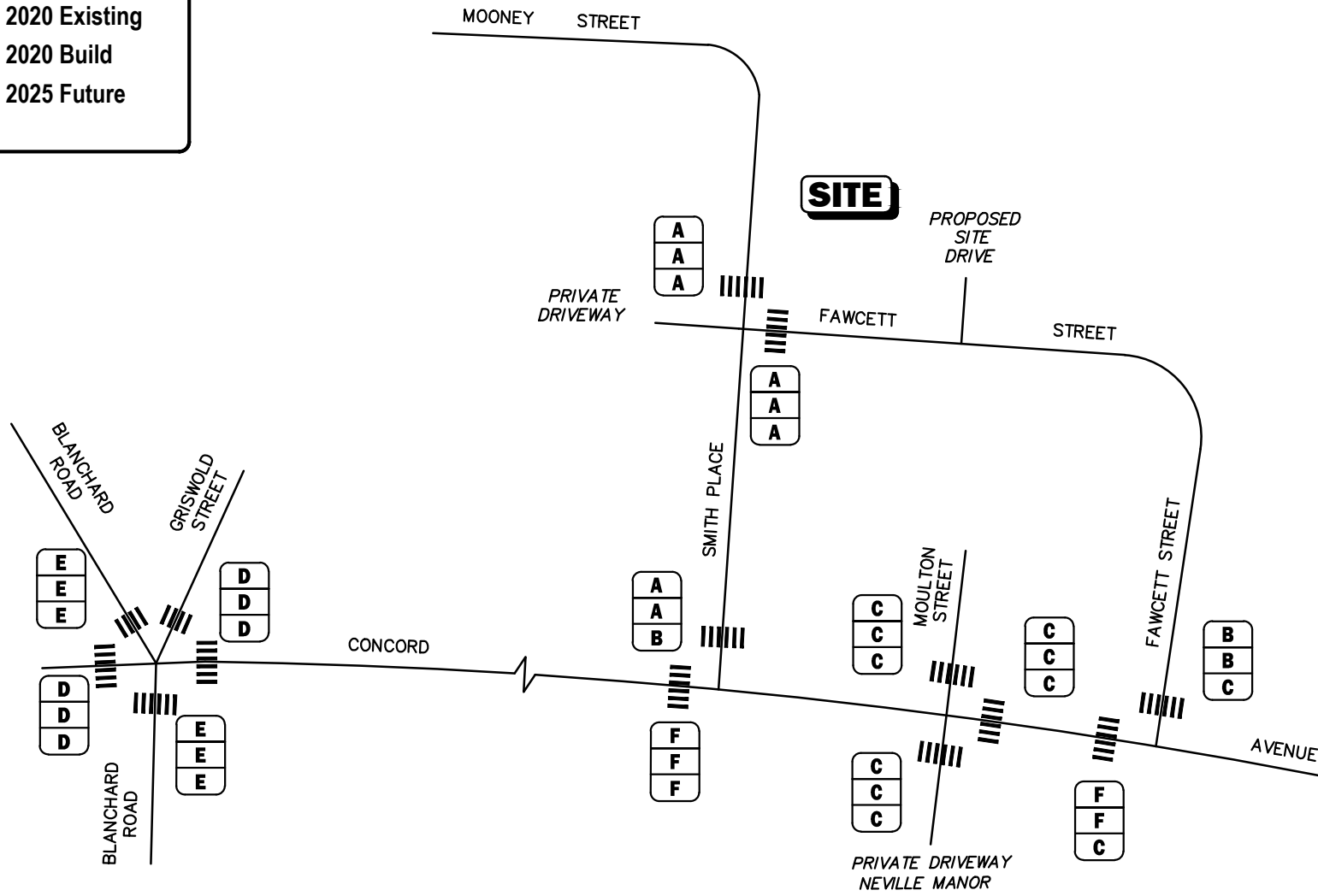
Source: SGA Architecture Planning Interior Design
Scale in Feet



R:\8779\9 - 8779 - Fig 9.c.1 - 9.c.2- Parking bike.dwg, 7/28/2021 4:48:54 PM

Legend:

X	2020 Existing
X	2020 Build
X	2025 Future



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.

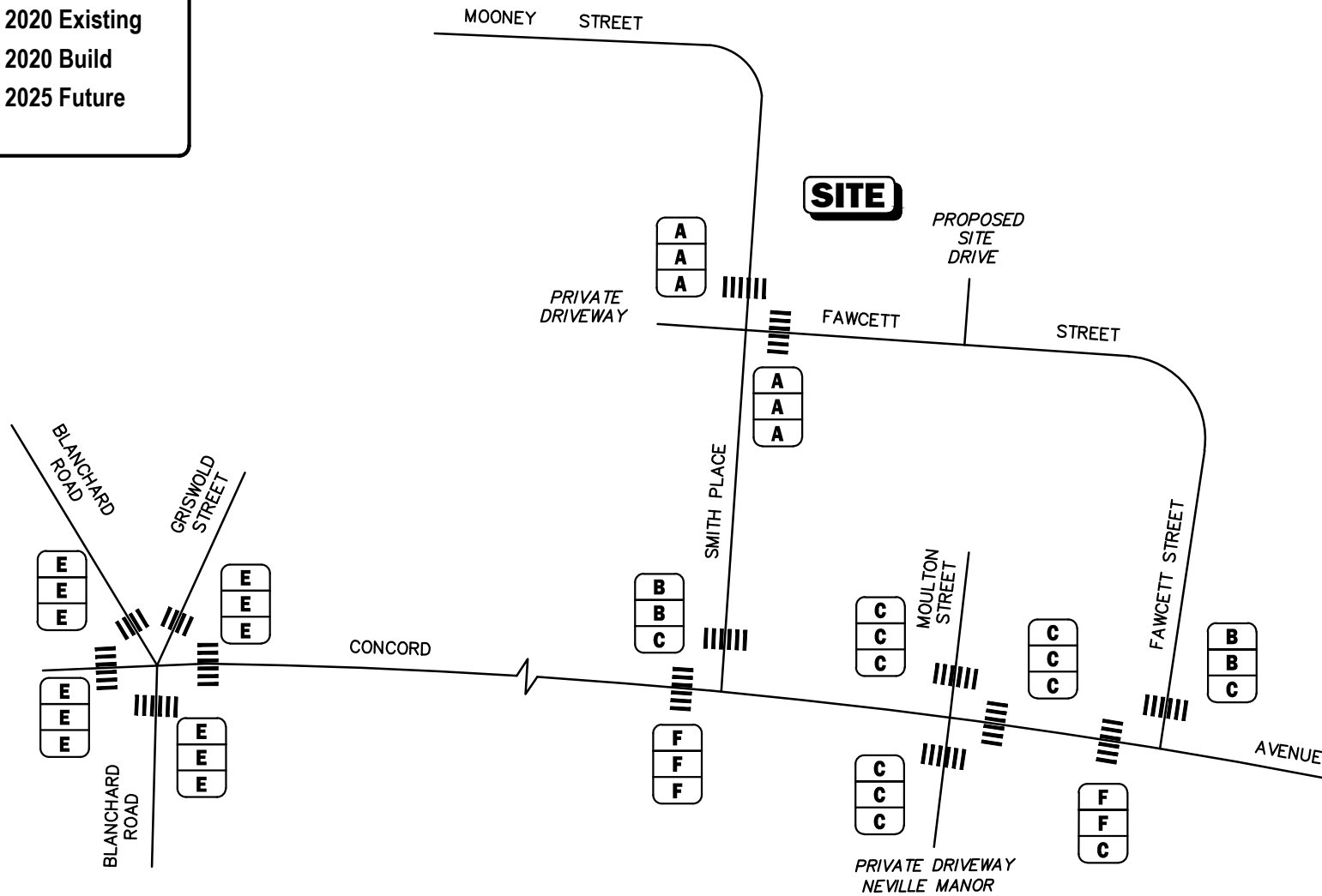


Figure 11.a.1

Pedestrian Level-of-Service Map
Weekday Morning
Peak Hour Traffic Volumes

Legend:

X	2020 Existing
X	2020 Build
X	2025 Future



Note: Imbalances exist due to numerous curb cuts and side streets that are not shown.



Figure 11.a.2

Pedestrian Level-of-Service Map
Weekday Evening
Peak Hour Traffic Volumes

Transportation Impact Study

Appendix

180 Fawcett Street
Cambridge, Massachusetts

Prepared for:

CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

 **Vanasse &
Associates inc**
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

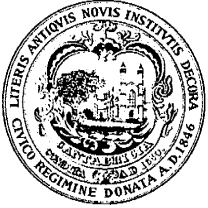
APPENDIX

CITY OF CAMBRIDGE SCOPING LETTER
TRAFFIC COUNT DATA
PUBLIC AND PRIVATE TRANSIT DATA
VEHICLE CRASH DATA
MODE SPLIT DATA
TRIP GENERATION DATA
TRIP DISTRIBUTION DATA
CAPACITY ANALYSIS METHODOLOGY
QUEUE ANALYSIS
TRAFFIC ANALYSIS
PEDESTRIAN ANALYSIS



CITY OF CAMBRIDGE SCOPING LETTER





CITY OF CAMBRIDGE

TRAFFIC, PARKING, + TRANSPORTATION

Joseph E. Barr, Director
344 Broadway, Suite 102
Cambridge, MA 02139

May 5, 2021

Jennifer Conners
Vanasse & Associates
35 New England Business Center Drive, Suite 140
Andover, MA 01810

Matt D'Amico
Cabot, Cabot & Forbes
185 Dartmouth Street
Boston, MA 02116

RE: 180 Fawcett Street Transportation Impact Study (TIS) Scope

Dear Jennifer and Matt,

TP+T reviewed the TIS scoping letter, dated March 18, 2021 for the proposed 101,330 gross square feet Research and Development building with approximately 62,050 gross floor area (GFA) at 180 Fawcett Street by Cabot, Cabot & Forbes. The project proposes 55 automobile parking spaces, 17 long-term bicycle parking spaces and 5 short-term bicycle parking spaces. Overall, TP+T generally supports the proposed scope and provide the following comments for the TIS:

General Comments

- The TIS should follow the TP+T TIS Guidelines and latest supplemental TIS Guidelines.
- The TIS should illustrate in plans and explain how the proposed project is consistent with the 2019 Envision Cambridge Alewife District Plan.
- The TIS may use Pre-COVID trip generation data collected in 2019.

Project Site Plans, Access, Loading, Roadway, and Sidewalk Circulation

- The TIS shall show the proposed vehicle, pedestrian and bicycle access locations for the building and explain the rationale for their locations.
- The TIS should show the access route from the public right-of-way to the long-term and short-term bicycle parking spaces and label all widths and any slopes.
- The TIS should provide sightline triangles for vehicles exiting the parking garage based on TP+T's sightline triangle guidelines.

- The TIS should label the proposed curb cut width and explain if it meets City zoning requirements or if not explain why.
- The TIS should show turning movements for trucks and delivery service vehicles entering and exiting the loading dock for a SU-40 and WB-50 design vehicles and explain the rationale for the location of the loading dock.
- The TIS should show on a site plan and explain how flammable gas will be delivered and stored. Also show truck turning movements.
- The TIS should show on a plan and explain the access route between the Project site and Alewife MBTA station and area bus/shuttle stops. The distances should be labeled (i.e., linear feet or miles) and the pedestrian and bicycle connections should be described, including any deficiencies.
- All site plans should clearly label roadway and sidewalk widths, existing and proposed street trees, landscaping, and any other sidewalk elements (i.e., utility poles, signs fire hydrants, etc.).
- The TIS must provide a site plan that clearly shows any existing trees to be removed.
- The TIS must show the short-term and long-term bicycle parking spaces at ~~4 inch~~ 1-inch equals 10 feet scale and label all dimensions.
- The TIS should provide plans and explain how the proposed site plan is consistent with the Envision Cambridge Alewife District Plan including the City's preferred street cross-section widths.
- Site plans shall show the curbs and sidewalks for both sides of Fawcett Street and Smith Place and clearly show the property line and label the building setback and depict the location of the underground parking garage.
- The TIS should explain and show the project construction phasing plan, including changes to the streets and sidewalks. The TIS should specifically indicate what infrastructure changes will be implemented by the Project and when.

Transportation Analysis

- The list of six proposed study area intersections in the TIS scope request letter is acceptable.
- TP+T will work with you to determine final trip generation rates for the project, based on empirical trip rates from other project in the area from PTDM monitoring reports (i.e., driveway counts and survey data on where employees park). ITE rates.
- The mode share assumptions shall be as follows and based on the 10 Wilson Road 2017 PTDM report, 767 Concord Avenue 2019 PTDM report, and 75 Moulton Street 2019 PTDM report.

SOV	HOV	Transit	Bicycle	Pedestrian	Other
54%	10%	16%	10%	4%	6%

- TP+T supports the scope request letter which proposed the conservative assumption to not take trip credits for the existing building because of the minimal observed vehicle trips at the site.

- The 5-year Build Condition shall include a new traffic signal at the Concord Avenue/Fawcett Street intersection that will be installed as mitigation for the 55 Wheeler Street project.
- The 2021 Baseline Condition may use 2019 traffic volumes with no growth rate added. Although the TIS scope request letter suggested a 0.5 percent per year growth rate from 2019 to 2021, TP+T believes that would be overly conservative because regional traffic volumes have not grown from 2019 to 2021 due to the Covid-19 pandemic. For the 2026 Build Condition, the TIS should include a 0.5 percent per year growth rate.
- As proposed in the TIS scope request letter the trip distribution should be based on the Alewife Critical Sums Assumption report for commercial use.
- As proposed in the TIS scope request letter, the TIS shall include the cumulative traffic impacts from other area development projects permitted or under construction for the Future Build Condition and analysis.
- The transportation queue analysis shall use Sim Traffic. Synchro may be used for intersection level of service and delay.
- Crash data shall be collected directly from the Cambridge Police Department for the three most recent years at study area intersections.

Parking

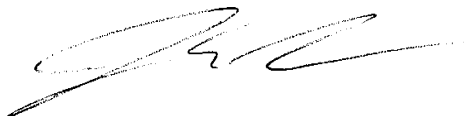
- The TIS should document the existing number of on-site parking spaces.
- The project proposes approximately 55 automobile parking spaces which triggers the City's PTDM ordinance because according to TP&T's records 180 Fawcett Street has 14 registered employee parking spaces. TP+T recommends that the Project contact the City's PTDM Planning Officer regarding obtaining an approved PTDM plan.
- The TIS should indicate the expected employee density (employees per 1,000 square feet). The TIS should cite the source for the estimated employee density and explain why this source is appropriate.
- The TIS should justify why the proposed parking ratios for the project will be appropriate and consistent with the Envision Cambridge Plan and Alewife Design Guidelines.
- The TIS should explain the proposed parking management plan for the site, including access management and parking fees.
- Consistent with Envision Cambridge, the actual automobile mode shares and parking ratios for this Project will likely need to be lower than the TIS mode shares, which are based on current area buildings. In order to prevent the Envision study area intersections from exceeding critical sum thresholds, this and any other development project in the Alewife Area will be expected to achieve the Envision Cambridge SOV mode share and parking ratio goals (approximately 40% SOV and 0.8 parking spaces per 1,000 square feet), based on the mitigation that is proposed.

Transportation Mitigation

- The TIS should list Planning Board exceedances and proposed mitigation. The TIS should discuss how the mitigation will or cannot mitigate the Planning Board Special Permit Transportation Exceedance.
- Transportation mitigation should be in-line with expectations set forth in the Envision Plan.
- The TIS should discuss how the proposed Project is consistent with the Envision Cambridge Plan and Alewife Design Guidelines.

If you have any questions, feel free to contact Adam Shulman of my staff at 617-349-4745.

Very truly yours,

A handwritten signature in black ink, appearing to read "J. Barr", with a long horizontal flourish extending to the right.

Joseph E. Barr, Director

cc: Adam Shulman, TP&T
Patrick Baxter, TP&T

TRAFFIC COUNT DATA

Automatic Traffic Recorder Data

Turning Movement Count Data

12-Hour Bicycle and Pedestrian Count Data

Vehicle Queue Count Data



Automatic Traffic Recorder Data



Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084VOL1

Start Time	4/2/2019 Tue	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		7	118			11	123				
12:15		7	127			11	104				
12:30		11	123			6	96				
12:45		4	138	29	506	6	101	34	424	63	930
01:00		3	91			5	86				
01:15		9	124			1	101				
01:30		3	107			4	108				
01:45		5	150	20	472	7	113	17	408	37	880
02:00		2	119			2	105				
02:15		7	148			4	102				
02:30		6	162			7	121				
02:45		5	148	20	577	1	119	14	447	34	1024
03:00		2	154			4	118				
03:15		1	134			1	106				
03:30		2	145			2	105				
03:45		1	109	6	542	4	106	11	435	17	977
04:00		2	131			4	91				
04:15		3	136			3	109				
04:30		4	148			10	128				
04:45		5	126	14	541	13	108	30	436	44	977
05:00		15	134			18	133				
05:15		13	120			17	87				
05:30		24	93			25	60				
05:45		28	105	80	452	48	90	108	370	188	822
06:00		42	124			48	128				
06:15		43	145			90	94				
06:30		48	131			103	100				
06:45		69	131	202	531	133	105	374	427	576	958
07:00		85	162			132	81				
07:15		94	125			135	76				
07:30		106	86			170	60				
07:45		111	101	396	474	207	69	644	286	1040	760
08:00		145	123			195	51				
08:15		162	74			207	66				
08:30		119	73			171	59				
08:45		104	77	530	347	139	55	712	231	1242	578
09:00		89	81			169	64				
09:15		110	54			137	40				
09:30		95	58			145	34				
09:45		114	59	408	252	104	34	555	172	963	424
10:00		93	51			110	43				
10:15		103	32			117	20				
10:30		97	43			103	18				
10:45		103	31	396	157	81	22	411	103	807	260
11:00		95	16			116	20				
11:15		120	9			103	17				
11:30		121	14			104	18				
11:45		105	12	441	51	127	12	450	67	891	118
Total		2542	4902			3360	3806			5902	8708
Percent		34.1%	65.9%			46.9%	53.1%			40.4%	59.6%

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084VOL1

Start Time	4/1/2019		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	29	34	41	35	*	*	*	*	*	*	*	*	35	34
01:00	*	*	20	17	21	18	*	*	*	*	*	*	*	*	20	18
02:00	*	*	20	14	10	12	*	*	*	*	*	*	*	*	15	13
03:00	*	*	6	11	6	7	*	*	*	*	*	*	*	*	6	9
04:00	*	*	14	30	22	33	*	*	*	*	*	*	*	*	18	32
05:00	*	*	80	108	66	125	*	*	*	*	*	*	*	*	73	116
06:00	*	*	202	374	192	322	*	*	*	*	*	*	*	*	197	348
07:00	*	*	396	644	386	600	*	*	*	*	*	*	*	*	391	622
08:00	*	*	530	712	540	750	*	*	*	*	*	*	*	*	535	731
09:00	*	*	408	555	427	573	*	*	*	*	*	*	*	*	418	564
10:00	*	*	396	411	372	418	*	*	*	*	*	*	*	*	384	414
11:00	*	*	441	450	402	453	*	*	*	*	*	*	*	*	422	452
12:00 PM	*	*	506	424	452	398	*	*	*	*	*	*	*	*	479	411
01:00	*	*	472	408	452	381	*	*	*	*	*	*	*	*	462	394
02:00	*	*	577	447	520	385	*	*	*	*	*	*	*	*	548	416
03:00	*	*	542	435	499	392	*	*	*	*	*	*	*	*	520	414
04:00	*	*	541	436	514	443	*	*	*	*	*	*	*	*	528	440
05:00	*	*	452	370	512	459	*	*	*	*	*	*	*	*	482	414
06:00	*	*	531	427	534	476	*	*	*	*	*	*	*	*	532	452
07:00	*	*	474	286	505	365	*	*	*	*	*	*	*	*	490	326
08:00	*	*	347	231	393	239	*	*	*	*	*	*	*	*	370	235
09:00	*	*	252	172	269	160	*	*	*	*	*	*	*	*	260	166
10:00	*	*	157	103	136	100	*	*	*	*	*	*	*	*	146	102
11:00	*	*	51	67	92	63	*	*	*	*	*	*	*	*	72	65
Lane	0	0	7444	7166	7363	7207	0	0	0	0	0	0	0	0	7403	7188
Day	0		14610		14570		0		0		0		0		14591	
AM Peak	-	-	08:00	08:00	08:00	08:00	-	-	-	-	-	-	-	-	08:00	08:00
Vol.	-	-	530	712	540	750	-	-	-	-	-	-	-	-	535	731
PM Peak	-	-	14:00	14:00	18:00	18:00	-	-	-	-	-	-	-	-	14:00	18:00
Vol.	-	-	577	447	534	476	-	-	-	-	-	-	-	-	548	452

Comb. Total	0	14610	14570	0	0	0	0	14591
ADT	ADT 14,590	AADT 14,590						

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

WB	Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
	04/02/19	2	0	0	7	3	7	8	1	1	0	0	0	0	0	29
	01:00	6	1	0	0	7	2	2	1	1	0	0	0	0	0	20
	02:00	4	2	0	1	2	7	2	2	0	0	0	0	0	0	20
	03:00	2	0	0	0	1	2	1	0	0	0	0	0	0	0	6
	04:00	4	0	0	1	2	2	1	2	2	0	0	0	0	0	14
	05:00	5	2	3	8	26	23	9	3	1	0	0	0	0	0	80
	06:00	29	5	16	39	58	40	13	2	0	0	0	0	0	0	202
	07:00	89	25	23	55	132	65	7	0	0	0	0	0	0	0	396
	08:00	103	25	35	135	174	50	6	1	0	0	0	0	0	1	530
	09:00	65	25	25	107	124	49	11	2	0	0	0	0	0	0	408
	10:00	74	27	26	83	135	49	2	0	0	0	0	0	0	0	396
	11:00	96	39	32	111	117	39	5	1	0	0	0	1	0	0	441
	12 PM	106	52	81	166	91	10	0	0	0	0	0	0	0	0	506
	13:00	81	45	55	128	135	25	3	0	0	0	0	0	0	0	472
	14:00	111	35	82	161	137	44	4	1	0	0	0	0	0	2	577
	15:00	113	62	67	107	130	57	3	1	0	0	2	0	0	0	542
	16:00	106	51	59	136	156	27	4	1	0	0	0	0	0	1	541
	17:00	113	56	43	99	104	33	3	1	0	0	0	0	0	0	452
	18:00	84	44	31	136	163	63	9	1	0	0	0	0	0	0	531
	19:00	50	30	35	136	144	71	5	2	1	0	0	0	0	0	474
	20:00	22	17	12	51	135	83	24	3	0	0	0	0	0	0	347
	21:00	29	22	3	22	93	59	21	2	1	0	0	0	0	0	252
	22:00	11	7	6	14	47	52	18	1	1	0	0	0	0	0	157
	23:00	5	3	3	2	12	10	10	6	0	0	0	0	0	0	51
	Total	1310	575	637	1705	2128	869	171	34	8	0	2	1	0	4	7444

Daily

15th Percentile : 12 MPH
50th Percentile : 28 MPH
85th Percentile : 34 MPH
95th Percentile : 39 MPH

Mean Speed(Average) : 26 MPH
10 MPH Pace Speed : 26-35 MPH
Number in Pace : 3833
Percent in Pace : 51.5%
Number of Vehicles > 35 MPH : 1089
Percent of Vehicles > 35 MPH : 14.6%

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	3	1	0	2	16	12	3	2	2	0	0	0	0	0	41
01:00	0	0	0	2	6	6	5	2	0	0	0	0	0	0	21
02:00	2	1	0	0	1	4	1	1	0	0	0	0	0	0	10
03:00	2	0	0	1	1	2	0	0	0	0	0	0	0	0	6
04:00	4	0	0	2	3	5	4	3	1	0	0	0	0	0	22
05:00	5	2	1	7	16	18	14	2	1	0	0	0	0	0	66
06:00	27	10	11	39	54	42	8	1	0	0	0	0	0	0	192
07:00	75	19	25	116	119	29	2	0	0	0	0	0	0	1	386
08:00	109	20	67	153	153	35	2	0	1	0	0	0	0	0	540
09:00	69	18	37	144	124	29	5	1	0	0	0	0	0	0	427
10:00	73	21	37	109	119	11	2	0	0	0	0	0	0	0	372
11:00	78	45	57	125	79	17	1	0	0	0	0	0	0	0	402
12 PM	104	41	97	136	64	10	0	0	0	0	0	0	0	0	452
13:00	83	45	60	122	110	26	6	0	0	0	0	0	0	0	452
14:00	94	47	64	148	135	27	4	1	0	0	0	0	0	0	520
15:00	79	58	86	154	95	23	4	0	0	0	0	0	0	0	499
16:00	102	48	43	111	144	60	4	2	0	0	0	0	0	0	514
17:00	90	43	32	127	148	58	13	0	0	1	0	0	0	0	512
18:00	100	60	64	127	116	56	9	0	2	0	0	0	0	0	534
19:00	53	29	24	125	163	91	18	1	0	0	0	1	0	0	505
20:00	39	13	12	60	157	86	22	3	0	1	0	0	0	0	393
21:00	19	13	7	39	96	76	17	2	0	0	0	0	0	0	269
22:00	11	7	5	14	52	33	10	3	0	1	0	0	0	0	136
23:00	5	0	2	5	29	34	11	4	2	0	0	0	0	0	92
Total	1226	541	731	1868	2000	790	165	28	9	3	0	1	0	1	7363

Daily
 15th Percentile : 13 MPH
 50th Percentile : 28 MPH
 85th Percentile : 34 MPH
 95th Percentile : 38 MPH

 Mean Speed(Average) : 26 MPH
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 3868
 Percent in Pace : 52.5%
 Number of Vehicles > 35 MPH : 997
 Percent of Vehicles > 35 MPH : 13.5%

Grand Total	2536	1116	1368	3573	4128	1659	336	62	17	3	2	2	0	5	14807
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Overall
 15th Percentile : 13 MPH
 50th Percentile : 28 MPH
 85th Percentile : 34 MPH
 95th Percentile : 39 MPH

 Mean Speed(Average) : 26 MPH
 10 MPH Pace Speed : 26-35 MPH
 Number in Pace : 7701
 Percent in Pace : 52.0%
 Number of Vehicles > 35 MPH : 2086
 Percent of Vehicles > 35 MPH : 14.1%

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	1	0	0	1	7	7	9	5	3	1	0	0	0	0	34
01:00	3	0	1	2	1	7	2	0	0	1	0	0	0	0	17
02:00	1	1	1	2	0	2	5	0	1	1	0	0	0	0	14
03:00	3	0	0	0	2	1	3	1	1	0	0	0	0	0	11
04:00	8	1	1	1	3	7	2	6	1	0	0	0	0	0	30
05:00	18	12	3	1	5	26	33	6	2	2	0	0	0	0	108
06:00	73	39	15	7	23	77	98	33	9	0	0	0	0	0	374
07:00	119	32	30	29	124	195	87	23	4	1	0	0	0	0	644
08:00	134	18	22	54	171	197	83	29	1	3	0	0	0	0	712
09:00	98	15	18	29	140	149	72	26	7	1	0	0	0	0	555
10:00	76	17	12	26	73	119	67	18	2	1	0	0	0	0	411
11:00	99	15	21	35	83	121	61	11	4	0	0	0	0	0	450
12 PM	122	22	11	32	80	102	46	9	0	0	0	0	0	0	424
13:00	93	19	27	31	74	93	56	8	6	1	0	0	0	0	408
14:00	88	12	16	42	85	115	72	14	2	1	0	0	0	0	447
15:00	102	17	11	31	101	105	52	14	2	0	0	0	0	0	435
16:00	86	24	8	34	111	117	43	9	4	0	0	0	0	0	436
17:00	119	19	7	23	66	83	39	12	2	0	0	0	0	0	370
18:00	86	9	15	34	59	121	80	18	4	1	0	0	0	0	427
19:00	40	7	4	19	71	80	44	17	3	1	0	0	0	0	286
20:00	22	8	6	18	46	70	42	15	4	0	0	0	0	0	231
21:00	10	2	4	18	37	49	35	13	1	3	0	0	0	0	172
22:00	1	0	3	7	25	34	22	9	2	0	0	0	0	0	103
23:00	3	1	2	7	10	14	13	11	5	0	1	0	0	0	67
Total	1405	290	238	483	1397	1891	1066	307	70	18	1	0	0	0	7166

Daily
 15th Percentile : 11 MPH
 50th Percentile : 34 MPH
 85th Percentile : 41 MPH
 95th Percentile : 45 MPH

 Mean Speed(Average) : 31 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 3288
 Percent in Pace : 45.9%
 Number of Vehicles > 35 MPH : 3353
 Percent of Vehicles > 35 MPH : 46.8%

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	1	0	0	1	11	7	10	3	1	0	1	0	0	0	35
01:00	5	0	1	1	3	1	3	2	1	1	0	0	0	0	18
02:00	0	1	0	0	0	5	4	2	0	0	0	0	0	0	12
03:00	2	0	0	0	1	2	2	0	0	0	0	0	0	0	7
04:00	8	3	1	2	2	4	5	6	2	0	0	0	0	0	33
05:00	15	12	5	6	14	30	26	14	2	1	0	0	0	0	125
06:00	58	24	12	12	52	88	57	11	7	1	0	0	0	0	322
07:00	99	32	20	44	159	163	62	19	1	0	0	0	1	0	600
08:00	126	20	24	74	245	197	54	8	2	0	0	0	0	0	750
09:00	97	26	24	80	185	121	37	3	0	0	0	0	0	0	573
10:00	76	21	18	30	118	120	33	1	1	0	0	0	0	0	418
11:00	111	16	34	40	121	102	23	6	0	0	0	0	0	0	453
12 PM	124	15	28	55	89	69	17	1	0	0	0	0	0	0	398
13:00	87	16	16	31	77	80	54	17	2	0	1	0	0	0	381
14:00	81	23	13	27	63	101	59	13	2	3	0	0	0	0	385
15:00	113	13	11	21	63	106	49	12	3	1	0	0	0	0	392
16:00	97	20	16	34	87	119	59	11	0	0	0	0	0	0	443
17:00	118	14	10	26	101	114	50	21	4	1	0	0	0	0	459
18:00	82	21	17	28	85	156	62	23	2	0	0	0	0	0	476
19:00	51	10	4	12	65	137	61	22	2	1	0	0	0	0	365
20:00	26	6	4	10	44	88	39	16	4	2	0	0	0	0	239
21:00	17	3	4	1	26	61	27	15	5	1	0	0	0	0	160
22:00	5	2	3	2	20	27	29	9	0	3	0	0	0	0	100
23:00	1	0	1	1	10	20	16	7	7	0	0	0	0	0	63
Total	1400	298	266	538	1641	1918	838	242	48	15	2	0	1	0	7207

Daily
 15th Percentile : 11 MPH
 50th Percentile : 33 MPH
 85th Percentile : 40 MPH
 95th Percentile : 44 MPH
 Mean Speed(Average) : 30 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 3559
 Percent in Pace : 49.4%
 Number of Vehicles > 35 MPH : 3064
 Percent of Vehicles > 35 MPH : 42.5%

Grand Total	2805	588	504	1021	3038	3809	1904	549	118	33	3	0	1	0	14373
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Overall
 15th Percentile : 11 MPH
 50th Percentile : 33 MPH
 85th Percentile : 41 MPH
 95th Percentile : 44 MPH
 Mean Speed(Average) : 30 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 6847
 Percent in Pace : 47.6%
 Number of Vehicles > 35 MPH : 6417
 Percent of Vehicles > 35 MPH : 44.6%

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	3	0	0	8	10	14	17	6	4	1	0	0	0	0	63
01:00	9	1	1	2	8	9	4	1	1	1	0	0	0	0	37
02:00	5	3	1	3	2	9	7	2	1	1	0	0	0	0	34
03:00	5	0	0	0	3	3	4	1	1	0	0	0	0	0	17
04:00	12	1	1	2	5	9	3	8	3	0	0	0	0	0	44
05:00	23	14	6	9	31	49	42	9	3	2	0	0	0	0	188
06:00	102	44	31	46	81	117	111	35	9	0	0	0	0	0	576
07:00	208	57	53	84	256	260	94	23	4	1	0	0	0	0	1040
08:00	237	43	57	189	345	247	89	30	1	3	0	0	0	1	1242
09:00	163	40	43	136	264	198	83	28	7	1	0	0	0	0	963
10:00	150	44	38	109	208	168	69	18	2	1	0	0	0	0	807
11:00	195	54	53	146	200	160	66	12	4	0	0	1	0	0	891
12 PM	228	74	92	198	171	112	46	9	0	0	0	0	0	0	930
13:00	174	64	82	159	209	118	59	8	6	1	0	0	0	0	880
14:00	199	47	98	203	222	159	76	15	2	1	0	0	0	2	1024
15:00	215	79	78	138	231	162	55	15	2	0	2	0	0	0	977
16:00	192	75	67	170	267	144	47	10	4	0	0	0	0	1	977
17:00	232	75	50	122	170	116	42	13	2	0	0	0	0	0	822
18:00	170	53	46	170	222	184	89	19	4	1	0	0	0	0	958
19:00	90	37	39	155	215	151	49	19	4	1	0	0	0	0	760
20:00	44	25	18	69	181	153	66	18	4	0	0	0	0	0	578
21:00	39	24	7	40	130	108	56	15	2	3	0	0	0	0	424
22:00	12	7	9	21	72	86	40	10	3	0	0	0	0	0	260
23:00	8	4	5	9	22	24	23	17	5	0	1	0	0	0	118
Total	2715	865	875	2188	3525	2760	1237	341	78	18	3	1	0	4	14610

Daily

- 15th Percentile : 12 MPH
- 50th Percentile : 30 MPH
- 85th Percentile : 39 MPH
- 95th Percentile : 43 MPH

Mean Speed(Average) : 28 MPH

10 MPH Pace Speed : 31-40 MPH

- Number in Pace : 6285
- Percent in Pace : 43.0%
- Number of Vehicles > 35 MPH : 4442
- Percent of Vehicles > 35 MPH : 30.4%

Accurate Counts
978-664-2565

Location : Concord Avenue
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD1

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	4	1	0	3	27	19	13	5	3	0	1	0	0	0	76
01:00	5	0	1	3	9	7	8	4	1	1	0	0	0	0	39
02:00	2	2	0	0	1	9	5	3	0	0	0	0	0	0	22
03:00	4	0	0	1	2	4	2	0	0	0	0	0	0	0	13
04:00	12	3	1	4	5	9	9	9	3	0	0	0	0	0	55
05:00	20	14	6	13	30	48	40	16	3	1	0	0	0	0	191
06:00	85	34	23	51	106	130	65	12	7	1	0	0	0	0	514
07:00	174	51	45	160	278	192	64	19	1	0	0	0	1	1	986
08:00	235	40	91	227	398	232	56	8	3	0	0	0	0	0	1290
09:00	166	44	61	224	309	150	42	4	0	0	0	0	0	0	1000
10:00	149	42	55	139	237	131	35	1	1	0	0	0	0	0	790
11:00	189	61	91	165	200	119	24	6	0	0	0	0	0	0	855
12 PM	228	56	125	191	153	79	17	1	0	0	0	0	0	0	850
13:00	170	61	76	153	187	106	60	17	2	0	1	0	0	0	833
14:00	175	70	77	175	198	128	63	14	2	3	0	0	0	0	905
15:00	192	71	97	175	158	129	53	12	3	1	0	0	0	0	891
16:00	199	68	59	145	231	179	63	13	0	0	0	0	0	0	957
17:00	208	57	42	153	249	172	63	21	4	2	0	0	0	0	971
18:00	182	81	81	155	201	212	71	23	4	0	0	0	0	0	1010
19:00	104	39	28	137	228	228	79	23	2	1	0	1	0	0	870
20:00	65	19	16	70	201	174	61	19	4	3	0	0	0	0	632
21:00	36	16	11	40	122	137	44	17	5	1	0	0	0	0	429
22:00	16	9	8	16	72	60	39	12	0	4	0	0	0	0	236
23:00	6	0	3	6	39	54	27	11	9	0	0	0	0	0	155
Total	2626	839	997	2406	3641	2708	1003	270	57	18	2	1	1	1	14570

Daily
 15th Percentile : 12 MPH
 50th Percentile : 30 MPH
 85th Percentile : 38 MPH
 95th Percentile : 43 MPH
 Mean Speed(Average) : 28 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 6349
 Percent in Pace : 43.6%
 Number of Vehicles > 35 MPH : 4061
 Percent of Vehicles > 35 MPH : 27.9%

Grand Total	5341	1704	1872	4594	7166	5468	2240	611	135	36	5	2	1	5	29180
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Overall
 15th Percentile : 12 MPH
 50th Percentile : 30 MPH
 85th Percentile : 38 MPH
 95th Percentile : 43 MPH
 Mean Speed(Average) : 28 MPH
 10 MPH Pace Speed : 31-40 MPH
 Number in Pace : 12634
 Percent in Pace : 43.3%
 Number of Vehicles > 35 MPH : 8503
 Percent of Vehicles > 35 MPH : 29.1%

Accurate Counts
978-664-2565

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084VOL2

Start Time	4/2/2019 Tue	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	31			0	23				
12:15		0	27			0	30				
12:30		1	31			0	20				
12:45		0	29	1	118	0	15	0	88	1	206
01:00		2	24			0	22				
01:15		1	22			3	23				
01:30		1	25			0	35				
01:45		1	26	5	97	1	27	4	107	9	204
02:00		1	19			0	25				
02:15		1	15			0	29				
02:30		1	15			2	25				
02:45		0	33	3	82	2	17	4	96	7	178
03:00		0	18			2	37				
03:15		1	21			1	25				
03:30		0	20			1	33				
03:45		1	18	2	77	0	31	4	126	6	203
04:00		1	17			0	45				
04:15		1	22			2	27				
04:30		1	22			0	46				
04:45		5	21	8	82	1	32	3	150	11	232
05:00		4	17			1	29				
05:15		5	22			3	27				
05:30		8	17			4	34				
05:45		19	19	36	75	2	25	10	115	46	190
06:00		10	10			3	26				
06:15		30	18			6	11				
06:30		33	17			3	24				
06:45		40	25	113	70	0	21	12	82	125	152
07:00		32	16			10	24				
07:15		26	9			11	14				
07:30		25	7			10	8				
07:45		28	11	111	43	8	17	39	63	150	106
08:00		21	7			4	16				
08:15		22	2			11	11				
08:30		14	5			15	13				
08:45		23	12	80	26	10	6	40	46	120	72
09:00		18	7			14	24				
09:15		19	4			15	10				
09:30		21	6			13	10				
09:45		15	3	73	20	27	10	69	54	142	74
10:00		20	1			14	4				
10:15		24	3			20	6				
10:30		29	5			22	6				
10:45		23	3	96	12	31	6	87	22	183	34
11:00		18	3			34	8				
11:15		29	1			23	0				
11:30		15	0			27	1				
11:45		32	0	94	4	23	0	107	9	201	13
Total		622	706			379	958			1001	1664
Percent		46.8%	53.2%			28.3%	71.7%			37.6%	62.4%

Accurate Counts
978-664-2565

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084VOL2

Start Time	4/3/2019 Wed	NB		Hour Totals		SB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	22			0	18				
12:15		0	26			0	20				
12:30		0	14			0	19				
12:45		2	32	2	94	0	17	0	74	2	168
01:00		1	23			1	18				
01:15		1	30			0	21				
01:30		0	23			0	26				
01:45		3	13	5	89	0	26	1	91	6	180
02:00		1	23			1	23				
02:15		0	24			0	25				
02:30		0	12			1	34				
02:45		0	32	1	91	1	31	3	113	4	204
03:00		0	19			2	27				
03:15		0	29			0	29				
03:30		0	29			0	27				
03:45		0	30	0	107	1	25	3	108	3	215
04:00		4	17			0	32				
04:15		1	14			1	29				
04:30		1	25			1	41				
04:45		5	15	11	71	1	22	3	124	14	195
05:00		5	22			2	15				
05:15		4	21			3	23				
05:30		9	19			3	29				
05:45		3	15	21	77	2	12	10	79	31	156
06:00		6	10			1	24				
06:15		19	15			1	13				
06:30		26	13			3	9				
06:45		42	22	93	60	4	16	9	62	102	122
07:00		36	12			7	17				
07:15		20	13			10	5				
07:30		21	10			10	15				
07:45		32	14	109	49	4	7	31	44	140	93
08:00		23	9			8	15				
08:15		23	5			15	3				
08:30		11	5			10	14				
08:45		22	4	79	23	12	13	45	45	124	68
09:00		17	5			11	7				
09:15		28	2			10	11				
09:30		13	1			21	11				
09:45		16	3	74	11	9	6	51	35	125	46
10:00		10	1			19	0				
10:15		20	0			12	4				
10:30		18	0			12	4				
10:45		25	1	73	2	21	4	64	12	137	14
11:00		18	2			16	2				
11:15		23	0			12	1				
11:30		21	0			23	0				
11:45		20	2	82	4	24	1	75	4	157	8
Total		550	678			295	791			845	1469
Percent		44.8%	55.2%			27.2%	72.8%			36.5%	63.5%
Grand Total		1172	1384			674	1749			1846	3133
Percent		45.9%	54.1%			27.8%	72.2%			37.1%	62.9%

ADT ADT 14,590 AADT 14,590

Accurate Counts
978-664-2565

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084VOL2

Start Time	4/1/2019		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	1	0	2	0	*	*	*	*	*	*	*	*	2	0
01:00	*	*	5	4	5	1	*	*	*	*	*	*	*	*	5	2
02:00	*	*	3	4	1	3	*	*	*	*	*	*	*	*	2	4
03:00	*	*	2	4	0	3	*	*	*	*	*	*	*	*	1	4
04:00	*	*	8	3	11	3	*	*	*	*	*	*	*	*	10	3
05:00	*	*	36	10	21	10	*	*	*	*	*	*	*	*	28	10
06:00	*	*	113	12	93	9	*	*	*	*	*	*	*	*	103	10
07:00	*	*	111	39	109	31	*	*	*	*	*	*	*	*	110	35
08:00	*	*	80	40	79	45	*	*	*	*	*	*	*	*	80	42
09:00	*	*	73	69	74	51	*	*	*	*	*	*	*	*	74	60
10:00	*	*	96	87	73	64	*	*	*	*	*	*	*	*	84	76
11:00	*	*	94	107	82	75	*	*	*	*	*	*	*	*	88	91
12:00 PM	*	*	118	88	94	74	*	*	*	*	*	*	*	*	106	81
01:00	*	*	97	107	89	91	*	*	*	*	*	*	*	*	93	99
02:00	*	*	82	96	91	113	*	*	*	*	*	*	*	*	86	104
03:00	*	*	77	126	107	108	*	*	*	*	*	*	*	*	92	117
04:00	*	*	82	150	71	124	*	*	*	*	*	*	*	*	76	137
05:00	*	*	75	115	77	79	*	*	*	*	*	*	*	*	76	97
06:00	*	*	70	82	60	62	*	*	*	*	*	*	*	*	65	72
07:00	*	*	43	63	49	44	*	*	*	*	*	*	*	*	46	54
08:00	*	*	26	46	23	45	*	*	*	*	*	*	*	*	24	46
09:00	*	*	20	54	11	35	*	*	*	*	*	*	*	*	16	44
10:00	*	*	12	22	2	12	*	*	*	*	*	*	*	*	7	17
11:00	*	*	4	9	4	4	*	*	*	*	*	*	*	*	4	6
Lane	0	0	1328	1337	1228	1086	0	0	0	0	0	0	0	0	1278	1211
Day	0	-	2665	-	2314	-	0	-	0	-	0	-	0	-	2489	-
AM Peak	-	-	06:00	11:00	07:00	11:00	-	-	-	-	-	-	-	-	07:00	11:00
Vol.	-	-	113	107	109	75	-	-	-	-	-	-	-	-	110	91
PM Peak	-	-	12:00	16:00	15:00	16:00	-	-	-	-	-	-	-	-	12:00	16:00
Vol.	-	-	118	150	107	124	-	-	-	-	-	-	-	-	106	137

Comb. Total 0 2665 2314 0 0 0 0 2489

ADT ADT 14,590 AADT 14,590

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084SPD2

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	1	0	3	1	0	0	0	0	0	0	0	0	0	0	5
02:00	0	0	0	1	1	0	1	0	0	0	0	0	0	0	3
03:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	0	2	2	3	1	0	0	0	0	0	0	0	0	0	8
05:00	6	2	10	13	5	0	0	0	0	0	0	0	0	0	36
06:00	2	2	56	50	3	0	0	0	0	0	0	0	0	0	113
07:00	1	11	50	45	3	0	1	0	0	0	0	0	0	0	111
08:00	1	16	26	29	6	1	0	0	1	0	0	0	0	0	80
09:00	1	19	28	17	8	0	0	0	0	0	0	0	0	0	73
10:00	8	34	34	13	6	1	0	0	0	0	0	0	0	0	96
11:00	18	35	30	9	1	0	1	0	0	0	0	0	0	0	94
12 PM	19	34	46	15	4	0	0	0	0	0	0	0	0	0	118
13:00	23	31	26	16	1	0	0	0	0	0	0	0	0	0	97
14:00	7	22	41	10	2	0	0	0	0	0	0	0	0	0	82
15:00	12	30	25	10	0	0	0	0	0	0	0	0	0	0	77
16:00	9	35	29	9	0	0	0	0	0	0	0	0	0	0	82
17:00	2	20	31	18	3	0	1	0	0	0	0	0	0	0	75
18:00	0	13	32	23	2	0	0	0	0	0	0	0	0	0	70
19:00	0	9	23	9	1	1	0	0	0	0	0	0	0	0	43
20:00	0	6	14	4	2	0	0	0	0	0	0	0	0	0	26
21:00	2	4	8	5	1	0	0	0	0	0	0	0	0	0	20
22:00	1	5	1	4	1	0	0	0	0	0	0	0	0	0	12
23:00	0	0	0	4	0	0	0	0	0	0	0	0	0	0	4
Total	113	332	516	308	51	3	4	0	1	0	0	0	0	0	1328

Daily
 15th Percentile : 16 MPH
 50th Percentile : 22 MPH
 85th Percentile : 27 MPH
 95th Percentile : 29 MPH
 Mean Speed(Average) : 22 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 848
 Percent in Pace : 63.9%
 Number of Vehicles > 20 MPH : 883
 Percent of Vehicles > 20 MPH : 66.5%

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084SPD2

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
01:00	1	0	3	1	0	0	0	0	0	0	0	0	0	0	5
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	4	3	3	0	0	0	0	0	0	0	0	0	0	11
05:00	0	9	8	3	0	0	0	0	0	1	0	0	0	0	21
06:00	3	25	43	19	3	0	0	0	0	0	0	0	0	0	93
07:00	3	18	50	36	2	0	0	0	0	0	0	0	0	0	109
08:00	1	17	30	25	5	0	0	0	1	0	0	0	0	0	79
09:00	0	23	38	10	2	1	0	0	0	0	0	0	0	0	74
10:00	2	23	36	11	0	1	0	0	0	0	0	0	0	0	73
11:00	12	25	31	13	1	0	0	0	0	0	0	0	0	0	82
12 PM	29	35	22	8	0	0	0	0	0	0	0	0	0	0	94
13:00	11	27	30	17	3	1	0	0	0	0	0	0	0	0	89
14:00	6	23	43	19	0	0	0	0	0	0	0	0	0	0	91
15:00	9	29	48	16	5	0	0	0	0	0	0	0	0	0	107
16:00	4	16	32	17	2	0	0	0	0	0	0	0	0	0	71
17:00	2	14	32	24	4	1	0	0	0	0	0	0	0	0	77
18:00	1	5	26	24	4	0	0	0	0	0	0	0	0	0	60
19:00	0	6	25	16	2	0	0	0	0	0	0	0	0	0	49
20:00	0	2	13	7	0	1	0	0	0	0	0	0	0	0	23
21:00	0	3	5	3	0	0	0	0	0	0	0	0	0	0	11
22:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
23:00	0	0	1	2	1	0	0	0	0	0	0	0	0	0	4
Total	85	305	521	276	34	5	0	0	1	1	0	0	0	0	1228

Daily

15th Percentile : 16 MPH
50th Percentile : 22 MPH
85th Percentile : 27 MPH
95th Percentile : 29 MPH

Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 826
Percent in Pace : 67.3%
Number of Vehicles > 20 MPH : 838
Percent of Vehicles > 20 MPH : 68.2%

Grand Total	198	637	1037	584	85	8	4	0	2	1	0	0	0	0	2556
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Overall

15th Percentile : 16 MPH
50th Percentile : 22 MPH
85th Percentile : 27 MPH
95th Percentile : 29 MPH

Mean Speed(Average) : 22 MPH
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 1674
Percent in Pace : 65.5%
Number of Vehicles > 20 MPH : 1721
Percent of Vehicles > 20 MPH : 67.3%

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084SPD2

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	1	0	2	1	0	0	0	0	0	0	0	0	0	0	4
02:00	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4
03:00	2	1	1	0	0	0	0	0	0	0	0	0	0	0	4
04:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
05:00	2	3	4	1	0	0	0	0	0	0	0	0	0	0	10
06:00	2	4	5	1	0	0	0	0	0	0	0	0	0	0	12
07:00	4	19	9	7	0	0	0	0	0	0	0	0	0	0	39
08:00	6	15	15	3	1	0	0	0	0	0	0	0	0	0	40
09:00	10	34	18	5	2	0	0	0	0	0	0	0	0	0	69
10:00	19	48	14	6	0	0	0	0	0	0	0	0	0	0	87
11:00	29	50	24	4	0	0	0	0	0	0	0	0	0	0	107
12 PM	33	38	14	3	0	0	0	0	0	0	0	0	0	0	88
13:00	31	50	21	5	0	0	0	0	0	0	0	0	0	0	107
14:00	29	36	25	5	1	0	0	0	0	0	0	0	0	0	96
15:00	30	58	33	4	0	0	1	0	0	0	0	0	0	0	126
16:00	43	56	46	4	1	0	0	0	0	0	0	0	0	0	150
17:00	16	57	39	1	1	0	1	0	0	0	0	0	0	0	115
18:00	8	36	27	11	0	0	0	0	0	0	0	0	0	0	82
19:00	4	28	27	3	1	0	0	0	0	0	0	0	0	0	63
20:00	4	12	24	6	0	0	0	0	0	0	0	0	0	0	46
21:00	2	24	25	3	0	0	0	0	0	0	0	0	0	0	54
22:00	2	7	11	1	0	1	0	0	0	0	0	0	0	0	22
23:00	0	2	5	2	0	0	0	0	0	0	0	0	0	0	9
Total	277	583	390	77	7	1	2	0	0	0	0	0	0	0	1337

Daily

15th Percentile : 10 MPH
50th Percentile : 18 MPH
85th Percentile : 23 MPH
95th Percentile : 26 MPH

Mean Speed(Average) : 18 MPH
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 973
Percent in Pace : 72.8%
Number of Vehicles > 20 MPH : 477
Percent of Vehicles > 20 MPH : 35.7%

Location : Smith Place
Location : North of Concord Avenue
City/State: Cambridge, MA

8084SPD2

SB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3
03:00	2	0	1	0	0	0	0	0	0	0	0	0	0	0	3
04:00	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3
05:00	6	4	0	0	0	0	0	0	0	0	0	0	0	0	10
06:00	3	2	4	0	0	0	0	0	0	0	0	0	0	0	9
07:00	4	16	7	3	0	0	1	0	0	0	0	0	0	0	31
08:00	10	19	15	1	0	0	0	0	0	0	0	0	0	0	45
09:00	11	27	12	1	0	0	0	0	0	0	0	0	0	0	51
10:00	11	30	18	4	1	0	0	0	0	0	0	0	0	0	64
11:00	21	30	21	3	0	0	0	0	0	0	0	0	0	0	75
12 PM	22	32	17	3	0	0	0	0	0	0	0	0	0	0	74
13:00	28	36	22	5	0	0	0	0	0	0	0	0	0	0	91
14:00	24	52	31	6	0	0	0	0	0	0	0	0	0	0	113
15:00	18	51	32	5	2	0	0	0	0	0	0	0	0	0	108
16:00	23	46	48	4	2	1	0	0	0	0	0	0	0	0	124
17:00	10	33	26	8	2	0	0	0	0	0	0	0	0	0	79
18:00	2	30	28	1	1	0	0	0	0	0	0	0	0	0	62
19:00	3	18	18	5	0	0	0	0	0	0	0	0	0	0	44
20:00	0	19	23	3	0	0	0	0	0	0	0	0	0	0	45
21:00	0	14	19	2	0	0	0	0	0	0	0	0	0	0	35
22:00	1	4	4	3	0	0	0	0	0	0	0	0	0	0	12
23:00	0	2	1	1	0	0	0	0	0	0	0	0	0	0	4
Total	202	467	349	58	8	1	1	0	0	0	0	0	0	0	1086

Daily
 15th Percentile : 12 MPH
 50th Percentile : 18 MPH
 85th Percentile : 23 MPH
 95th Percentile : 26 MPH

 Mean Speed(Average) : 18 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 816
 Percent in Pace : 75.1%
 Number of Vehicles > 20 MPH : 417
 Percent of Vehicles > 20 MPH : 38.4%

Grand Total	479	1050	739	135	15	2	3	0	0	0	0	0	0	0	2423
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Overall
 15th Percentile : 11 MPH
 50th Percentile : 18 MPH
 85th Percentile : 23 MPH
 95th Percentile : 26 MPH

 Mean Speed(Average) : 18 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 1789
 Percent in Pace : 73.8%
 Number of Vehicles > 20 MPH : 894
 Percent of Vehicles > 20 MPH : 36.9%

Accurate Counts
978-664-2565

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084VOL3

Start Time	4/2/2019 Tue	WB		Hour Totals		EB		Hour Totals		Combined Totals	
		Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00		0	8			0	3				
12:15		0	4			0	7				
12:30		0	10			1	13				
12:45		3	16	3	38	0	6	1	29	4	67
01:00		0	7			1	17				
01:15		0	10			0	7				
01:30		0	11			0	6				
01:45		1	6	1	34	1	6	2	36	3	70
02:00		0	12			1	7				
02:15		0	8			1	1				
02:30		1	7			0	4				
02:45		0	10	1	37	1	5	3	17	4	54
03:00		1	5			0	5				
03:15		0	8			0	8				
03:30		0	11			1	5				
03:45		0	17	1	41	0	9	1	27	2	68
04:00		0	15			5	10				
04:15		3	14			2	7				
04:30		0	27			0	7				
04:45		2	14	5	70	2	6	9	30	14	100
05:00		2	17			3	4				
05:15		4	8			4	3				
05:30		0	18			2	6				
05:45		1	7	7	50	6	4	15	17	22	67
06:00		2	12			3	1				
06:15		1	9			7	2				
06:30		5	21			9	4				
06:45		1	12	9	54	11	5	30	12	39	66
07:00		6	18			15	3				
07:15		5	12			9	2				
07:30		6	7			12	1				
07:45		5	13	22	50	25	2	61	8	83	58
08:00		6	6			12	2				
08:15		6	8			13	1				
08:30		4	6			12	1				
08:45		8	3	24	23	11	2	48	6	72	29
09:00		8	11			6	3				
09:15		4	4			8	1				
09:30		5	3			11	0				
09:45		22	7	39	25	13	0	38	4	77	29
10:00		14	0			12	0				
10:15		19	2			19	2				
10:30		16	4			11	1				
10:45		10	0	59	6	8	0	50	3	109	9
11:00		16	2			16	1				
11:15		5	0			4	0				
11:30		7	0			0	0				
11:45		0	0	28	2	0	0	20	1	48	3
Total		199	430			278	190			477	620
Percent		31.6%	68.4%			59.4%	40.6%			43.5%	56.5%

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084VOL3

Start Time	4/1/2019		Tue		Wed		Thu		Fri		Sat		Sun		Week Average	
	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB
12:00 AM	*	*	3	1	0	0	*	*	*	*	*	*	*	*	2	0
01:00	*	*	1	2	0	3	*	*	*	*	*	*	*	*	0	2
02:00	*	*	1	3	1	2	*	*	*	*	*	*	*	*	1	2
03:00	*	*	1	1	1	1	*	*	*	*	*	*	*	*	1	1
04:00	*	*	5	9	5	11	*	*	*	*	*	*	*	*	5	10
05:00	*	*	7	15	6	11	*	*	*	*	*	*	*	*	6	13
06:00	*	*	9	30	7	29	*	*	*	*	*	*	*	*	8	30
07:00	*	*	22	61	19	68	*	*	*	*	*	*	*	*	20	64
08:00	*	*	24	48	32	47	*	*	*	*	*	*	*	*	28	48
09:00	*	*	39	38	46	43	*	*	*	*	*	*	*	*	42	40
10:00	*	*	59	50	55	47	*	*	*	*	*	*	*	*	57	48
11:00	*	*	28	20	38	34	*	*	*	*	*	*	*	*	33	27
12:00 PM	*	*	38	29	40	34	*	*	*	*	*	*	*	*	39	32
01:00	*	*	34	36	37	28	*	*	*	*	*	*	*	*	36	32
02:00	*	*	37	17	37	17	*	*	*	*	*	*	*	*	37	17
03:00	*	*	41	27	51	34	*	*	*	*	*	*	*	*	46	30
04:00	*	*	70	30	70	27	*	*	*	*	*	*	*	*	70	28
05:00	*	*	50	17	54	15	*	*	*	*	*	*	*	*	52	16
06:00	*	*	54	12	54	17	*	*	*	*	*	*	*	*	54	14
07:00	*	*	50	8	49	11	*	*	*	*	*	*	*	*	50	10
08:00	*	*	23	6	43	6	*	*	*	*	*	*	*	*	33	6
09:00	*	*	25	4	15	1	*	*	*	*	*	*	*	*	20	2
10:00	*	*	6	3	7	5	*	*	*	*	*	*	*	*	6	4
11:00	*	*	2	1	1	1	*	*	*	*	*	*	*	*	2	1
Lane	0	0	629	468	668	492	0	0	0	0	0	0	0	0	648	477
Day	0	-	1097	-	1160	-	0	0	0	0	0	0	0	0	1125	-
AM Peak	-	-	10:00	07:00	10:00	07:00	-	-	-	-	-	-	-	-	10:00	07:00
Vol.	-	-	59	61	55	68	-	-	-	-	-	-	-	-	57	64
PM Peak	-	-	16:00	13:00	16:00	12:00	-	-	-	-	-	-	-	-	16:00	12:00
Vol.	-	-	70	36	70	34	-	-	-	-	-	-	-	-	70	32

Comb. Total	0	1097	1160	0	0	0	0	1125
ADT	ADT 1,128	AADT 1,128						

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

WB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	0	0	2	1	0	0	0	0	0	0	0	0	0	0	3
01:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
02:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5
05:00	2	3	2	0	0	0	0	0	0	0	0	0	0	0	7
06:00	0	7	1	1	0	0	0	0	0	0	0	0	0	0	9
07:00	2	6	11	3	0	0	0	0	0	0	0	0	0	0	22
08:00	3	9	8	4	0	0	0	0	0	0	0	0	0	0	24
09:00	6	15	12	5	1	0	0	0	0	0	0	0	0	0	39
10:00	10	24	14	11	0	0	0	0	0	0	0	0	0	0	59
11:00	7	8	9	4	0	0	0	0	0	0	0	0	0	0	28
12 PM	15	11	11	1	0	0	0	0	0	0	0	0	0	0	38
13:00	8	9	12	5	0	0	0	0	0	0	0	0	0	0	34
14:00	6	10	14	7	0	0	0	0	0	0	0	0	0	0	37
15:00	4	17	14	5	1	0	0	0	0	0	0	0	0	0	41
16:00	4	21	26	17	2	0	0	0	0	0	0	0	0	0	70
17:00	3	10	21	16	0	0	0	0	0	0	0	0	0	0	50
18:00	3	8	21	18	4	0	0	0	0	0	0	0	0	0	54
19:00	4	9	29	5	2	1	0	0	0	0	0	0	0	0	50
20:00	0	5	12	5	1	0	0	0	0	0	0	0	0	0	23
21:00	1	7	11	5	1	0	0	0	0	0	0	0	0	0	25
22:00	1	1	2	2	0	0	0	0	0	0	0	0	0	0	6
23:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Total	84	183	234	115	12	1	0	0	0	0	0	0	0	0	629

Daily
 15th Percentile : 15 MPH
 50th Percentile : 21 MPH
 85th Percentile : 26 MPH
 95th Percentile : 29 MPH
 Mean Speed(Average) : 21 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 417
 Percent in Pace : 66.3%
 Number of Vehicles > 20 MPH : 362
 Percent of Vehicles > 20 MPH : 57.6%

Accurate Counts
978-664-2565

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

WB	Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
	04/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
	03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
	04:00	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5
	05:00	2	3	0	1	0	0	0	0	0	0	0	0	0	0	6
	06:00	1	2	3	1	0	0	0	0	0	0	0	0	0	0	7
	07:00	6	5	6	2	0	0	0	0	0	0	0	0	0	0	19
	08:00	8	13	8	3	0	0	0	0	0	0	0	0	0	0	32
	09:00	13	15	13	5	0	0	0	0	0	0	0	0	0	0	46
	10:00	10	22	19	2	2	0	0	0	0	0	0	0	0	0	55
	11:00	10	5	15	7	1	0	0	0	0	0	0	0	0	0	38
	12 PM	2	10	23	5	0	0	0	0	0	0	0	0	0	0	40
	13:00	8	10	14	4	1	0	0	0	0	0	0	0	0	0	37
	14:00	8	8	15	5	1	0	0	0	0	0	0	0	0	0	37
	15:00	6	14	18	10	3	0	0	0	0	0	0	0	0	0	51
	16:00	4	25	32	8	1	0	0	0	0	0	0	0	0	0	70
	17:00	3	13	27	9	1	0	1	0	0	0	0	0	0	0	54
	18:00	9	17	19	9	0	0	0	0	0	0	0	0	0	0	54
	19:00	1	16	21	11	0	0	0	0	0	0	0	0	0	0	49
	20:00	3	10	24	6	0	0	0	0	0	0	0	0	0	0	43
	21:00	0	2	6	7	0	0	0	0	0	0	0	0	0	0	15
	22:00	1	1	3	2	0	0	0	0	0	0	0	0	0	0	7
	23:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
	Total	98	195	266	98	10	0	1	0	0	0	0	0	0	0	668

Daily
 15th Percentile : 15 MPH
 50th Percentile : 20 MPH
 85th Percentile : 25 MPH
 95th Percentile : 28 MPH

 Mean Speed(Average) : 20 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 461
 Percent in Pace : 69.0%
 Number of Vehicles > 20 MPH : 375
 Percent of Vehicles > 20 MPH : 56.1%

Grand Total	182	378	500	213	22	1	1	0	0	0	0	0	0	0	0	1297
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Overall
 15th Percentile : 15 MPH
 50th Percentile : 20 MPH
 85th Percentile : 25 MPH
 95th Percentile : 29 MPH

 Mean Speed(Average) : 20 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 878
 Percent in Pace : 67.7%
 Number of Vehicles > 20 MPH : 737
 Percent of Vehicles > 20 MPH : 56.8%

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
01:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
02:00	0	1	0	1	0	1	0	0	0	0	0	0	0	0	3
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	3	1	5	0	0	0	0	0	0	0	0	0	0	0	9
05:00	0	2	8	5	0	0	0	0	0	0	0	0	0	0	15
06:00	0	6	18	5	1	0	0	0	0	0	0	0	0	0	30
07:00	8	9	25	16	3	0	0	0	0	0	0	0	0	0	61
08:00	5	18	17	8	0	0	0	0	0	0	0	0	0	0	48
09:00	8	17	11	2	0	0	0	0	0	0	0	0	0	0	38
10:00	9	25	12	4	0	0	0	0	0	0	0	0	0	0	50
11:00	2	9	7	2	0	0	0	0	0	0	0	0	0	0	20
12 PM	4	20	4	1	0	0	0	0	0	0	0	0	0	0	29
13:00	6	15	10	5	0	0	0	0	0	0	0	0	0	0	36
14:00	6	3	8	0	0	0	0	0	0	0	0	0	0	0	17
15:00	2	11	12	2	0	0	0	0	0	0	0	0	0	0	27
16:00	3	9	14	3	1	0	0	0	0	0	0	0	0	0	30
17:00	4	5	7	1	0	0	0	0	0	0	0	0	0	0	17
18:00	3	2	6	1	0	0	0	0	0	0	0	0	0	0	12
19:00	1	3	3	1	0	0	0	0	0	0	0	0	0	0	8
20:00	0	1	4	1	0	0	0	0	0	0	0	0	0	0	6
21:00	1	1	2	0	0	0	0	0	0	0	0	0	0	0	4
22:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	65	159	178	60	5	1	0	0	0	0	0	0	0	0	468

Daily

15th Percentile : 15 MPH
50th Percentile : 20 MPH
85th Percentile : 24 MPH
95th Percentile : 28 MPH

Mean Speed(Average) : 20 MPH
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 337
Percent in Pace : 72.0%
Number of Vehicles > 20 MPH : 244
Percent of Vehicles > 20 MPH : 52.1%

Accurate Counts
978-664-2565

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	1	4	4	2	0	0	0	0	0	0	0	0	0	11
05:00	1	5	1	4	0	0	0	0	0	0	0	0	0	0	11
06:00	1	5	17	5	1	0	0	0	0	0	0	0	0	0	29
07:00	12	28	21	7	0	0	0	0	0	0	0	0	0	0	68
08:00	10	21	13	3	0	0	0	0	0	0	0	0	0	0	47
09:00	9	24	10	0	0	0	0	0	0	0	0	0	0	0	43
10:00	11	20	12	4	0	0	0	0	0	0	0	0	0	0	47
11:00	11	9	11	3	0	0	0	0	0	0	0	0	0	0	34
12 PM	9	11	9	5	0	0	0	0	0	0	0	0	0	0	34
13:00	5	12	8	3	0	0	0	0	0	0	0	0	0	0	28
14:00	2	7	8	0	0	0	0	0	0	0	0	0	0	0	17
15:00	4	15	11	3	1	0	0	0	0	0	0	0	0	0	34
16:00	4	8	12	2	1	0	0	0	0	0	0	0	0	0	27
17:00	2	6	7	0	0	0	0	0	0	0	0	0	0	0	15
18:00	7	5	5	0	0	0	0	0	0	0	0	0	0	0	17
19:00	1	3	6	1	0	0	0	0	0	0	0	0	0	0	11
20:00	1	1	4	0	0	0	0	0	0	0	0	0	0	0	6
21:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
22:00	0	2	2	0	1	0	0	0	0	0	0	0	0	0	5
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	92	186	164	44	6	0	0	0	0	0	0	0	0	0	492

Daily
 15th Percentile : 12 MPH
 50th Percentile : 19 MPH
 85th Percentile : 24 MPH
 95th Percentile : 27 MPH

 Mean Speed(Average) : 19 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 350
 Percent in Pace : 71.1%
 Number of Vehicles > 20 MPH : 214
 Percent of Vehicles > 20 MPH : 43.5%

Grand Total	157	345	342	104	11	1	0	0	0	0	0	0	0	0	960
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Overall
 15th Percentile : 13 MPH
 50th Percentile : 19 MPH
 85th Percentile : 24 MPH
 95th Percentile : 28 MPH

 Mean Speed(Average) : 19 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 687
 Percent in Pace : 71.6%
 Number of Vehicles > 20 MPH : 458
 Percent of Vehicles > 20 MPH : 47.7%

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/02/19	0	0	2	2	0	0	0	0	0	0	0	0	0	0	4
01:00	1	1	0	1	0	0	0	0	0	0	0	0	0	0	3
02:00	1	1	0	1	0	1	0	0	0	0	0	0	0	0	4
03:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2
04:00	5	4	5	0	0	0	0	0	0	0	0	0	0	0	14
05:00	2	5	10	5	0	0	0	0	0	0	0	0	0	0	22
06:00	0	13	19	6	1	0	0	0	0	0	0	0	0	0	39
07:00	10	15	36	19	3	0	0	0	0	0	0	0	0	0	83
08:00	8	27	25	12	0	0	0	0	0	0	0	0	0	0	72
09:00	14	32	23	7	1	0	0	0	0	0	0	0	0	0	77
10:00	19	49	26	15	0	0	0	0	0	0	0	0	0	0	109
11:00	9	17	16	6	0	0	0	0	0	0	0	0	0	0	48
12 PM	19	31	15	2	0	0	0	0	0	0	0	0	0	0	67
13:00	14	24	22	10	0	0	0	0	0	0	0	0	0	0	70
14:00	12	13	22	7	0	0	0	0	0	0	0	0	0	0	54
15:00	6	28	26	7	1	0	0	0	0	0	0	0	0	0	68
16:00	7	30	40	20	3	0	0	0	0	0	0	0	0	0	100
17:00	7	15	28	17	0	0	0	0	0	0	0	0	0	0	67
18:00	6	10	27	19	4	0	0	0	0	0	0	0	0	0	66
19:00	5	12	32	6	2	1	0	0	0	0	0	0	0	0	58
20:00	0	6	16	6	1	0	0	0	0	0	0	0	0	0	29
21:00	2	8	13	5	1	0	0	0	0	0	0	0	0	0	29
22:00	1	1	5	2	0	0	0	0	0	0	0	0	0	0	9
23:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Total	149	342	412	175	17	2	0	0	0	0	0	0	0	0	1097

Daily
 15th Percentile : 15 MPH
 50th Percentile : 20 MPH
 85th Percentile : 25 MPH
 95th Percentile : 28 MPH
 Mean Speed(Average) : 20 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 754
 Percent in Pace : 68.7%
 Number of Vehicles > 20 MPH : 606
 Percent of Vehicles > 20 MPH : 55.2%

Accurate Counts
978-664-2565

Location : Mooney Street
Location : West of Smith Place
City/State: Cambridge, MA

8084SPD3

WB, EB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total
04/03/19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
03:00	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:00	2	4	4	4	2	0	0	0	0	0	0	0	0	0	16
05:00	3	8	1	5	0	0	0	0	0	0	0	0	0	0	17
06:00	2	7	20	6	1	0	0	0	0	0	0	0	0	0	36
07:00	18	33	27	9	0	0	0	0	0	0	0	0	0	0	87
08:00	18	34	21	6	0	0	0	0	0	0	0	0	0	0	79
09:00	22	39	23	5	0	0	0	0	0	0	0	0	0	0	89
10:00	21	42	31	6	2	0	0	0	0	0	0	0	0	0	102
11:00	21	14	26	10	1	0	0	0	0	0	0	0	0	0	72
12 PM	11	21	32	10	0	0	0	0	0	0	0	0	0	0	74
13:00	13	22	22	7	1	0	0	0	0	0	0	0	0	0	65
14:00	10	15	23	5	1	0	0	0	0	0	0	0	0	0	54
15:00	10	29	29	13	4	0	0	0	0	0	0	0	0	0	85
16:00	8	33	44	10	2	0	0	0	0	0	0	0	0	0	97
17:00	5	19	34	9	1	0	1	0	0	0	0	0	0	0	69
18:00	16	22	24	9	0	0	0	0	0	0	0	0	0	0	71
19:00	2	19	27	12	0	0	0	0	0	0	0	0	0	0	60
20:00	4	11	28	6	0	0	0	0	0	0	0	0	0	0	49
21:00	0	3	6	7	0	0	0	0	0	0	0	0	0	0	16
22:00	1	3	5	2	1	0	0	0	0	0	0	0	0	0	12
23:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	190	381	430	142	16	0	1	0	0	0	0	0	0	0	1160

Daily
 15th Percentile : 13 MPH
 50th Percentile : 20 MPH
 85th Percentile : 24 MPH
 95th Percentile : 28 MPH

 Mean Speed(Average) : 20 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 811
 Percent in Pace : 69.9%
 Number of Vehicles > 20 MPH : 589
 Percent of Vehicles > 20 MPH : 50.8%

Grand Total	339	723	842	317	33	2	1	0	0	0	0	0	0	0	2257
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Overall
 15th Percentile : 14 MPH
 50th Percentile : 20 MPH
 85th Percentile : 25 MPH
 95th Percentile : 28 MPH

 Mean Speed(Average) : 20 MPH
 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 1565
 Percent in Pace : 69.3%
 Number of Vehicles > 20 MPH : 1195
 Percent of Vehicles > 20 MPH : 52.9%

Turning Movement Count Data



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
07:30 AM	0	70	97	6	10	3	1	0	30	53	16	2	1	53	0	45	3	0	93	1	484
07:45 AM	1	98	82	2	8	3	1	1	27	53	22	1	1	56	0	79	1	0	69	4	509
Total	1	168	179	8	18	6	2	1	57	106	38	3	2	109	0	124	4	0	162	5	993
08:00 AM	1	86	85	3	5	1	2	1	29	73	34	3	4	53	1	46	3	0	95	5	530
08:15 AM	0	91	90	2	6	1	4	0	34	66	36	0	0	51	3	53	1	0	97	1	536
08:30 AM	0	100	76	4	5	1	2	0	21	58	45	2	7	49	2	55	3	0	102	3	535
08:45 AM	0	98	73	2	6	0	0	0	38	80	48	1	5	51	0	59	7	0	108	3	579
Total	1	375	324	11	22	3	8	1	122	277	163	6	16	204	6	213	14	0	402	12	2180
09:00 AM	0	97	71	5	4	1	0	0	22	47	23	1	2	44	0	58	6	1	94	6	482
09:15 AM	0	72	99	2	5	1	0	0	24	48	27	1	6	42	1	43	4	0	57	13	445
Grand Total	2	712	673	26	49	11	10	2	225	478	251	11	26	399	7	438	28	1	715	36	4100
Apprch %	0.1	50.4	47.6	1.8	68.1	15.3	13.9	2.8	23.3	49.5	26	1.1	3	45.9	0.8	50.3	3.6	0.1	91.7	4.6	
Total %	0	17.4	16.4	0.6	1.2	0.3	0.2	0	5.5	11.7	6.1	0.3	0.6	9.7	0.2	10.7	0.7	0	17.4	0.9	
Cars	2	707	670	26	49	11	10	2	212	473	246	11	26	396	7	432	28	1	710	36	4055
% Cars	100	99.3	99.6	100	100	100	100	100	94.2	99	98	100	100	99.2	100	98.6	100	100	99.3	100	98.9
Trucks	0	5	3	0	0	0	0	0	13	5	5	0	0	3	0	6	0	0	5	0	45
% Trucks	0	0.7	0.4	0	0	0	0	0	5.8	1	2	0	0	0.8	0	1.4	0	0	0.7	0	1.1

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 2

Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	1	86	85	3	175	5	1	2	1	9	29	73	34	3	139	4	53	1	46	104	3	0	95	5	103	530
08:15 AM	0	91	90	2	183	6	1	4	0	11	34	66	36	0	136	0	51	3	53	107	1	0	97	1	99	536
08:30 AM	0	100	76	4	180	5	1	2	0	8	21	58	45	2	126	7	49	2	55	113	3	0	102	3	108	535
08:45 AM	0	98	73	2	173	6	0	0	0	6	38	80	48	1	167	5	51	0	59	115	7	0	108	3	118	579
Total Volume	1	375	324	11	711	22	3	8	1	34	122	277	163	6	568	16	204	6	213	439	14	0	402	12	428	2180
% App. Total	0.1	52.7	45.6	1.5		64.7	8.8	23.5	2.9		21.5	48.8	28.7	1.1		3.6	46.5	1.4	48.5		3.3	0	93.9	2.8		
PHF	.250	.938	.900	.688	.971	.917	.750	.500	.250	.773	.803	.866	.849	.500	.850	.571	.962	.500	.903	.954	.500	.000	.931	.600	.907	.941
Cars	1	373	322	11	707	22	3	8	1	34	113	275	161	6	555	16	203	6	209	434	14	0	398	12	424	2154
% Cars	100	99.5	99.4	100	99.4	100	100	100	100	100	92.6	99.3	98.8	100	97.7	100	99.5	100	98.1	98.9	100	0	99.0	100	99.1	98.8
Trucks	0	2	2	0	4	0	0	0	0	0	9	2	2	0	13	0	1	0	4	5	0	0	4	0	4	26
% Trucks	0	0.5	0.6	0	0.6	0	0	0	0	0	7.4	0.7	1.2	0	2.3	0	0.5	0	1.9	1.1	0	0	1.0	0	0.9	1.2

Accurate Counts

978-664-2565

File Name : 80840001

Site Code : 80840001

Start Date : 4/2/2019

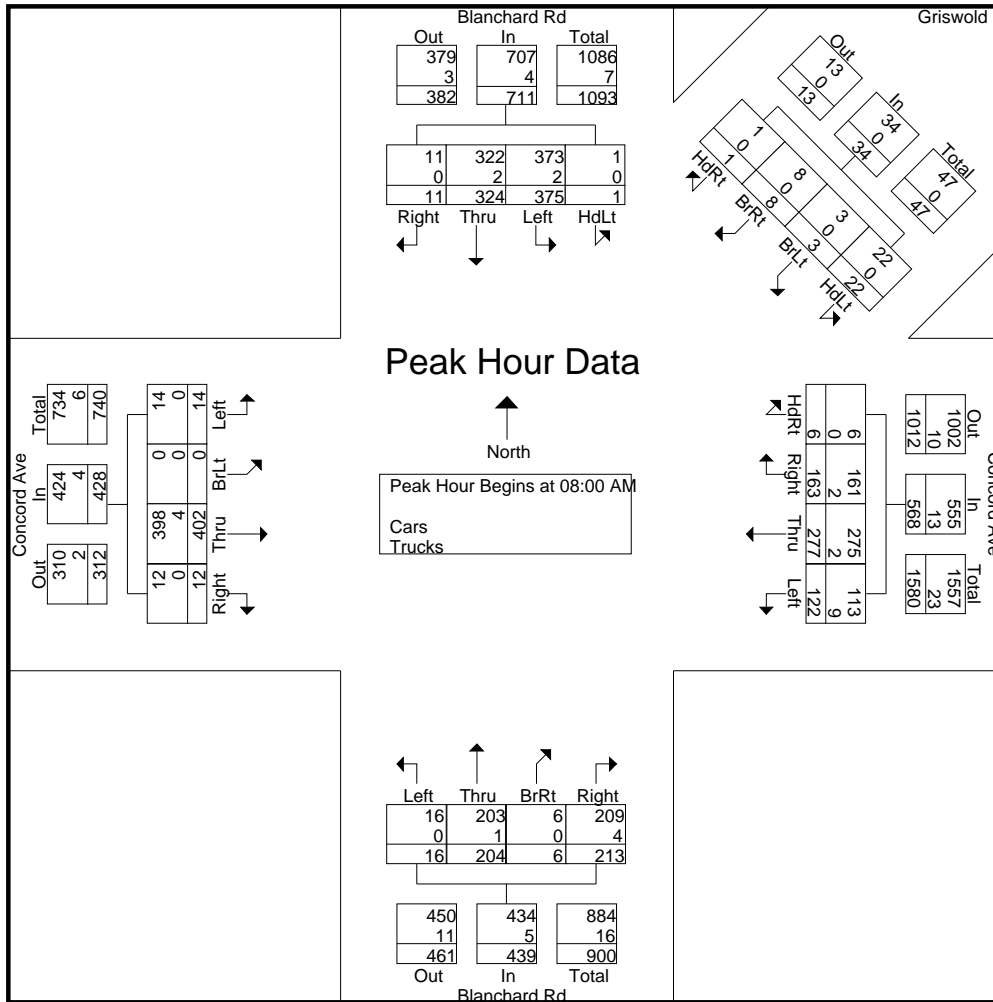
Page No : 3

N/S Street : Blanchard Rd / Griswold St

E/W Street : Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

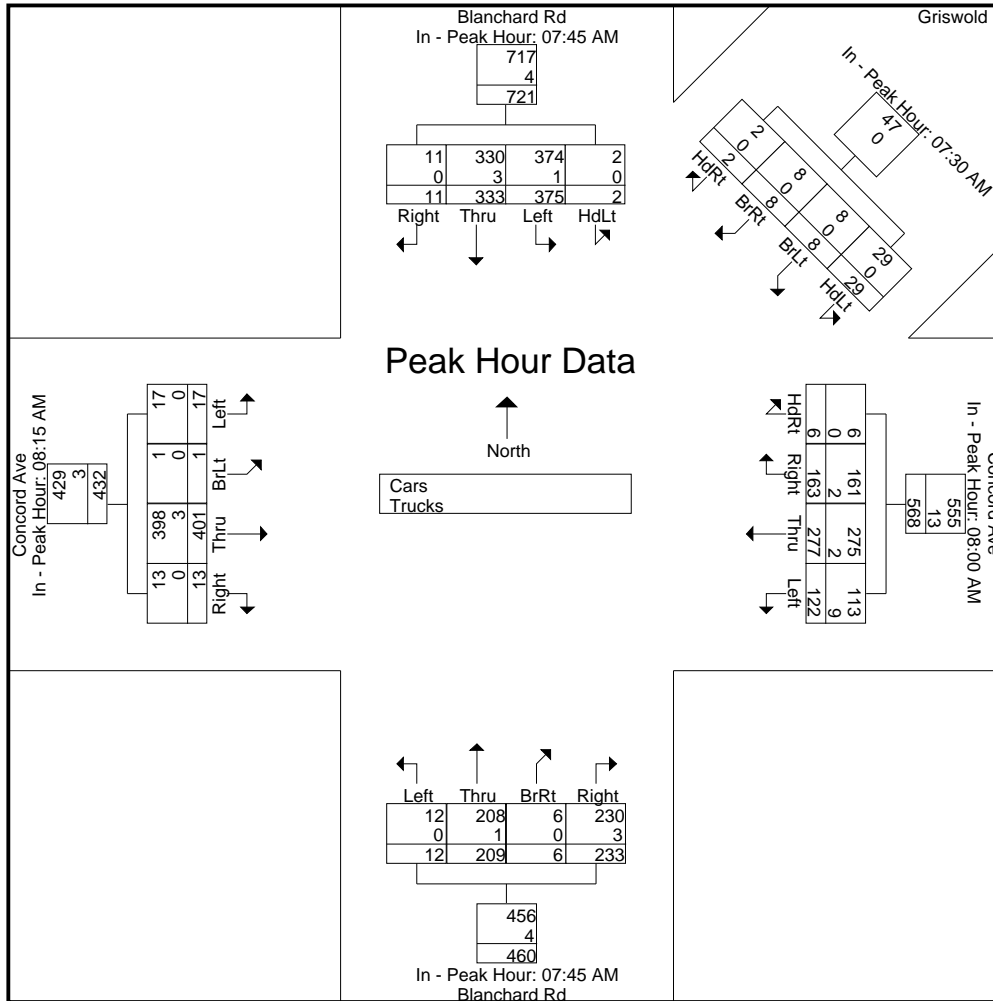
Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					08:00 AM					07:45 AM					08:15 AM				
+0 mins.	1	98	82	2	183	10	3	1	0	14	29	73	34	3	139	1	56	0	79	136	1	0	97	1	99
+15 mins.	1	86	85	3	175	8	3	1	1	13	34	66	36	0	136	4	53	1	46	104	3	0	102	3	108
+30 mins.	0	91	90	2	183	5	1	2	1	9	21	58	45	2	126	0	51	3	53	107	7	0	108	3	118
+45 mins.	0	100	76	4	180	6	1	4	0	11	38	80	48	1	167	7	49	2	55	113	6	1	94	6	107
Total Volume	2	375	333	11	721	29	8	8	2	47	122	277	163	6	568	12	209	6	233	460	17	1	401	13	432
% App. Total	0.3	52	46.2	1.5		61.7	17	17	4.3		21.5	48.8	28.7	1.1		2.6	45.4	1.3	50.7		3.9	0.2	92.8	3	

Accurate Counts

978-664-2565

PHF	.500	.938	.925	.688	.985	.725	.667	.500	.500	.839	.803	.866	.849	.500	.850	.429	.933	.500	.737	.846	.607	.250	.928	.542	.915
Cars	2	374	330	11	717	29	8	8	2	47	113	275	161	6	555	12	208	6	230	456	17	1	398	13	429
% Cars	100	99.7	99.1	100	99.4	100	100	100	100	100	92.6	99.3	98.8	100	97.7	100	99.5	100	98.7	99.1	100	100	99.3	100	99.3
Trucks	0	1	3	0	4	0	0	0	0	0	9	2	2	0	13	0	1	0	3	4	0	0	3	0	3
% Trucks	0	0.3	0.9	0	0.6	0	0	0	0	0	7.4	0.7	1.2	0	2.3	0	0.5	0	1.3	0.9	0	0	0.7	0	0.7



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
07:30 AM	0	70	97	6	10	3	1	0	29	51	16	2	1	52	0	45	3	0	92	1	479
07:45 AM	1	98	81	2	8	3	1	1	25	52	20	1	1	56	0	78	1	0	69	4	502
Total	1	168	178	8	18	6	2	1	54	103	36	3	2	108	0	123	4	0	161	5	981
08:00 AM	1	85	84	3	5	1	2	1	24	72	34	3	4	53	1	45	3	0	94	5	520
08:15 AM	0	91	89	2	6	1	4	0	33	66	35	0	0	50	3	52	1	0	97	1	531
08:30 AM	0	100	76	4	5	1	2	0	19	58	45	2	7	49	2	55	3	0	99	3	530
08:45 AM	0	97	73	2	6	0	0	0	37	79	47	1	5	51	0	57	7	0	108	3	573
Total	1	373	322	11	22	3	8	1	113	275	161	6	16	203	6	209	14	0	398	12	2154
09:00 AM	0	96	71	5	4	1	0	0	21	47	23	1	2	44	0	57	6	1	94	6	479
09:15 AM	0	70	99	2	5	1	0	0	24	48	26	1	6	41	1	43	4	0	57	13	441
Grand Total	2	707	670	26	49	11	10	2	212	473	246	11	26	396	7	432	28	1	710	36	4055
Apprch %	0.1	50.3	47.7	1.9	68.1	15.3	13.9	2.8	22.5	50.2	26.1	1.2	3	46	0.8	50.2	3.6	0.1	91.6	4.6	
Total %	0	17.4	16.5	0.6	1.2	0.3	0.2	0	5.2	11.7	6.1	0.3	0.6	9.8	0.2	10.7	0.7	0	17.5	0.9	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 6

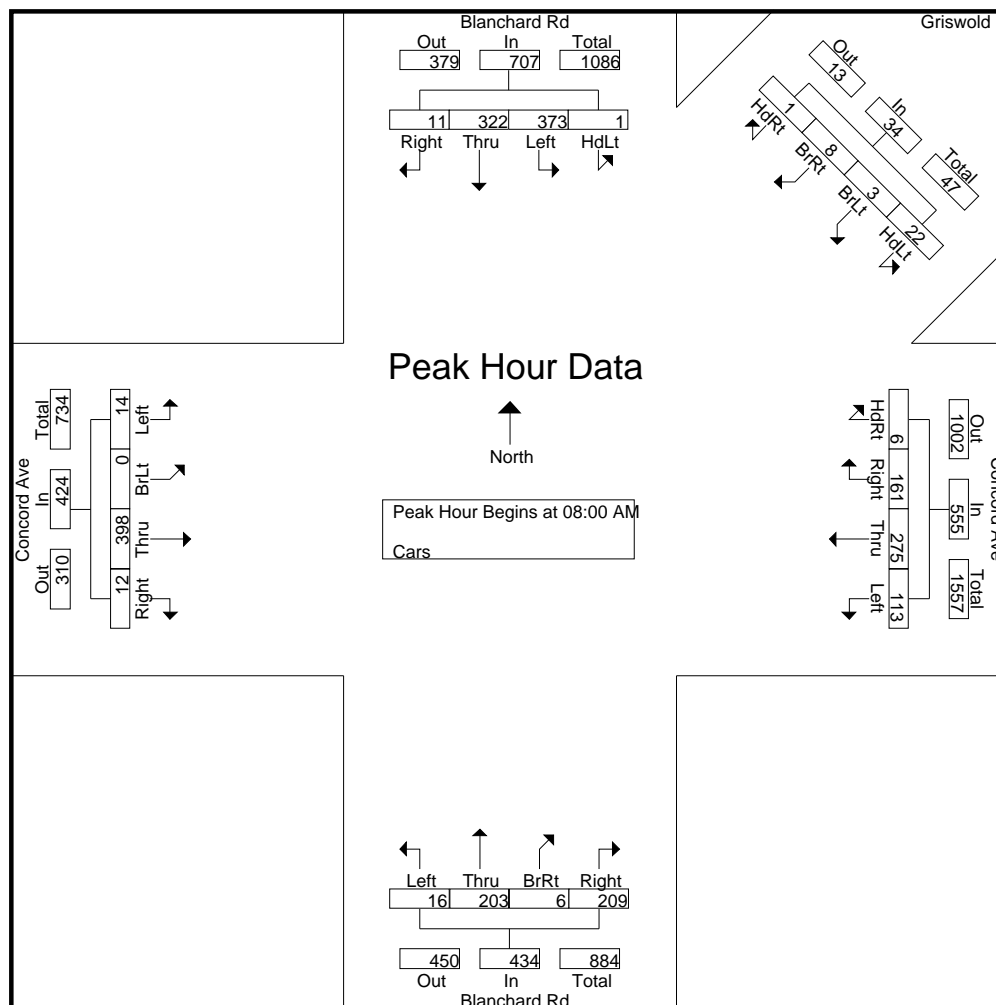
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	1	85	84	3	173	5	1	2	1	9	24	72	34	3	133	4	53	1	45	103	3	0	94	5	102	520
08:15 AM	0	91	89	2	182	6	1	4	0	11	33	66	35	0	134	0	50	3	52	105	1	0	97	1	99	531
08:30 AM	0	100	76	4	180	5	1	2	0	8	19	58	45	2	124	7	49	2	55	113	3	0	99	3	105	530
08:45 AM	0	97	73	2	172	6	0	0	0	6	37	79	47	1	164	5	51	0	57	113	7	0	108	3	118	573
Total Volume	1	373	322	11	707	22	3	8	1	34	113	275	161	6	555	16	203	6	209	434	14	0	398	12	424	2154
% App. Total	0.1	52.8	45.5	1.6		64.7	8.8	23.5	2.9		20.4	49.5	29	1.1		3.7	46.8	1.4	48.2		3.3	0	93.9	2.8		
PHF	.250	.933	.904	.688	.971	.917	.750	.500	.250	.773	.764	.870	.856	.500	.846	.571	.958	.500	.917	.960	.500	.000	.921	.600	.898	.940

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 7



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

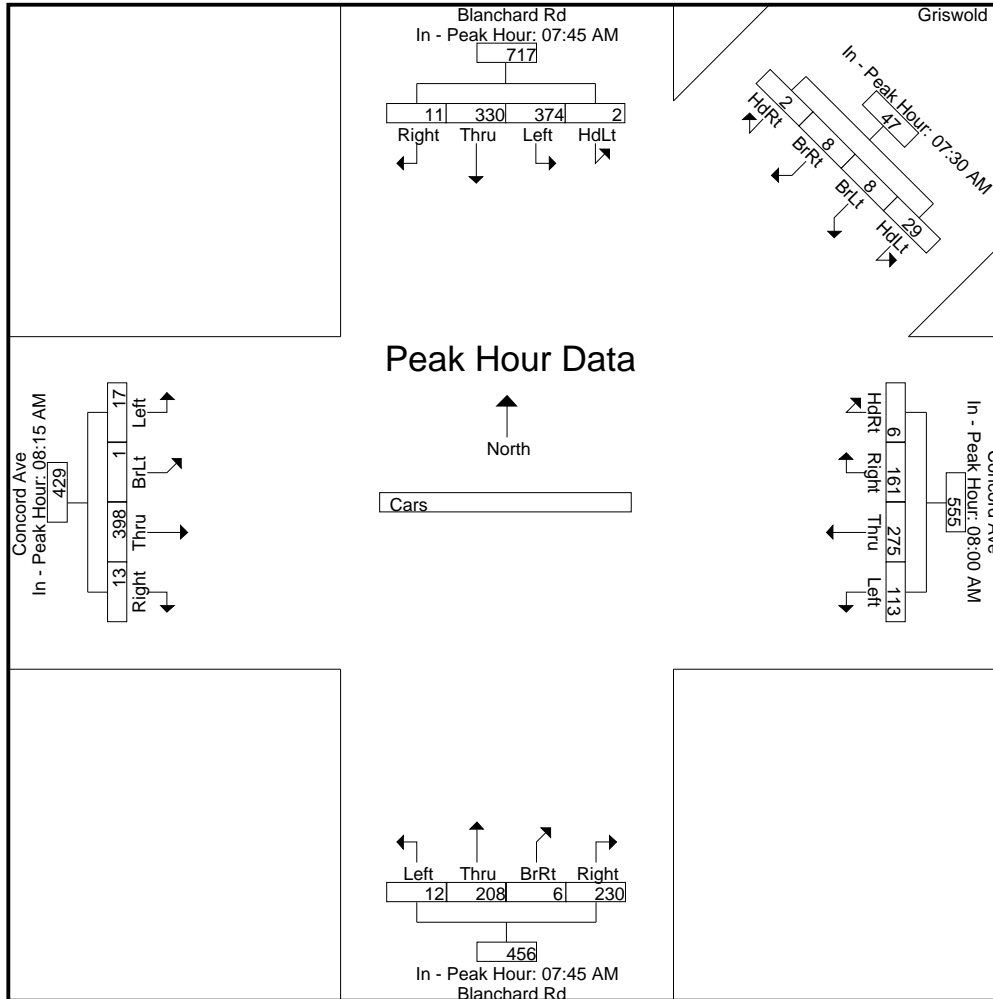
Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					08:00 AM					07:45 AM					08:15 AM				
+0 mins.	1	98	81	2	182	10	3	1	0	14	24	72	34	3	133	1	56	0	78	135	1	0	97	1	99
+15 mins.	1	85	84	3	173	8	3	1	1	13	33	66	35	0	134	4	53	1	45	103	3	0	99	3	105
+30 mins.	0	91	89	2	182	5	1	2	1	9	19	58	45	2	124	0	50	3	52	105	7	0	108	3	118
+45 mins.	0	100	76	4	180	6	1	4	0	11	37	79	47	1	164	7	49	2	55	113	6	1	94	6	107
Total Volume	2	374	330	11	717	29	8	8	2	47	113	275	161	6	555	12	208	6	230	456	17	1	398	13	429
% App. Total	0.3	52.2	46	1.5		61.7	17	17	4.3		20.4	49.5	29	1.1		2.6	45.6	1.3	50.4		4	0.2	92.8	3	

Accurate Counts

978-664-2565

PHF	.500	.935	.927	.688	.985	.725	.667	.500	.500	.839	.764	.870	.856	.500	.846	.429	.929	.500	.737	.844	.607	.250	.921	.542	.909
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Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
07:30 AM	0	0	0	0	0	0	0	0	1	2	0	0	0	1	0	0	0	0	1	0	5
07:45 AM	0	0	1	0	0	0	0	0	2	1	2	0	0	0	0	1	0	0	0	0	7
Total	0	0	1	0	0	0	0	0	3	3	2	0	0	1	0	1	0	0	1	0	12
08:00 AM	0	1	1	0	0	0	0	0	5	1	0	0	0	0	0	1	0	0	1	0	10
08:15 AM	0	0	1	0	0	0	0	0	1	0	1	0	0	1	0	1	0	0	0	0	5
08:30 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	5
08:45 AM	0	1	0	0	0	0	0	0	1	1	1	0	0	0	0	2	0	0	0	0	6
Total	0	2	2	0	0	0	0	0	9	2	2	0	0	1	0	4	0	0	4	0	26
09:00 AM	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3
09:15 AM	0	2	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4
Grand Total	0	5	3	0	0	0	0	0	13	5	5	0	0	3	0	6	0	0	5	0	45
Apprch %	0	62.5	37.5	0	0	0	0	0	56.5	21.7	21.7	0	0	33.3	0	66.7	0	0	100	0	
Total %	0	11.1	6.7	0	0	0	0	0	28.9	11.1	11.1	0	0	6.7	0	13.3	0	0	11.1	0	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 10

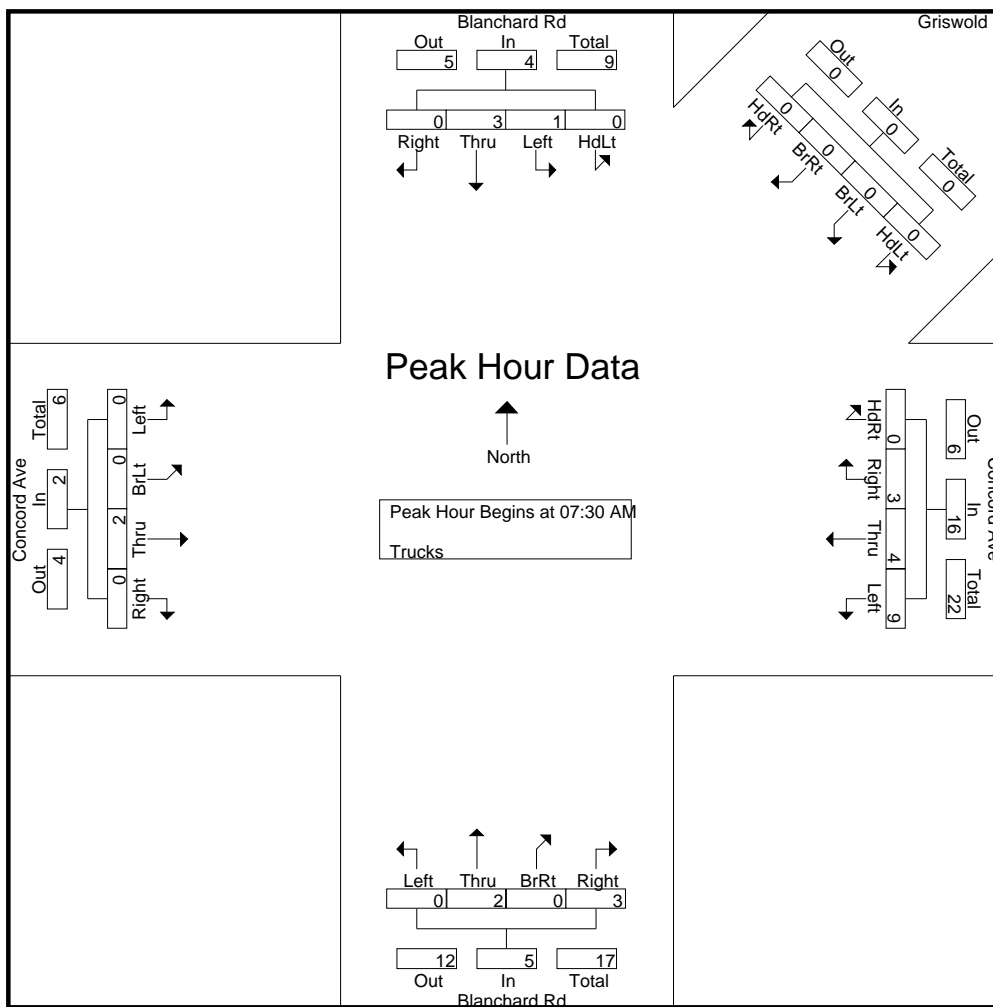
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 07:30 AM																										
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	1	0	0	1	0	0	1	0	1	5
07:45 AM	0	0	1	0	1	0	0	0	0	0	2	1	2	0	5	0	0	0	1	1	0	0	0	0	0	7
08:00 AM	0	1	1	0	2	0	0	0	0	0	5	1	0	0	6	0	0	0	1	1	0	0	1	0	1	10
08:15 AM	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0	1	0	1	2	0	0	0	0	0	5
Total Volume	0	1	3	0	4	0	0	0	0	0	9	4	3	0	16	0	2	0	3	5	0	0	2	0	2	27
% App. Total	0	25	75	0		0	0	0	0		56.2	25	18.8	0		0	40	0	60		0	0	100	0		
PHF	.000	.250	.750	.000	.500	.000	.000	.000	.000	.000	.450	.500	.375	.000	.667	.000	.500	.000	.750	.625	.000	.000	.500	.000	.500	.675

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

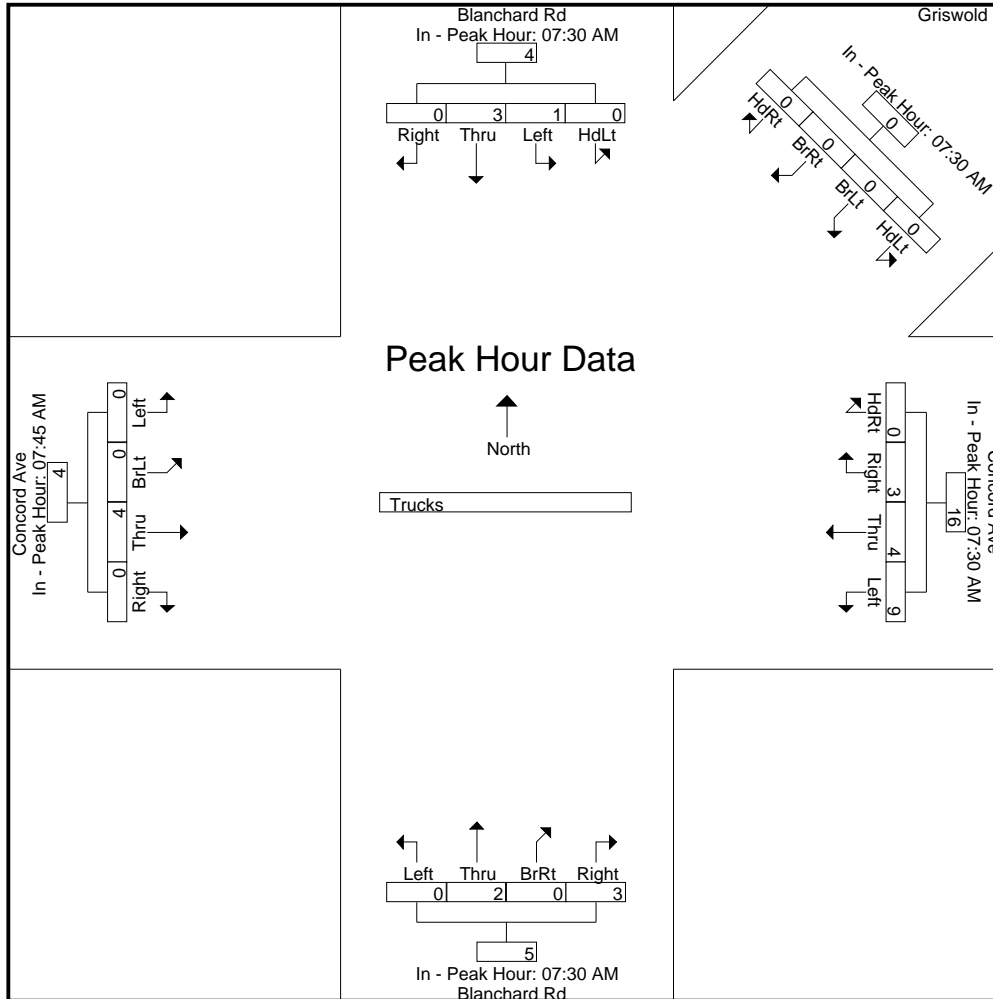
Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:30 AM					07:45 AM									
+0 mins.	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	1	0	0	1	0	0	0	0	0
+15 mins.	0	0	1	0	1	0	0	0	0	0	2	1	2	0	5	0	0	0	1	1	0	0	1	0	1
+30 mins.	0	1	1	0	2	0	0	0	0	0	5	1	0	0	6	0	0	0	1	1	0	0	0	0	0
+45 mins.	0	0	1	0	1	0	0	0	0	0	1	0	1	0	2	0	1	0	1	2	0	0	3	0	3
Total Volume	0	1	3	0	4	0	0	0	0	0	9	4	3	0	16	0	2	0	3	5	0	0	4	0	4
% App. Total	0	25	75	0		0	0	0	0		56.2	25	18.8	0		0	40	0	60		0	0	100	0	

Accurate Counts

978-664-2565

PHF | .000 | .250 | .750 | .000 | .500 | .000 | .000 | .000 | .000 | .000 | .450 | .500 | .375 | .000 | .667 | .000 | .500 | .000 | .750 | .625 | .000 | .000 | .333 | .000 | .333



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Exclu. Total	Inclu. Total	Int. Total
	HdLt	Left	Thru	Right	Peds	HdLt	BrLt	BrRt	HdRt	Peds	Left	Thru	Right	HdRt	Peds	Left	Thru	BrRt	Right	Peds	Left	BrLt	Thru	Right	Peds			
07:30 AM	0	0	0	1	4	0	0	0	0	3	0	0	0	0	1	0	2	0	2	1	0	0	4	0	2	11	9	20
07:45 AM	0	0	1	0	2	0	0	0	0	2	0	0	0	0	0	0	1	0	1	4	0	0	4	0	2	10	7	17
Total	0	0	1	1	6	0	0	0	0	5	0	0	0	0	1	0	3	0	3	5	0	0	8	0	4	21	16	37
08:00 AM	0	3	3	0	0	0	0	0	0	3	0	2	0	0	3	0	1	0	0	6	0	0	3	0	2	14	12	26
08:15 AM	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	0	0	6	0	1	11	7	18
08:30 AM	0	4	1	0	2	0	0	0	0	2	0	0	0	0	1	0	1	0	0	2	0	0	3	0	1	8	9	17
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	0	4	0	2	0	1	1	0	0	2	0	0	6	8	14
Total	0	9	4	0	4	0	0	0	0	6	0	4	0	0	8	0	4	0	1	17	0	0	14	0	4	39	36	75
09:00 AM	0	1	0	0	4	0	0	0	0	3	1	0	0	0	3	0	1	0	0	3	0	0	5	0	0	13	8	21
09:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	5	5
Grand Total	0	10	6	1	14	0	0	0	0	14	1	4	0	0	12	0	8	0	4	25	0	0	31	0	8	73	65	138
Apprch %	0	58.8	35.3	5.9		0	0	0	0		20	80	0	0		0	66.7	0	33.3		0	0	100	0				
Total %	0	15.4	9.2	1.5		0	0	0	0		1.5	6.2	0	0		0	12.3	0	6.2		0	0	47.7	0		52.9	47.1	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 14

Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 08:00 AM																										
08:00 AM	0	3	3	0	6	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	3	0	3	12
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	7
08:30 AM	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3	9
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	2	0	2	0	2	0	1	3	0	0	2	0	2	8	
Total Volume	0	9	4	0	13	0	0	0	0	0	0	4	0	4	4	0	4	0	1	5	0	0	14	0	14	36
% App. Total	0	69.2	30.8	0		0	0	0	0		0	100	0	0		0	80	0	20		0	0	100	0		
PHF	.000	.563	.333	.000	.542	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.000	.500	.000	.250	.417	.000	.000	.583	.000	.583	.750

Accurate Counts

978-664-2565

File Name : 80840001

Site Code : 80840001

Start Date : 4/2/2019

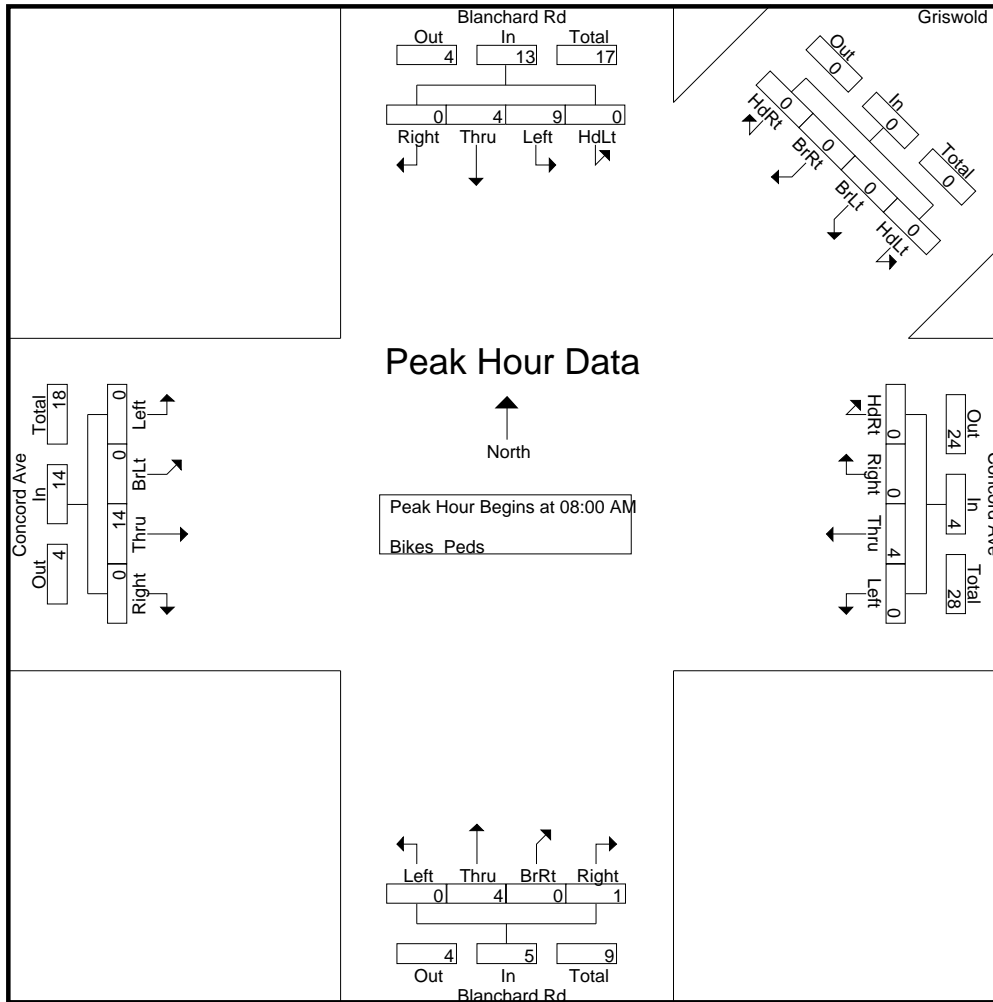
Page No : 15

N/S Street : Blanchard Rd / Griswold St

E/W Street : Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

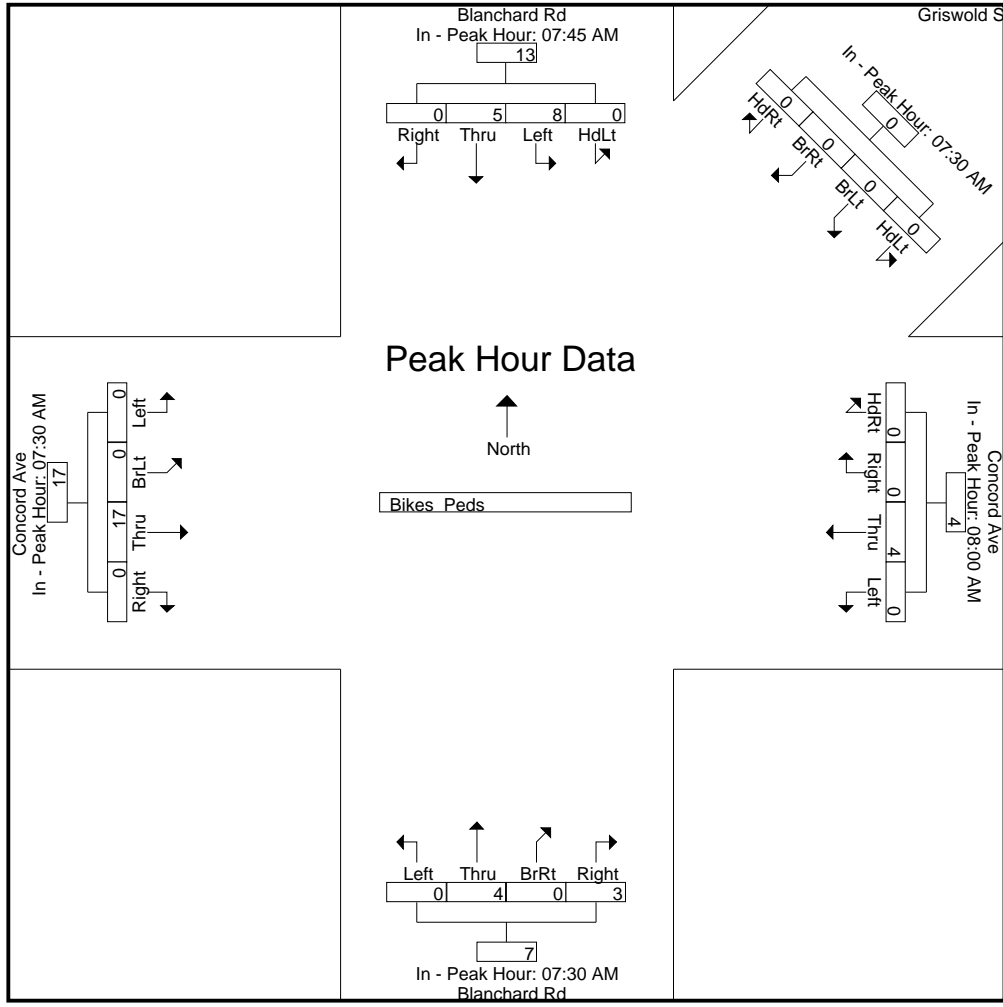
Peak Hour for Each Approach Begins at:

	07:45 AM					07:30 AM					08:00 AM					07:30 AM					07:30 AM				
+0 mins.	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	2	0	2	4	0	0	4	0	4
+15 mins.	0	3	3	0	6	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	0	4	0	4
+30 mins.	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	3	0	3
+45 mins.	0	4	1	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	6	0	6
Total Volume	0	8	5	0	13	0	0	0	0	0	0	4	0	0	4	0	4	0	3	7	0	0	17	0	17
% App. Total	0	61.5	38.5	0		0	0	0	0		0	100	0	0		0	57.1	0	42.9		0	0	100	0	

Accurate Counts

978-664-2565

PHF | .000 .500 .417 .000 .542 | .000 .000 .000 .000 .000 | .000 .500 .000 .000 .500 | .000 .500 .000 .375 .438 | .000 .000 .708 .000 .708



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
04:30 PM	0	12	43	1	2	1	0	0	43	67	56	3	2	90	1	31	9	0	63	1	425
04:45 PM	0	37	55	3	4	1	0	0	41	69	46	5	3	77	0	28	8	1	58	9	445
Total	0	49	98	4	6	2	0	0	84	136	102	8	5	167	1	59	17	1	121	10	870
05:00 PM	0	26	58	1	6	1	1	0	48	73	78	2	2	70	0	35	12	0	59	5	477
05:15 PM	0	28	56	1	2	0	1	0	37	66	49	4	5	69	0	19	6	0	47	5	395
05:30 PM	0	41	62	2	2	1	1	0	44	80	49	5	5	67	0	24	2	4	61	4	454
05:45 PM	0	35	76	1	2	0	0	0	58	64	50	10	6	60	2	34	7	1	56	3	465
Total	0	130	252	5	12	2	3	0	187	283	226	21	18	266	2	112	27	5	223	17	1791
06:00 PM	0	40	58	2	2	0	0	0	44	72	50	4	3	95	1	35	9	0	58	6	479
06:15 PM	0	43	70	2	2	0	0	0	42	60	51	5	2	65	1	27	7	1	53	4	435
Grand Total	0	262	478	13	22	4	3	0	357	551	429	38	28	593	5	233	60	7	455	37	3575
Apprch %	0	34.8	63.5	1.7	75.9	13.8	10.3	0	26	40.1	31.2	2.8	3.3	69	0.6	27.1	10.7	1.3	81.4	6.6	
Total %	0	7.3	13.4	0.4	0.6	0.1	0.1	0	10	15.4	12	1.1	0.8	16.6	0.1	6.5	1.7	0.2	12.7	1	
Cars	0	259	477	13	22	4	3	0	355	551	424	38	28	593	5	231	60	7	453	37	3560
% Cars	0	98.9	99.8	100	100	100	100	0	99.4	100	98.8	100	100	100	100	99.1	100	100	99.6	100	99.6
Trucks	0	3	1	0	0	0	0	0	2	0	5	0	0	0	0	2	0	0	2	0	15
% Trucks	0	1.1	0.2	0	0	0	0	0	0.6	0	1.2	0	0	0	0	0.9	0	0	0.4	0	0.4

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 2

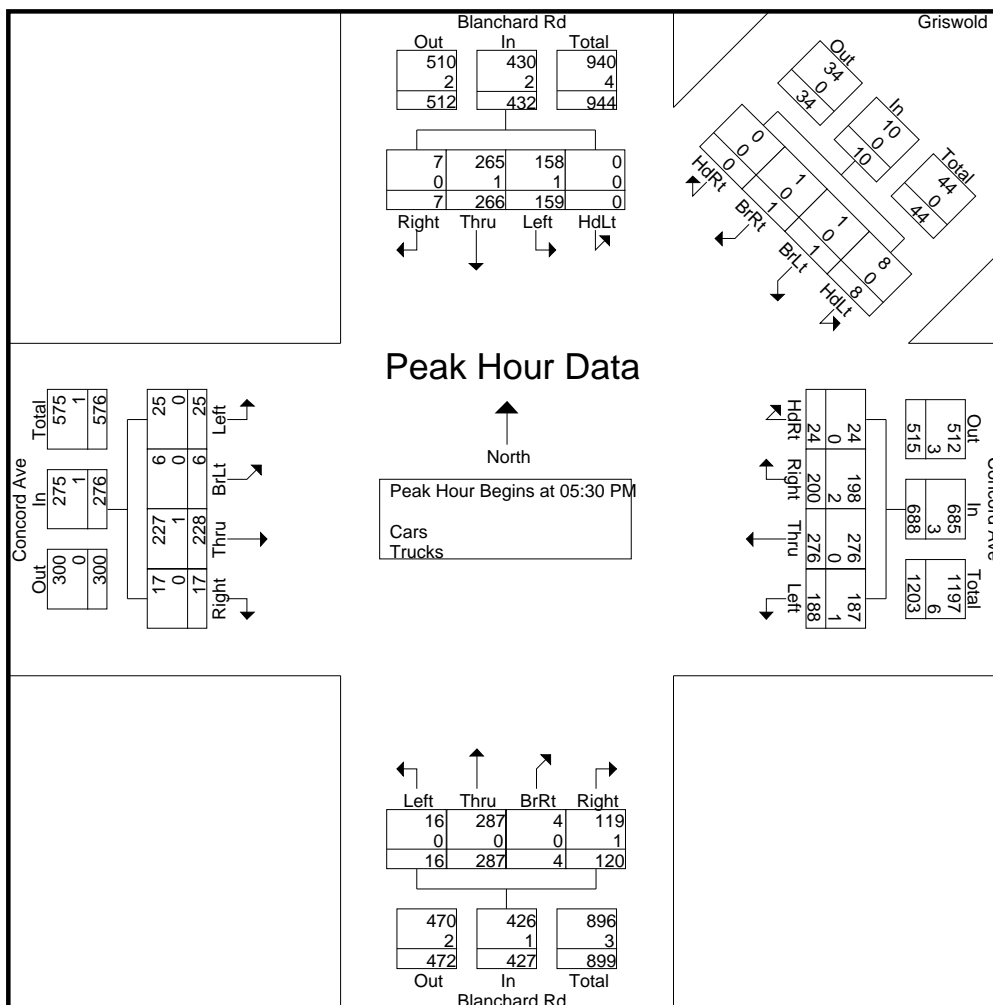
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 05:30 PM																										
05:30 PM	0	41	62	2	105	2	1	1	0	4	44	80	49	5	178	5	67	0	24	96	2	4	61	4	71	454
05:45 PM	0	35	76	1	112	2	0	0	0	2	58	64	50	10	182	6	60	2	34	102	7	1	56	3	67	465
06:00 PM	0	40	58	2	100	2	0	0	0	2	44	72	50	4	170	3	95	1	35	134	9	0	58	6	73	479
06:15 PM	0	43	70	2	115	2	0	0	0	2	42	60	51	5	158	2	65	1	27	95	7	1	53	4	65	435
Total Volume	0	159	266	7	432	8	1	1	0	10	188	276	200	24	688	16	287	4	120	427	25	6	228	17	276	1833
% App. Total	0	36.8	61.6	1.6		80	10	10	0		27.3	40.1	29.1	3.5		3.7	67.2	0.9	28.1		9.1	2.2	82.6	6.2		
PHF	.000	.924	.875	.875	.939	1.00	.250	.250	.000	.625	.810	.863	.980	.600	.945	.667	.755	.500	.857	.797	.694	.375	.934	.708	.945	.957
Cars	0	158	265	7	430	8	1	1	0	10	187	276	198	24	685	16	287	4	119	426	25	6	227	17	275	1826
% Cars	0	99.4	99.6	100	99.5	100	100	100	0	100	99.5	100	99.0	100	99.6	100	100	100	99.2	99.8	100	100	99.6	100	99.6	99.6
Trucks	0	1	1	0	2	0	0	0	0	0	1	0	2	0	3	0	0	0	1	1	0	0	1	0	1	7
% Trucks	0	0.6	0.4	0	0.5	0	0	0	0	0	0.5	0	1.0	0	0.4	0	0	0	0.8	0.2	0	0	0.4	0	0.4	0.4

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

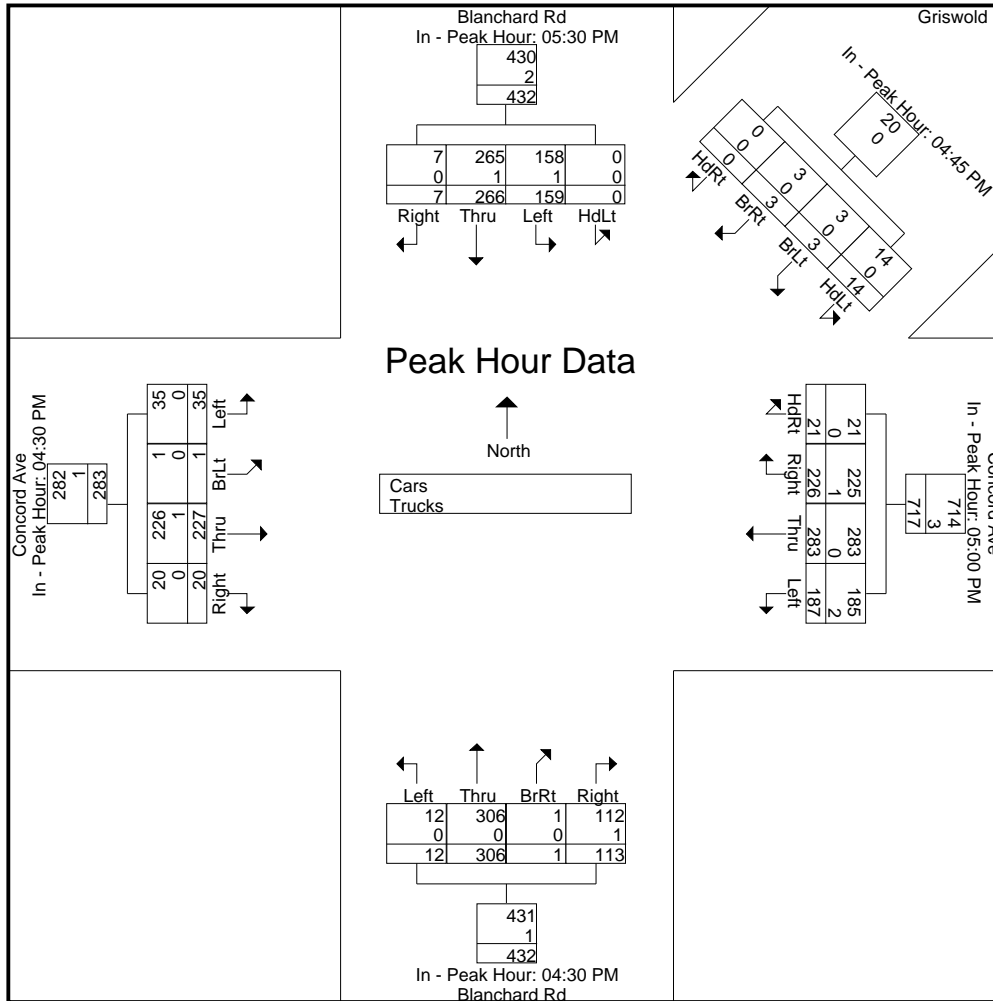
Peak Hour for Each Approach Begins at:

	05:30 PM					04:45 PM					05:00 PM					04:30 PM					04:30 PM				
+0 mins.	0	41	62	2	105	4	1	0	0	5	48	73	78	2	201	2	90	1	31	124	9	0	63	1	73
+15 mins.	0	35	76	1	112	6	1	1	0	8	37	66	49	4	156	3	77	0	28	108	8	1	58	9	76
+30 mins.	0	40	58	2	100	2	0	1	0	3	44	80	49	5	178	2	70	0	35	107	12	0	59	5	76
+45 mins.	0	43	70	2	115	2	1	1	0	4	58	64	50	10	182	5	69	0	19	93	6	0	47	5	58
Total Volume	0	159	266	7	432	14	3	3	0	20	187	283	226	21	717	12	306	1	113	432	35	1	227	20	283
% App. Total	0	36.8	61.6	1.6		70	15	15	0		26.1	39.5	31.5	2.9		2.8	70.8	0.2	26.2		12.4	0.4	80.2	7.1	

Accurate Counts

978-664-2565

PHF	.000	.924	.875	.875	.939	.583	.750	.750	.000	.625	.806	.884	.724	.525	.892	.600	.850	.250	.807	.871	.729	.250	.901	.556	.931
Cars	0	158	265	7	430	14	3	3	0	20	185	283	225	21	714	12	306	1	112	431	35	1	226	20	282
% Cars	0	99.4	99.6	100	99.5	100	100	100	0	100	98.9	100	99.6	100	99.6	100	100	100	99.1	99.8	100	100	99.6	100	99.6
Trucks	0	1	1	0	2	0	0	0	0	0	2	0	1	0	3	0	0	0	1	1	0	0	1	0	1
% Trucks	0	0.6	0.4	0	0.5	0	0	0	0	0	1.1	0	0.4	0	0.4	0	0	0	0.9	0.2	0	0	0.4	0	0.4



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
04:30 PM	0	12	43	1	2	1	0	0	43	67	55	3	2	90	1	30	9	0	63	1	423
04:45 PM	0	37	55	3	4	1	0	0	41	69	45	5	3	77	0	28	8	1	57	9	443
Total	0	49	98	4	6	2	0	0	84	136	100	8	5	167	1	58	17	1	120	10	866
05:00 PM	0	26	58	1	6	1	1	0	48	73	78	2	2	70	0	35	12	0	59	5	477
05:15 PM	0	26	56	1	2	0	1	0	36	66	48	4	5	69	0	19	6	0	47	5	391
05:30 PM	0	41	62	2	2	1	1	0	44	80	49	5	5	67	0	24	2	4	60	4	453
05:45 PM	0	35	76	1	2	0	0	0	57	64	50	10	6	60	2	34	7	1	56	3	464
Total	0	128	252	5	12	2	3	0	185	283	225	21	18	266	2	112	27	5	222	17	1785
06:00 PM	0	39	57	2	2	0	0	0	44	72	48	4	3	95	1	34	9	0	58	6	474
06:15 PM	0	43	70	2	2	0	0	0	42	60	51	5	2	65	1	27	7	1	53	4	435
Grand Total	0	259	477	13	22	4	3	0	355	551	424	38	28	593	5	231	60	7	453	37	3560
Apprch %	0	34.6	63.7	1.7	75.9	13.8	10.3	0	26	40.3	31	2.8	3.3	69.2	0.6	27	10.8	1.3	81.3	6.6	
Total %	0	7.3	13.4	0.4	0.6	0.1	0.1	0	10	15.5	11.9	1.1	0.8	16.7	0.1	6.5	1.7	0.2	12.7	1	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 6

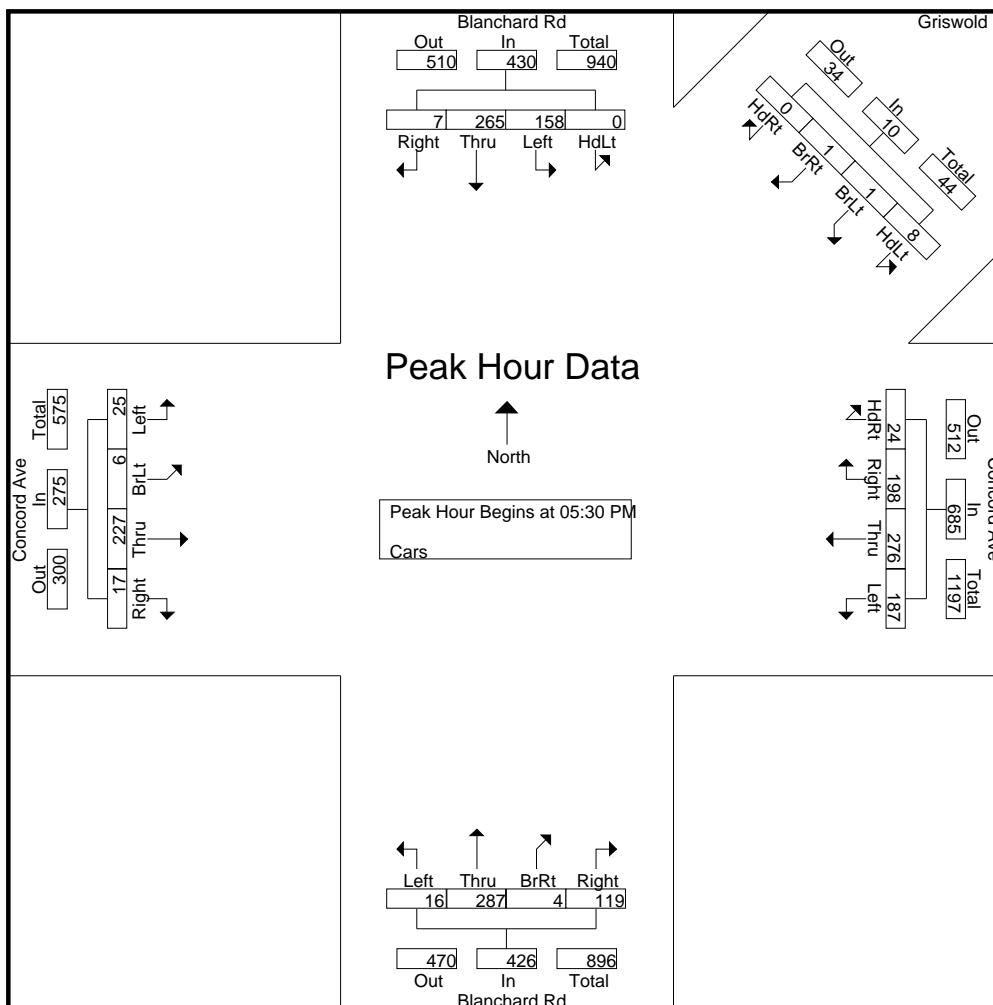
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 05:30 PM																										
05:30 PM	0	41	62	2	105	2	1	1	0	4	44	80	49	5	178	5	67	0	24	96	2	4	60	4	70	453
05:45 PM	0	35	76	1	112	2	0	0	0	2	57	64	50	10	181	6	60	2	34	102	7	1	56	3	67	464
06:00 PM	0	39	57	2	98	2	0	0	0	2	44	72	48	4	168	3	95	1	34	133	9	0	58	6	73	474
06:15 PM	0	43	70	2	115	2	0	0	0	2	42	60	51	5	158	2	65	1	27	95	7	1	53	4	65	435
Total Volume	0	158	265	7	430	8	1	1	0	10	187	276	198	24	685	16	287	4	119	426	25	6	227	17	275	1826
% App. Total	0	36.7	61.6	1.6		80	10	10	0		27.3	40.3	28.9	3.5		3.8	67.4	0.9	27.9		9.1	2.2	82.5	6.2		
PHF	.000	.919	.872	.875	.935	1.00	.250	.250	.000	.625	.820	.863	.971	.600	.946	.667	.755	.500	.875	.801	.694	.375	.946	.708	.942	.963

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 7



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

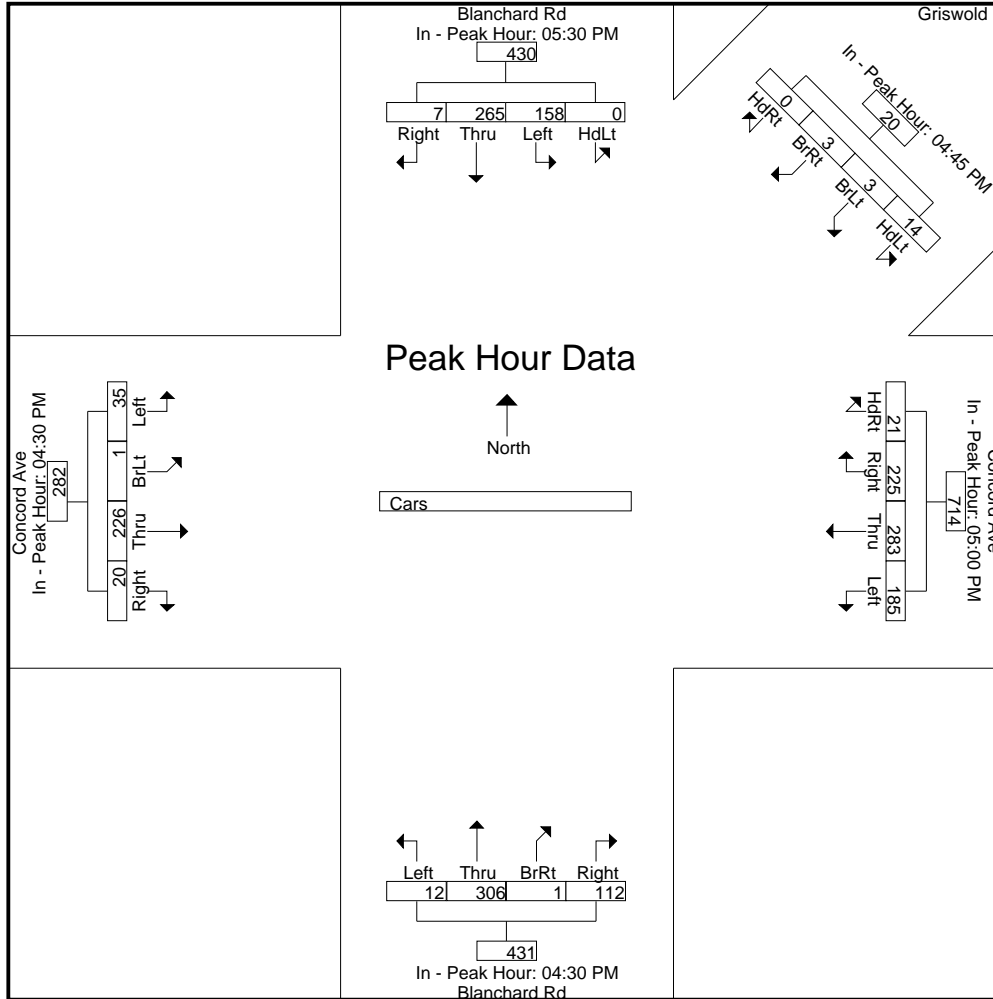
Peak Hour for Each Approach Begins at:

	05:30 PM					04:45 PM					05:00 PM					04:30 PM					04:30 PM				
+0 mins.	0	41	62	2	105	4	1	0	0	5	48	73	78	2	201	2	90	1	30	123	9	0	63	1	73
+15 mins.	0	35	76	1	112	6	1	1	0	8	36	66	48	4	154	3	77	0	28	108	8	1	57	9	75
+30 mins.	0	39	57	2	98	2	0	1	0	3	44	80	49	5	178	2	70	0	35	107	12	0	59	5	76
+45 mins.	0	43	70	2	115	2	1	1	0	4	57	64	50	10	181	5	69	0	19	93	6	0	47	5	58
Total Volume	0	158	265	7	430	14	3	3	0	20	185	283	225	21	714	12	306	1	112	431	35	1	226	20	282
% App. Total	0	36.7	61.6	1.6		70	15	15	0		25.9	39.6	31.5	2.9		2.8	71	0.2	26		12.4	0.4	80.1	7.1	

Accurate Counts

978-664-2565

PHF | .000 | .919 | .872 | .875 | .935 | .583 | .750 | .750 | .000 | .625 | .811 | .884 | .721 | .525 | .888 | .600 | .850 | .250 | .800 | .876 | .729 | .250 | .897 | .556 | .928



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Blanchard Rd From North				Griswold St From Northeast				Concord Ave From East				Blanchard Rd From South				Concord Ave From West				Int. Total
	HdLt	Left	Thru	Right	HdLt	BrLt	BrRt	HdRt	Left	Thru	Right	HdRt	Left	Thru	BrRt	Right	Left	BrLt	Thru	Right	
04:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	2	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
05:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	2	0	0	0	0	0	0	2	0	1	0	0	0	0	0	0	0	1	0	6
06:00 PM	0	1	1	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	5
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	3	1	0	0	0	0	0	2	0	5	0	0	0	0	2	0	0	2	0	15
Apprch %	0	75	25	0	0	0	0	0	28.6	0	71.4	0	0	0	0	100	0	0	100	0	
Total %	0	20	6.7	0	0	0	0	0	13.3	0	33.3	0	0	0	0	13.3	0	0	13.3	0	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 10

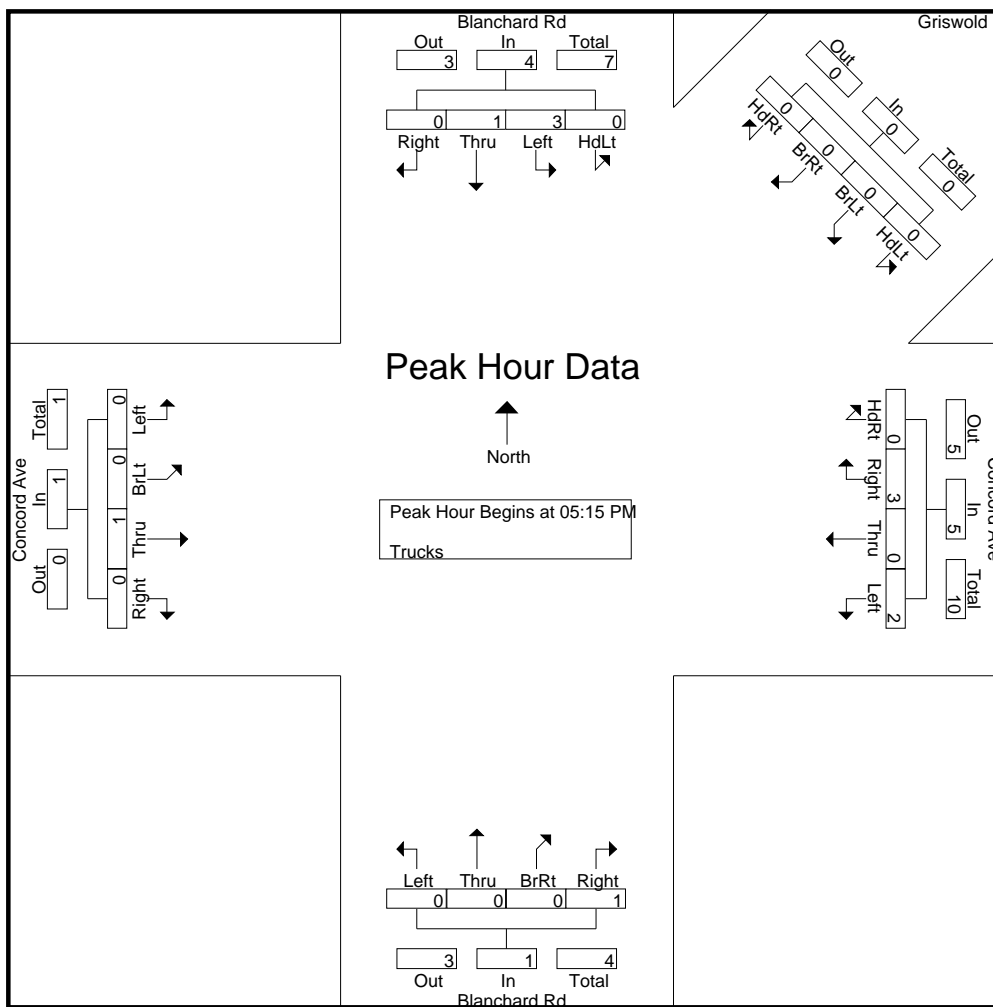
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total	
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total		
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																											
Peak Hour for Entire Intersection Begins at 05:15 PM																											
05:15 PM	0	2	0	0	2	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0	4
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	
05:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	
06:00 PM	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	1	1	0	0	0	0	0	5	
Total Volume	0	3	1	0	4	0	0	0	0	0	2	0	3	0	5	0	0	0	1	1	0	0	1	0	1	11	
% App. Total	0	75	25	0		0	0	0	0		40	0	60	0		0	0	0	100		0	0	100	0			
PHF	.000	.375	.250	.000	.500	.000	.000	.000	.000	.000	.500	.000	.375	.000	.625	.000	.000	.000	.250	.250	.000	.000	.250	.000	.250	.550	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

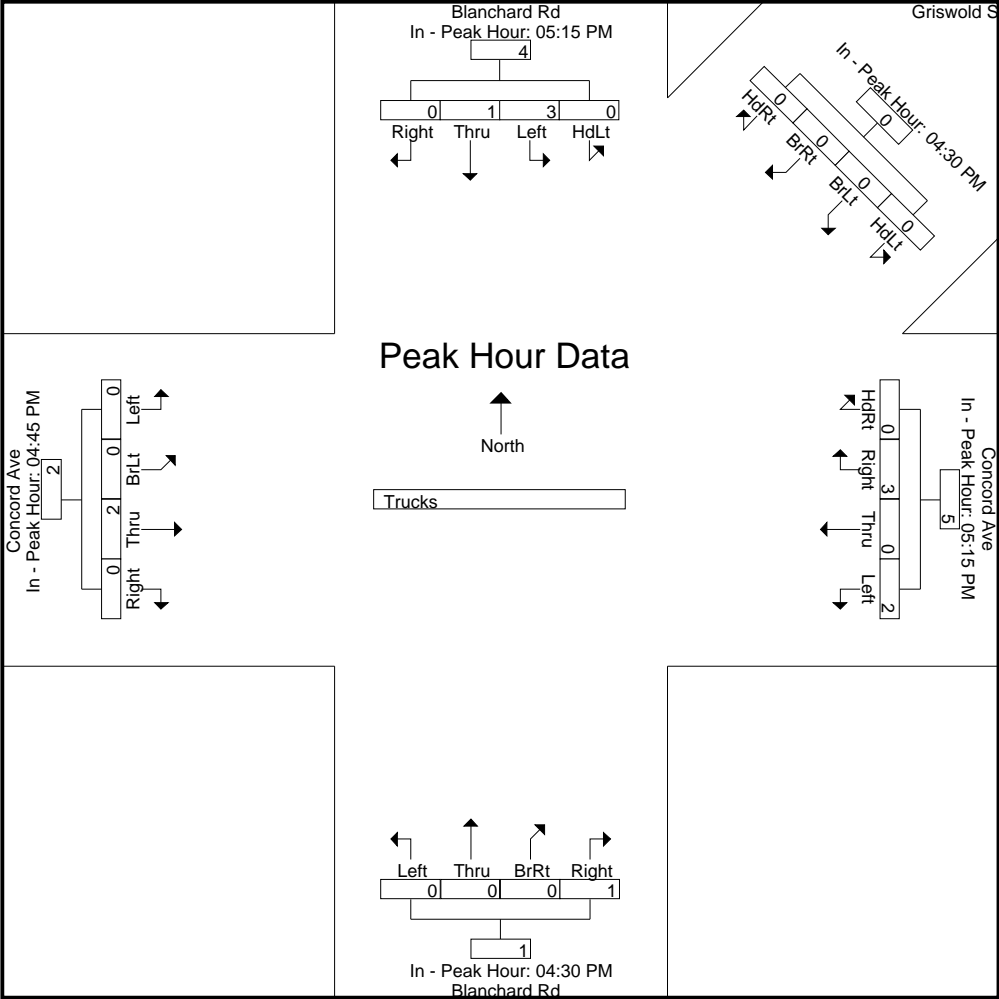
Peak Hour for Each Approach Begins at:

	05:15 PM					04:30 PM					05:15 PM					04:30 PM					04:45 PM				
+0 mins.	0	2	0	0	2	0	0	0	0	0	1	0	1	0	2	0	0	0	1	1	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0	0	1	0	1
Total Volume	0	3	1	0	4	0	0	0	0	0	2	0	3	0	5	0	0	0	1	1	0	0	2	0	2
% App. Total	0	75	25	0		0	0	0	0		40	0	60	0		0	0	0	100		0	0	100	0	

Accurate Counts

978-664-2565

PHF | .000 | .375 | .250 | .000 | .500 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .375 | .000 | .625 | .000 | .000 | .000 | .250 | .250 | .000 | .000 | .500 | .000 | .500



Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Exclu. Total	Inclu. Total	Int. Total
	HdLt	Left	Thru	Right	Peds	HdLt	BrLt	BrRt	HdRt	Peds	Left	Thru	Right	HdRt	Peds	Left	Thru	BrRt	Right	Peds	Left	BrLt	Thru	Right	Peds			
04:30 PM	0	0	0	0	7	0	0	0	0	9	0	2	0	0	2	0	0	0	0	2	0	0	1	0	0	20	3	23
04:45 PM	0	0	0	0	2	0	0	0	0	5	0	1	2	0	2	0	0	0	0	4	0	0	0	1	0	13	4	17
Total	0	0	0	0	9	0	0	0	0	14	0	3	2	0	4	0	0	0	0	6	0	0	1	1	0	33	7	40
05:00 PM	0	0	3	0	2	0	0	0	0	3	0	1	0	0	1	0	1	0	0	0	0	0	1	0	1	7	6	13
05:15 PM	0	0	0	0	6	0	0	0	0	8	0	4	0	0	4	0	1	0	1	5	0	0	0	1	1	24	7	31
05:30 PM	0	0	2	0	1	0	0	0	0	3	0	5	0	0	2	0	0	0	0	3	0	0	2	0	0	9	9	18
05:45 PM	0	0	0	0	5	0	0	0	0	9	0	11	0	0	1	0	5	0	1	2	0	0	1	1	1	18	19	37
Total	0	0	5	0	14	0	0	0	0	23	0	21	0	0	8	0	7	0	2	10	0	0	4	2	3	58	41	99
06:00 PM	0	0	1	0	3	0	0	0	0	3	0	8	2	0	4	0	0	0	0	0	0	0	0	0	0	10	11	21
06:15 PM	0	1	2	0	2	0	0	0	0	3	0	5	2	0	0	0	1	0	0	2	0	0	2	0	1	8	13	21
Grand Total	0	1	8	0	28	0	0	0	0	43	0	37	6	0	16	0	8	0	2	18	0	0	7	3	4	109	72	181
Apprch %	0	11.1	88.9	0		0	0	0	0		0	86	14	0		0	80	0	20		0	0	70	30				
Total %	0	1.4	11.1	0		0	0	0	0		0	51.4	8.3	0		0	11.1	0	2.8		0	0	9.7	4.2		60.2	39.8	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 14

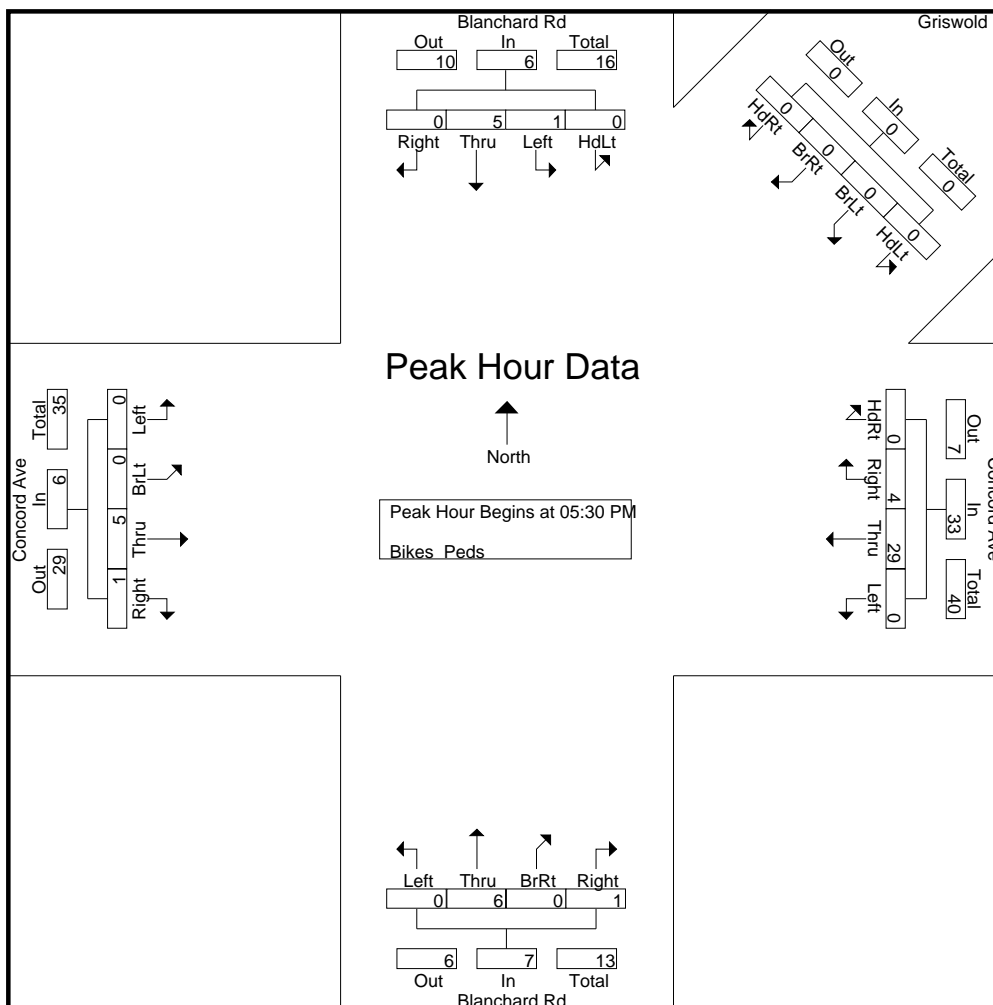
Start Time	Blanchard Rd From North					Griswold St From Northeast					Concord Ave From East					Blanchard Rd From South					Concord Ave From West					Int. Total
	HdLt	Left	Thru	Right	App. Total	HdLt	BrLt	BrRt	HdRt	App. Total	Left	Thru	Right	HdRt	App. Total	Left	Thru	BrRt	Right	App. Total	Left	BrLt	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																										
Peak Hour for Entire Intersection Begins at 05:30 PM																										
05:30 PM	0	0	2	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	0	2	0	2	9
05:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	5	0	1	6	0	0	1	1	2	19	
06:00 PM	0	0	1	0	1	0	0	0	0	0	0	8	2	10	0	0	0	0	0	0	0	0	0	0	11	
06:15 PM	0	1	2	0	3	0	0	0	0	0	0	5	2	7	0	1	0	0	1	0	0	2	0	2	13	
Total Volume	0	1	5	0	6	0	0	0	0	0	0	29	4	33	0	6	0	1	7	0	0	5	1	6	52	
% App. Total	0	16.7	83.3	0		0	0	0	0		0	87.9	12.1		0	85.7	0	14.3		0	0	83.3	16.7			
PHF	.000	.250	.625	.000	.500	.000	.000	.000	.000	.000	.000	.659	.500	.750	.000	.300	.000	.250	.292	.000	.000	.625	.250	.750	.684	

Accurate Counts

978-664-2565

N/S Street : Blanchard Rd / Griswold St
 E/W Street : Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840001
 Site Code : 80840001
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

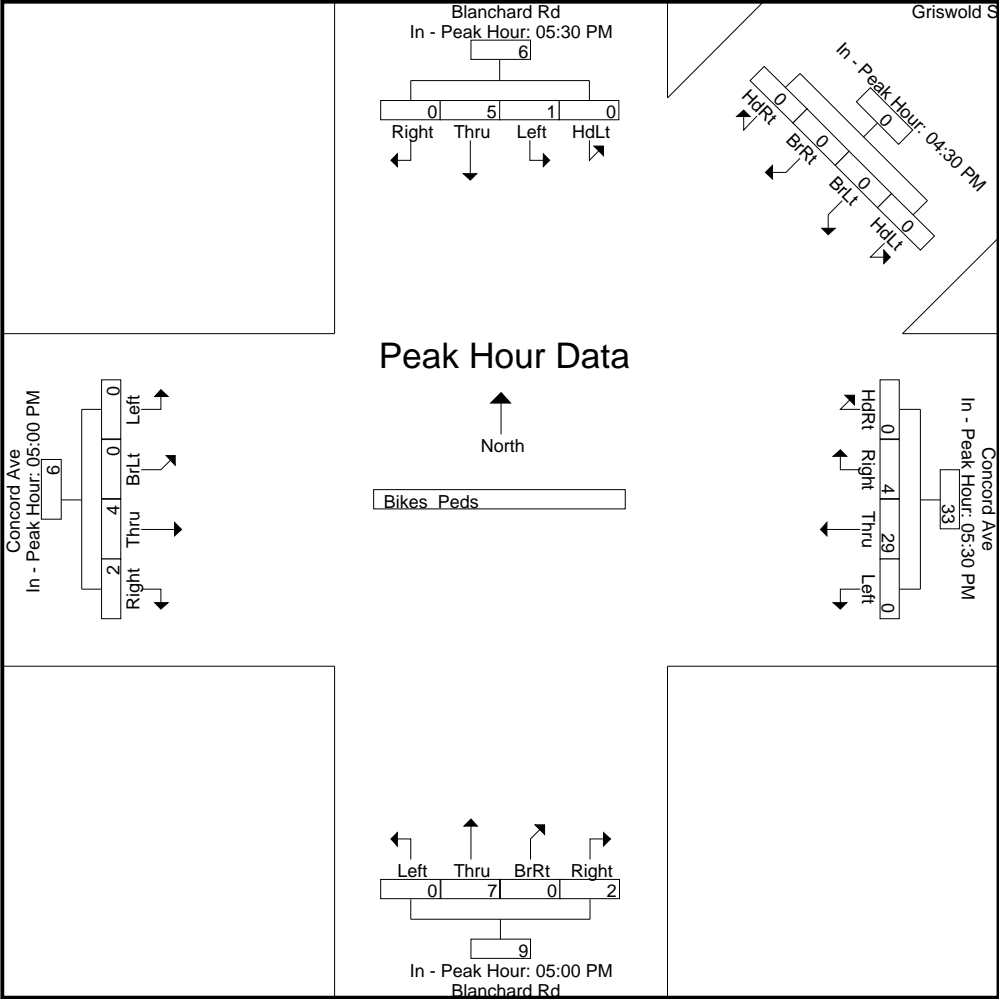
Peak Hour for Each Approach Begins at:

	05:30 PM					04:30 PM					05:30 PM					05:00 PM					05:00 PM				
+0 mins.	0	0	2	0	2	0	0	0	0	0	0	5	0	0	5	0	1	0	0	1	0	0	1	0	1
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	11	0	0	11	0	1	0	1	2	0	0	0	1	1
+30 mins.	0	0	1	0	1	0	0	0	0	0	0	8	2	0	10	0	0	0	0	0	0	0	2	0	2
+45 mins.	0	1	2	0	3	0	0	0	0	0	0	5	2	0	7	0	5	0	1	6	0	0	1	1	2
Total Volume	0	1	5	0	6	0	0	0	0	0	0	29	4	0	33	0	7	0	2	9	0	0	4	2	6
% App. Total	0	16.7	83.3	0		0	0	0	0		0	87.9	12.1	0		0	77.8	0	22.2		0	0	66.7	33.3	

Accurate Counts

978-664-2565

PHF | .000 .250 .625 .000 .500 | .000 .000 .000 .000 .000 | .000 .659 .500 .000 .750 | .000 .350 .000 .500 .375 | .000 .000 .500 .500 .750



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	8	0	15	0	105	18	0	0	0	25	173	0	344
07:45 AM	5	0	12	0	121	18	0	0	0	20	239	0	415
Total	13	0	27	0	226	36	0	0	0	45	412	0	759
08:00 AM	6	0	8	0	141	14	0	0	0	17	186	0	372
08:15 AM	14	0	13	0	158	11	0	0	0	18	206	0	420
08:30 AM	7	0	16	0	158	3	0	0	0	14	250	0	448
08:45 AM	7	0	14	0	144	10	0	0	0	16	235	0	426
Total	34	0	51	0	601	38	0	0	0	65	877	0	1666
09:00 AM	11	0	11	0	101	6	0	0	0	15	221	0	365
09:15 AM	10	0	19	0	109	6	0	0	0	13	157	0	314
Grand Total	68	0	108	0	1037	86	0	0	0	138	1667	0	3104
Apprch %	38.6	0	61.4	0	92.3	7.7	0	0	0	7.6	92.4	0	
Total %	2.2	0	3.5	0	33.4	2.8	0	0	0	4.4	53.7	0	
Cars	63	0	100	0	1019	78	0	0	0	130	1654	0	3044
% Cars	92.6	0	92.6	0	98.3	90.7	0	0	0	94.2	99.2	0	98.1
Trucks	5	0	8	0	18	8	0	0	0	8	13	0	60
% Trucks	7.4	0	7.4	0	1.7	9.3	0	0	0	5.8	0.8	0	1.9

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 2

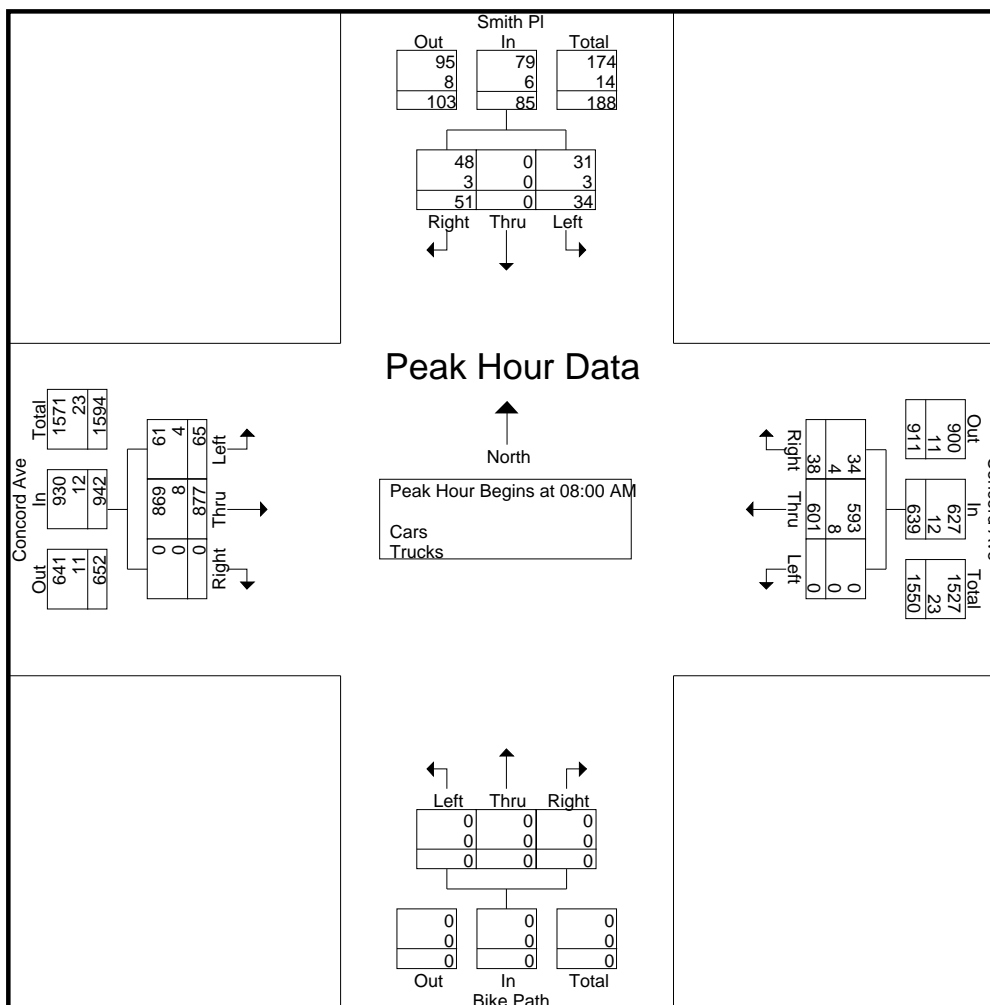
Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	6	0	8	14	0	141	14	155	0	0	0	0	17	186	0	203	372
08:15 AM	14	0	13	27	0	158	11	169	0	0	0	0	18	206	0	224	420
08:30 AM	7	0	16	23	0	158	3	161	0	0	0	0	14	250	0	264	448
08:45 AM	7	0	14	21	0	144	10	154	0	0	0	0	16	235	0	251	426
Total Volume	34	0	51	85	0	601	38	639	0	0	0	0	65	877	0	942	1666
% App. Total	40	0	60		0	94.1	5.9		0	0	0		6.9	93.1	0		
PHF	.607	.000	.797	.787	.000	.951	.679	.945	.000	.000	.000	.000	.903	.877	.000	.892	.930
Cars	31	0	48	79	0	593	34	627	0	0	0	0	61	869	0	930	1636
% Cars	91.2	0	94.1	92.9	0	98.7	89.5	98.1	0	0	0	0	93.8	99.1	0	98.7	98.2
Trucks	3	0	3	6	0	8	4	12	0	0	0	0	4	8	0	12	30
% Trucks	8.8	0	5.9	7.1	0	1.3	10.5	1.9	0	0	0	0	6.2	0.9	0	1.3	1.8

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

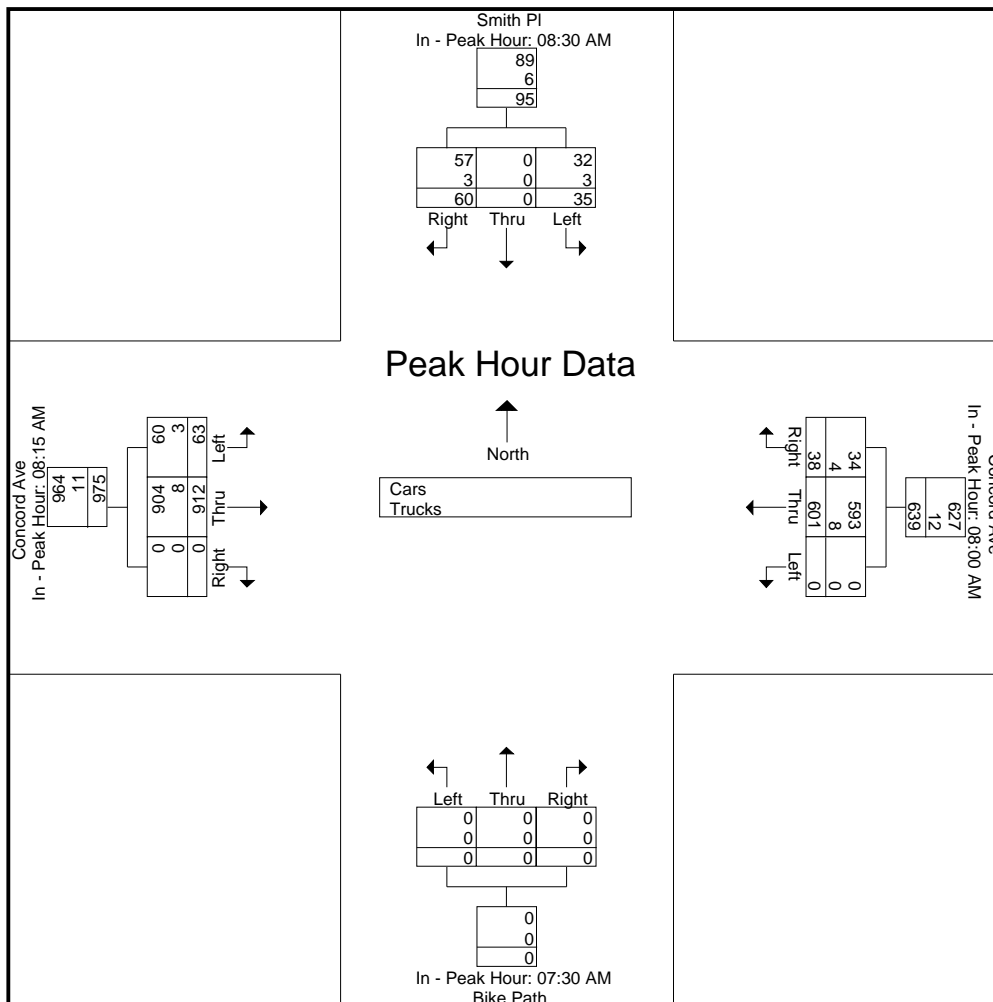
Peak Hour for Each Approach Begins at:

	08:30 AM				08:00 AM				07:30 AM				08:15 AM			
+0 mins.	7	0	16	23	0	141	14	155	0	0	0	0	18	206	0	224
+15 mins.	7	0	14	21	0	158	11	169	0	0	0	0	14	250	0	264
+30 mins.	11	0	11	22	0	158	3	161	0	0	0	0	16	235	0	251
+45 mins.	10	0	19	29	0	144	10	154	0	0	0	0	15	221	0	236
Total Volume	35	0	60	95	0	601	38	639	0	0	0	0	63	912	0	975

Accurate Counts

978-664-2565

% App. Total	36.8	0	63.2		0	94.1	5.9		0	0	0		6.5	93.5	0	
PHF	.795	.000	.789	.819	.000	.951	.679	.945	.000	.000	.000	.000	.875	.912	.000	.923
Cars	32	0	57	89	0	593	34	627	0	0	0	0	60	904	0	964
% Cars	91.4	0	95	93.7	0	98.7	89.5	98.1	0	0	0	0	95.2	99.1	0	98.9
Trucks	3	0	3	6	0	8	4	12	0	0	0	0	3	8	0	11
% Trucks	8.6	0	5	6.3	0	1.3	10.5	1.9	0	0	0	0	4.8	0.9	0	1.1



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	8	0	14	0	102	18	0	0	0	24	172	0	338
07:45 AM	5	0	9	0	117	17	0	0	0	18	238	0	404
Total	13	0	23	0	219	35	0	0	0	42	410	0	742
08:00 AM	5	0	7	0	137	13	0	0	0	16	184	0	362
08:15 AM	13	0	13	0	156	10	0	0	0	17	206	0	415
08:30 AM	6	0	16	0	157	3	0	0	0	13	249	0	444
08:45 AM	7	0	12	0	143	8	0	0	0	15	230	0	415
Total	31	0	48	0	593	34	0	0	0	61	869	0	1636
09:00 AM	10	0	11	0	100	5	0	0	0	15	219	0	360
09:15 AM	9	0	18	0	107	4	0	0	0	12	156	0	306
Grand Total	63	0	100	0	1019	78	0	0	0	130	1654	0	3044
Apprch %	38.7	0	61.3	0	92.9	7.1	0	0	0	7.3	92.7	0	
Total %	2.1	0	3.3	0	33.5	2.6	0	0	0	4.3	54.3	0	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 6

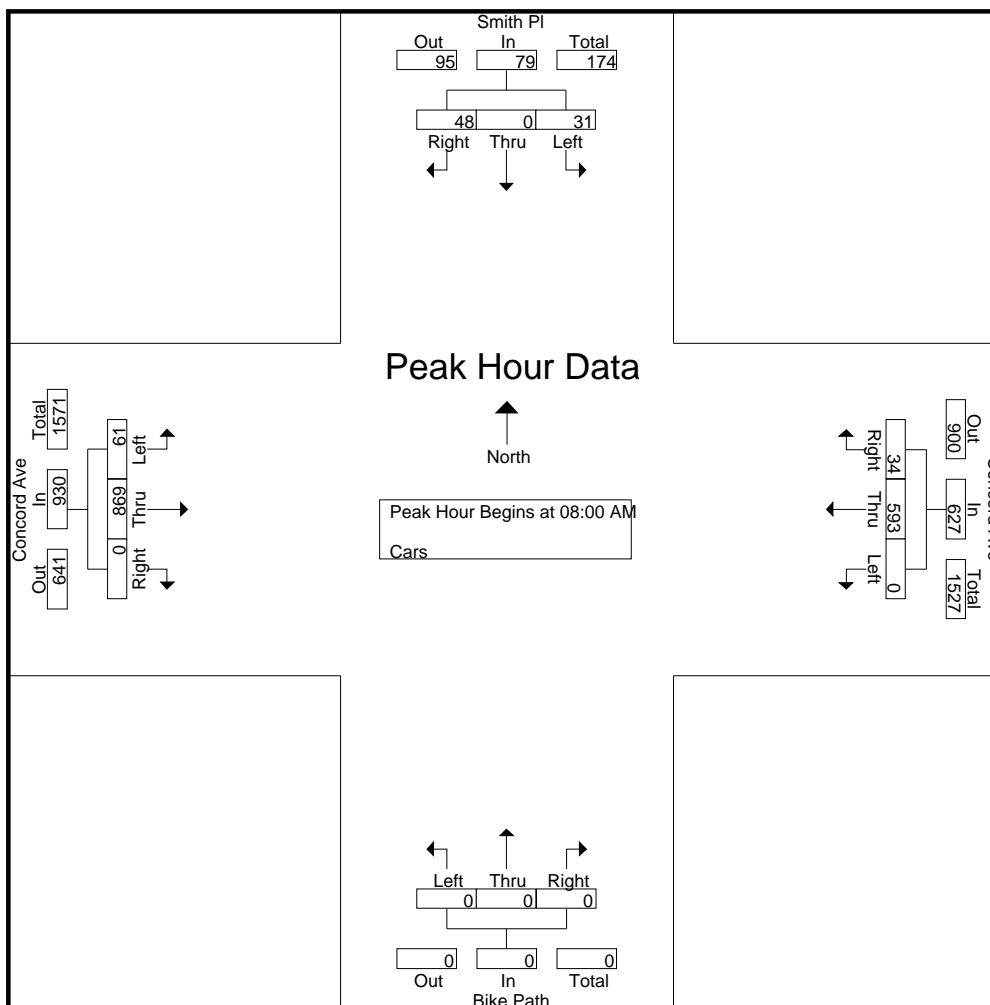
Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	5	0	7	12	0	137	13	150	0	0	0	0	16	184	0	200	362
08:15 AM	13	0	13	26	0	156	10	166	0	0	0	0	17	206	0	223	415
08:30 AM	6	0	16	22	0	157	3	160	0	0	0	0	13	249	0	262	444
08:45 AM	7	0	12	19	0	143	8	151	0	0	0	0	15	230	0	245	415
Total Volume	31	0	48	79	0	593	34	627	0	0	0	0	61	869	0	930	1636
% App. Total	39.2	0	60.8		0	94.6	5.4		0	0	0		6.6	93.4	0		
PHF	.596	.000	.750	.760	.000	.944	.654	.944	.000	.000	.000	.000	.897	.872	.000	.887	.921

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 7



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

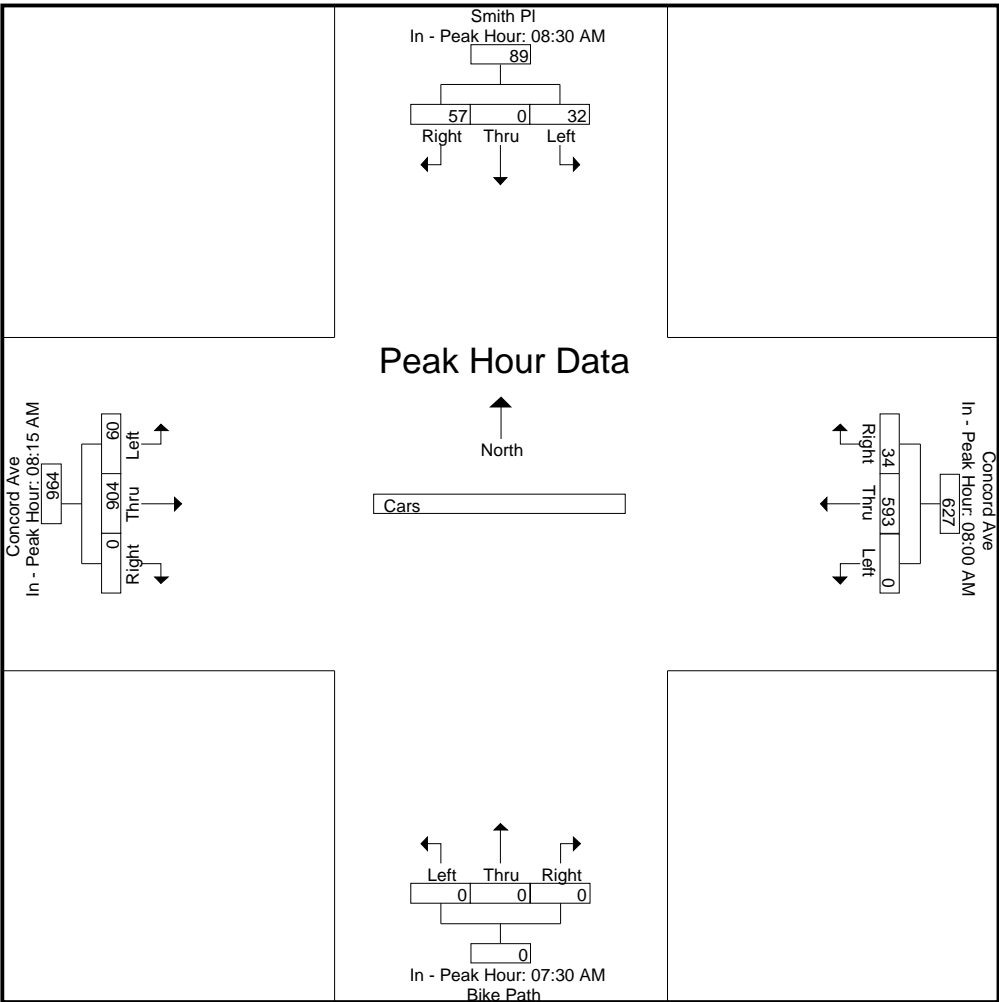
Peak Hour for Each Approach Begins at:

	08:30 AM				08:00 AM				07:30 AM				08:15 AM			
+0 mins.	6	0	16	22	0	137	13	150	0	0	0	0	17	206	0	223
+15 mins.	7	0	12	19	0	156	10	166	0	0	0	0	13	249	0	262
+30 mins.	10	0	11	21	0	157	3	160	0	0	0	0	15	230	0	245
+45 mins.	9	0	18	27	0	143	8	151	0	0	0	0	15	219	0	234
Total Volume	32	0	57	89	0	593	34	627	0	0	0	0	60	904	0	964

Accurate Counts

978-664-2565

% App. Total	36	0	64		0	94.6	5.4		0	0	0		6.2	93.8	0	
PHF	.800	.000	.792	.824	.000	.944	.654	.944	.000	.000	.000	.000	.882	.908	.000	.920



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	0	0	1	0	3	0	0	0	0	1	1	0	6
07:45 AM	0	0	3	0	4	1	0	0	0	2	1	0	11
Total	0	0	4	0	7	1	0	0	0	3	2	0	17
08:00 AM	1	0	1	0	4	1	0	0	0	1	2	0	10
08:15 AM	1	0	0	0	2	1	0	0	0	1	0	0	5
08:30 AM	1	0	0	0	1	0	0	0	0	1	1	0	4
08:45 AM	0	0	2	0	1	2	0	0	0	1	5	0	11
Total	3	0	3	0	8	4	0	0	0	4	8	0	30
09:00 AM	1	0	0	0	1	1	0	0	0	0	2	0	5
09:15 AM	1	0	1	0	2	2	0	0	0	1	1	0	8
Grand Total	5	0	8	0	18	8	0	0	0	8	13	0	60
Apprch %	38.5	0	61.5	0	69.2	30.8	0	0	0	38.1	61.9	0	
Total %	8.3	0	13.3	0	30	13.3	0	0	0	13.3	21.7	0	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 10

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	1	1	0	3	0	3	0	0	0	0	1	1	0	2	6
07:45 AM	0	0	3	3	0	4	1	5	0	0	0	0	2	1	0	3	11
08:00 AM	1	0	1	2	0	4	1	5	0	0	0	0	1	2	0	3	10
08:15 AM	1	0	0	1	0	2	1	3	0	0	0	0	1	0	0	1	5
Total Volume	2	0	5	7	0	13	3	16	0	0	0	0	5	4	0	9	32
% App. Total	28.6	0	71.4		0	81.2	18.8		0	0	0		55.6	44.4	0		
PHF	.500	.000	.417	.583	.000	.813	.750	.800	.000	.000	.000	.000	.625	.500	.000	.750	.727

Accurate Counts

978-664-2565

File Name : 80840003

Site Code : 80840003

Start Date : 4/2/2019

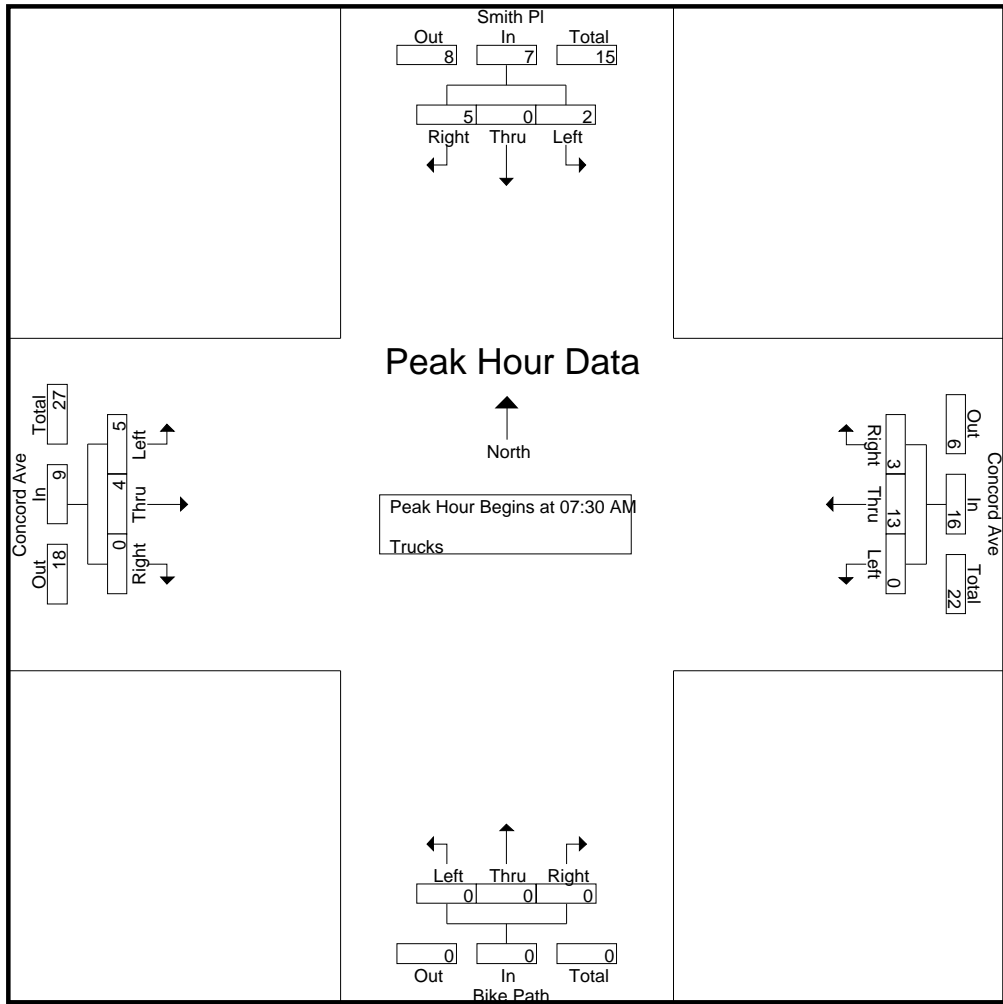
Page No : 11

N/S Street : Smith Place / Bike Path

E/W Street: Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

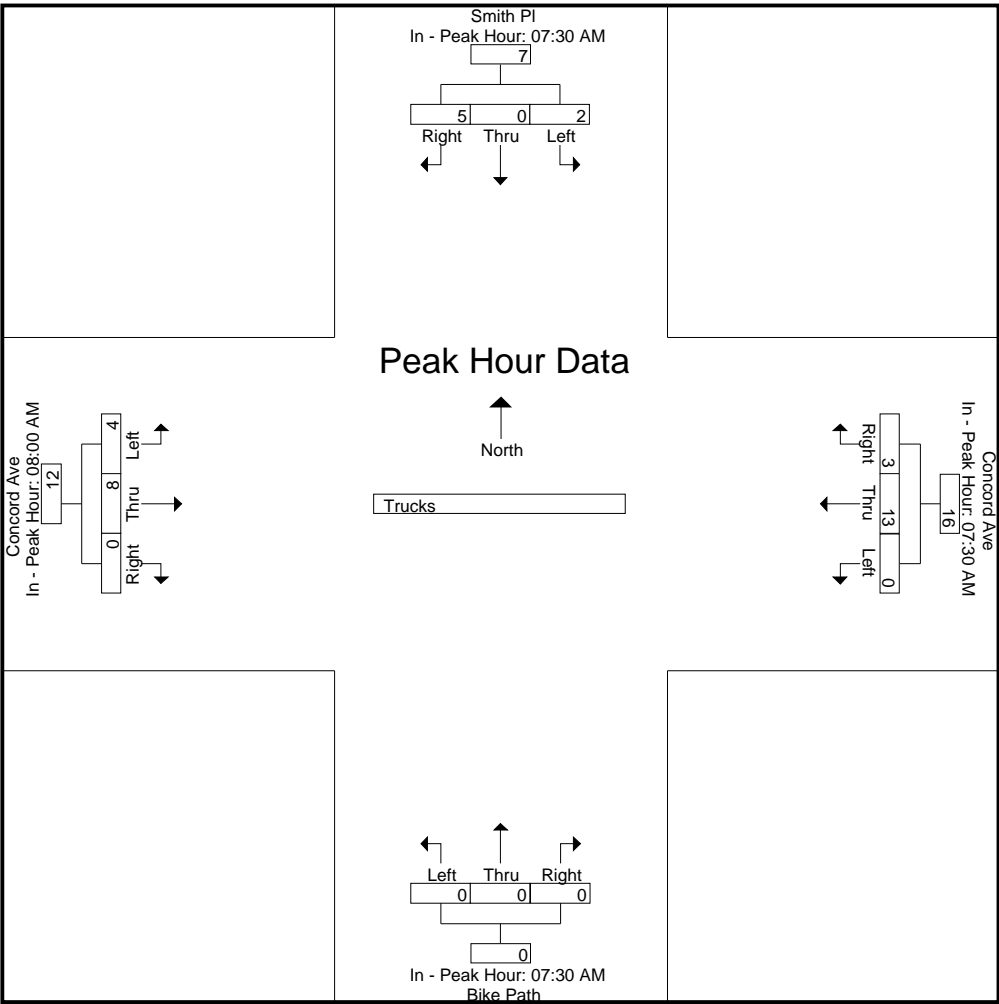
Peak Hour for Each Approach Begins at:

	07:30 AM				07:30 AM				07:30 AM				08:00 AM			
+0 mins.	0	0	1	1	0	3	0	3	0	0	0	0	1	2	0	3
+15 mins.	0	0	3	3	0	4	1	5	0	0	0	0	1	0	0	1
+30 mins.	1	0	1	2	0	4	1	5	0	0	0	0	1	1	0	2
+45 mins.	1	0	0	1	0	2	1	3	0	0	0	0	1	5	0	6
Total Volume	2	0	5	7	0	13	3	16	0	0	0	0	4	8	0	12

Accurate Counts

978-664-2565

% App. Total	28.6	0	71.4		0	81.2	18.8		0	0	0		33.3	66.7	0	
PHF	.500	.000	.417	.583	.000	.813	.750	.800	.000	.000	.000	.000	1.000	.400	.000	.500



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	8	2	0	2	10	12
07:45 AM	0	0	0	4	0	2	0	0	1	0	0	0	0	6	0	2	6	9	15
Total	0	0	0	6	0	2	0	0	1	0	0	0	0	14	2	2	8	19	27
08:00 AM	0	0	0	1	0	4	0	0	3	0	0	0	0	8	2	0	1	17	18
08:15 AM	0	0	0	3	0	4	0	0	1	0	0	0	0	7	1	0	3	13	16
08:30 AM	0	0	0	4	0	0	0	0	1	0	0	0	0	12	1	1	5	14	19
08:45 AM	0	0	0	2	0	3	0	0	0	0	0	0	0	5	0	1	3	8	11
Total	0	0	0	10	0	11	0	0	5	0	0	0	0	32	4	2	12	52	64
09:00 AM	0	0	0	5	0	2	0	0	0	0	0	0	0	8	1	0	5	11	16
09:15 AM	0	0	0	4	0	0	1	0	0	0	0	0	0	6	0	0	4	7	11
Grand Total	0	0	0	25	0	15	1	0	6	0	0	0	0	60	7	4	29	89	118
Apprch %	0	0	0		0	93.8	6.2		100	0	0		0	89.6	10.4				
Total %	0	0	0		0	16.9	1.1		6.7	0	0		0	67.4	7.9		24.6	75.4	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 14

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	0	0	0	0	0	2	0	2	1	0	0	1	0	6	0	6	9
08:00 AM	0	0	0	0	0	4	0	4	3	0	0	3	0	8	2	10	17
08:15 AM	0	0	0	0	0	4	0	4	1	0	0	1	0	7	1	8	13
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	1	0	12	1	13	14
Total Volume	0	0	0	0	0	10	0	10	6	0	0	6	0	33	4	37	53
% App. Total	0	0	0		0	100	0		100	0	0		0	89.2	10.8		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.500	.000	.000	.500	.000	.688	.500	.712	.779

Accurate Counts

978-664-2565

File Name : 80840003

Site Code : 80840003

Start Date : 4/2/2019

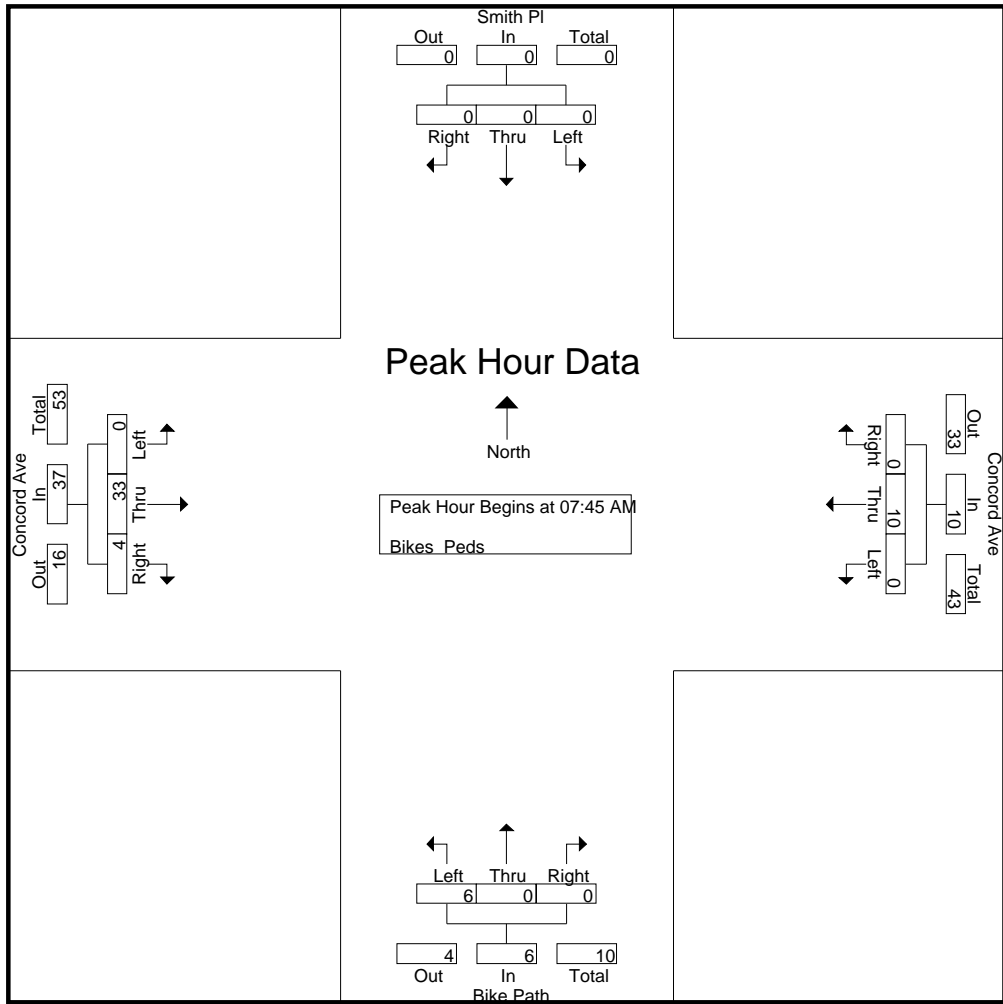
Page No : 15

N/S Street : Smith Place / Bike Path

E/W Street: Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

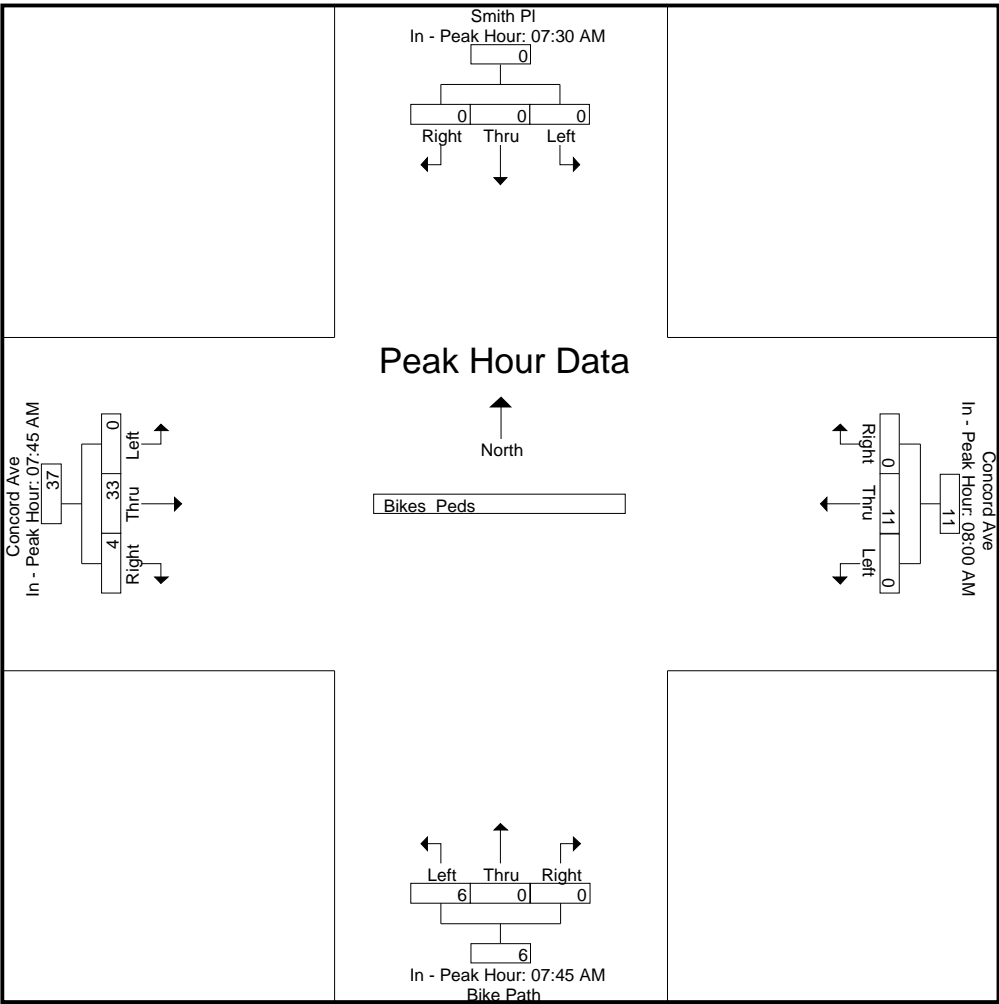
Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				07:45 AM				07:45 AM			
+0 mins.	0	0	0	0	0	4	0	4	1	0	0	1	0	6	0	6
+15 mins.	0	0	0	0	0	4	0	4	3	0	0	3	0	8	2	10
+30 mins.	0	0	0	0	0	0	0	0	1	0	0	1	0	7	1	8
+45 mins.	0	0	0	0	0	3	0	3	1	0	0	1	0	12	1	13
Total Volume	0	0	0	0	0	11	0	11	6	0	0	6	0	33	4	37

Accurate Counts

978-664-2565

% App. Total	0	0	0	0	0	100	0	100	0	0	0	0	89.2	10.8		
PHF	.000	.000	.000	.000	.000	.688	.000	.688	.500	.000	.000	.500	.000	.688	.500	.712



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	22	0	34	0	115	10	0	0	0	16	124	0	321
04:45 PM	28	0	22	0	125	8	0	0	0	12	123	0	318
Total	50	0	56	0	240	18	0	0	0	28	247	0	639
05:00 PM	23	0	28	0	121	3	0	0	0	15	132	0	322
05:15 PM	12	0	22	0	144	4	0	0	0	18	113	0	313
05:30 PM	14	0	31	0	143	3	0	0	0	12	125	0	328
05:45 PM	14	0	27	0	107	5	0	0	0	15	118	0	286
Total	63	0	108	0	515	15	0	0	0	60	488	0	1249
06:00 PM	16	0	26	0	127	4	0	0	0	7	159	0	339
06:15 PM	8	0	16	0	145	7	0	0	0	11	115	0	302
Grand Total	137	0	206	0	1027	44	0	0	0	106	1009	0	2529
Apprch %	39.9	0	60.1	0	95.9	4.1	0	0	0	9.5	90.5	0	
Total %	5.4	0	8.1	0	40.6	1.7	0	0	0	4.2	39.9	0	
Cars	137	0	205	0	1020	44	0	0	0	106	1002	0	2514
% Cars	100	0	99.5	0	99.3	100	0	0	0	100	99.3	0	99.4
Trucks	0	0	1	0	7	0	0	0	0	0	7	0	15
% Trucks	0	0	0.5	0	0.7	0	0	0	0	0	0.7	0	0.6

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 2

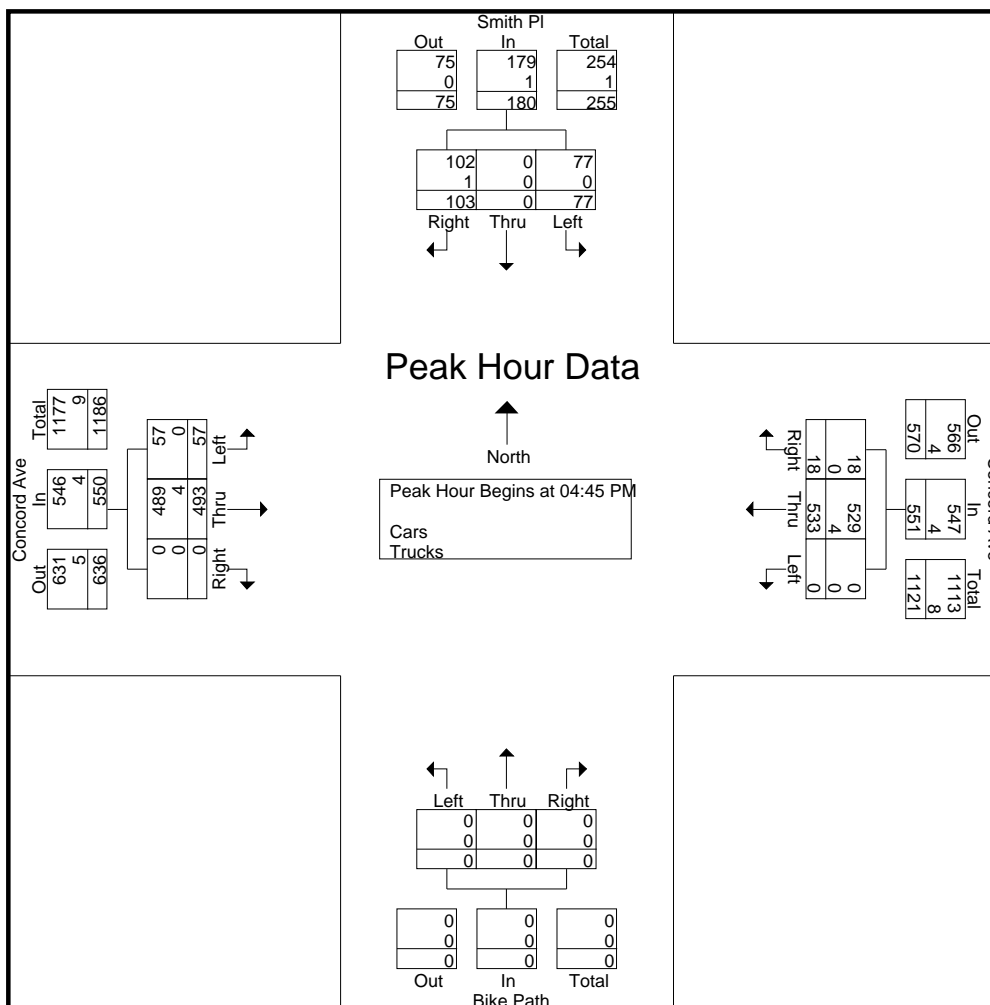
Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	28	0	22	50	0	125	8	133	0	0	0	0	12	123	0	135	318
05:00 PM	23	0	28	51	0	121	3	124	0	0	0	0	15	132	0	147	322
05:15 PM	12	0	22	34	0	144	4	148	0	0	0	0	18	113	0	131	313
05:30 PM	14	0	31	45	0	143	3	146	0	0	0	0	12	125	0	137	328
Total Volume	77	0	103	180	0	533	18	551	0	0	0	0	57	493	0	550	1281
% App. Total	42.8	0	57.2		0	96.7	3.3		0	0	0		10.4	89.6	0		
PHF	.688	.000	.831	.882	.000	.925	.563	.931	.000	.000	.000	.000	.792	.934	.000	.935	.976
Cars	77	0	102	179	0	529	18	547	0	0	0	0	57	489	0	546	1272
% Cars	100	0	99.0	99.4	0	99.2	100	99.3	0	0	0	0	100	99.2	0	99.3	99.3
Trucks	0	0	1	1	0	4	0	4	0	0	0	0	0	4	0	4	9
% Trucks	0	0	1.0	0.6	0	0.8	0	0.7	0	0	0	0	0	0.8	0	0.7	0.7

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

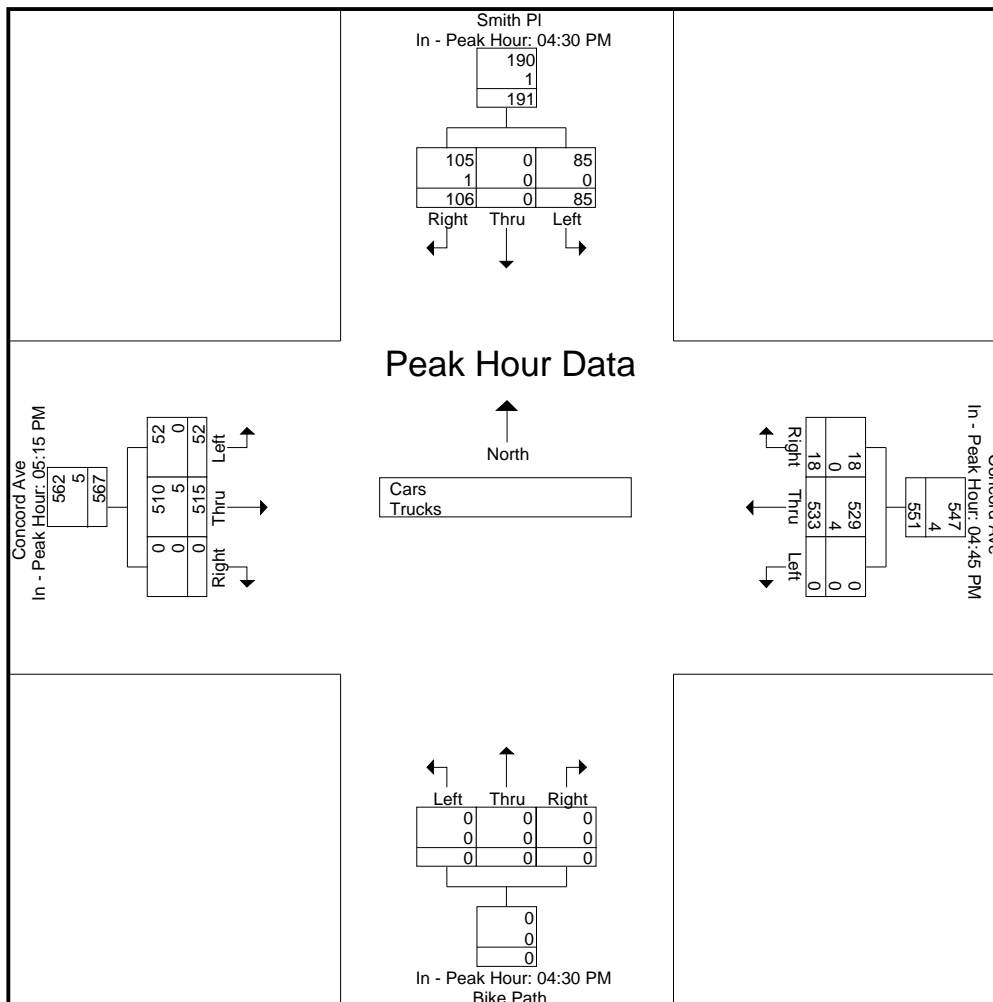
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				05:15 PM							
+0 mins.	22	0	34	56	0	125	8	133	0	0	0	0	18	113	0	131
+15 mins.	28	0	22	50	0	121	3	124	0	0	0	0	12	125	0	137
+30 mins.	23	0	28	51	0	144	4	148	0	0	0	0	15	118	0	133
+45 mins.	12	0	22	34	0	143	3	146	0	0	0	0	7	159	0	166
Total Volume	85	0	106	191	0	533	18	551	0	0	0	0	52	515	0	567

Accurate Counts

978-664-2565

% App. Total	44.5	0	55.5		0	96.7	3.3		0	0	0		9.2	90.8	0	
PHF	.759	.000	.779	.853	.000	.925	.563	.931	.000	.000	.000	.000	.722	.810	.000	.854
Cars	85	0	105	190	0	529	18	547	0	0	0	0	52	510	0	562
% Cars	100	0	99.1	99.5	0	99.2	100	99.3	0	0	0	0	100	99	0	99.1
Trucks	0	0	1	1	0	4	0	4	0	0	0	0	0	5	0	5
% Trucks	0	0	0.9	0.5	0	0.8	0	0.7	0	0	0	0	0	1	0	0.9



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	22	0	34	0	114	10	0	0	0	16	123	0	319
04:45 PM	28	0	22	0	124	8	0	0	0	12	122	0	316
Total	50	0	56	0	238	18	0	0	0	28	245	0	635
05:00 PM	23	0	28	0	121	3	0	0	0	15	132	0	322
05:15 PM	12	0	21	0	142	4	0	0	0	18	112	0	309
05:30 PM	14	0	31	0	142	3	0	0	0	12	123	0	325
05:45 PM	14	0	27	0	107	5	0	0	0	15	118	0	286
Total	63	0	107	0	512	15	0	0	0	60	485	0	1242
06:00 PM	16	0	26	0	125	4	0	0	0	7	157	0	335
06:15 PM	8	0	16	0	145	7	0	0	0	11	115	0	302
Grand Total	137	0	205	0	1020	44	0	0	0	106	1002	0	2514
Apprch %	40.1	0	59.9	0	95.9	4.1	0	0	0	9.6	90.4	0	
Total %	5.4	0	8.2	0	40.6	1.8	0	0	0	4.2	39.9	0	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 6

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	28	0	22	50	0	124	8	132	0	0	0	0	12	122	0	134	316
05:00 PM	23	0	28	51	0	121	3	124	0	0	0	0	15	132	0	147	322
05:15 PM	12	0	21	33	0	142	4	146	0	0	0	0	18	112	0	130	309
05:30 PM	14	0	31	45	0	142	3	145	0	0	0	0	12	123	0	135	325
Total Volume	77	0	102	179	0	529	18	547	0	0	0	0	57	489	0	546	1272
% App. Total	43	0	57		0	96.7	3.3		0	0	0		10.4	89.6	0		
PHF	.688	.000	.823	.877	.000	.931	.563	.937	.000	.000	.000	.000	.792	.926	.000	.929	.978

Accurate Counts

978-664-2565

File Name : 80840003

Site Code : 80840003

Start Date : 4/2/2019

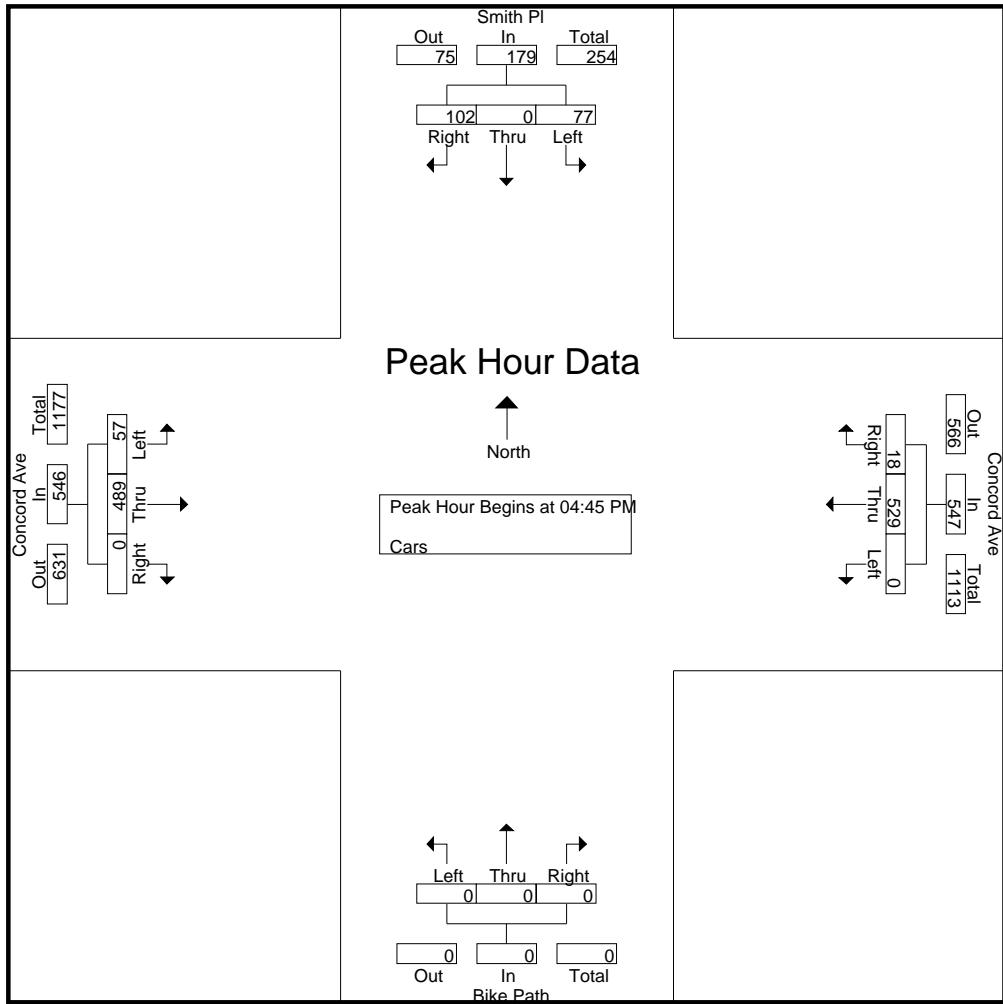
Page No : 7

N/S Street : Smith Place / Bike Path

E/W Street: Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

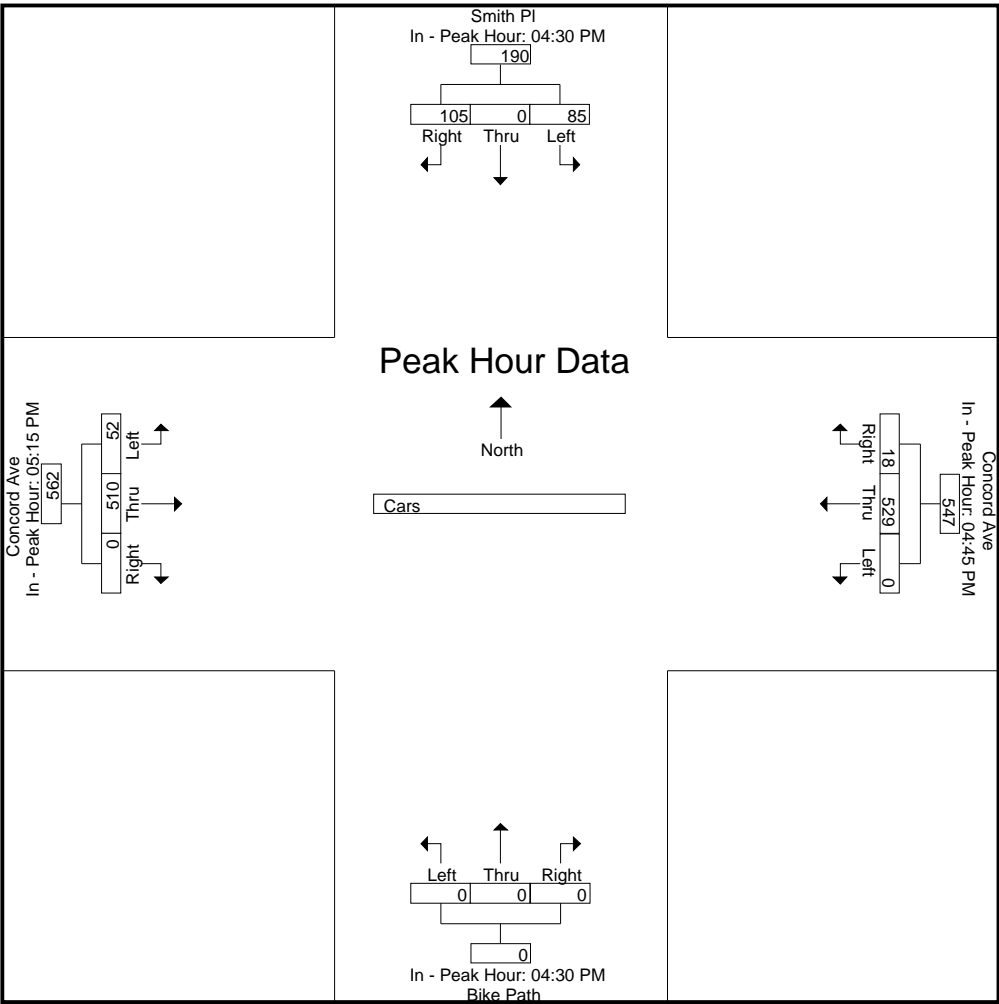
Peak Hour for Each Approach Begins at:

	04:30 PM				04:45 PM				05:15 PM							
+0 mins.	22	0	34	56	0	124	8	132	0	0	0	0	18	112	0	130
+15 mins.	28	0	22	50	0	121	3	124	0	0	0	0	12	123	0	135
+30 mins.	23	0	28	51	0	142	4	146	0	0	0	0	15	118	0	133
+45 mins.	12	0	21	33	0	142	3	145	0	0	0	0	7	157	0	164
Total Volume	85	0	105	190	0	529	18	547	0	0	0	0	52	510	0	562

Accurate Counts

978-664-2565

% App. Total	44.7	0	55.3		0	96.7	3.3		0	0	0		9.3	90.7	0	
PHF	.759	.000	.772	.848	.000	.931	.563	.937	.000	.000	.000	.000	.722	.812	.000	.857



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Smith Pl From North			Concord Ave From East			Bike Path From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
04:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
Total	0	0	0	0	2	0	0	0	0	0	2	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	1	0	2	0	0	0	0	0	1	0	4
05:30 PM	0	0	0	0	1	0	0	0	0	0	2	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	3	0	0	0	0	0	3	0	7
06:00 PM	0	0	0	0	2	0	0	0	0	0	2	0	4
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	1	0	7	0	0	0	0	0	7	0	15
Apprch %	0	0	100	0	100	0	0	0	0	0	100	0	
Total %	0	0	6.7	0	46.7	0	0	0	0	0	46.7	0	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 10

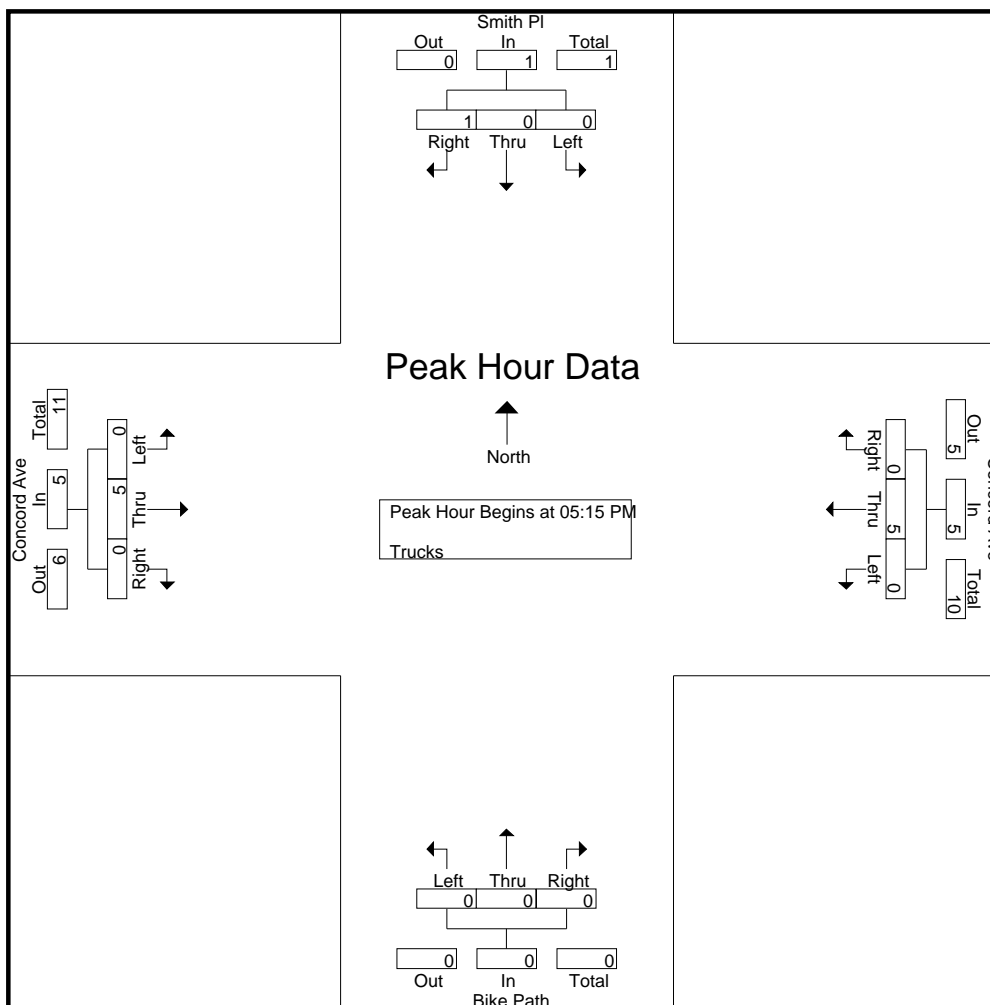
Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	1	1	0	2	0	2	0	0	0	0	0	1	0	1	4
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total Volume	0	0	1	1	0	5	0	5	0	0	0	0	0	5	0	5	11
% App. Total	0	0	100		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.250	.250	.000	.625	.000	.625	.000	.000	.000	.000	.000	.625	.000	.625	.688

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

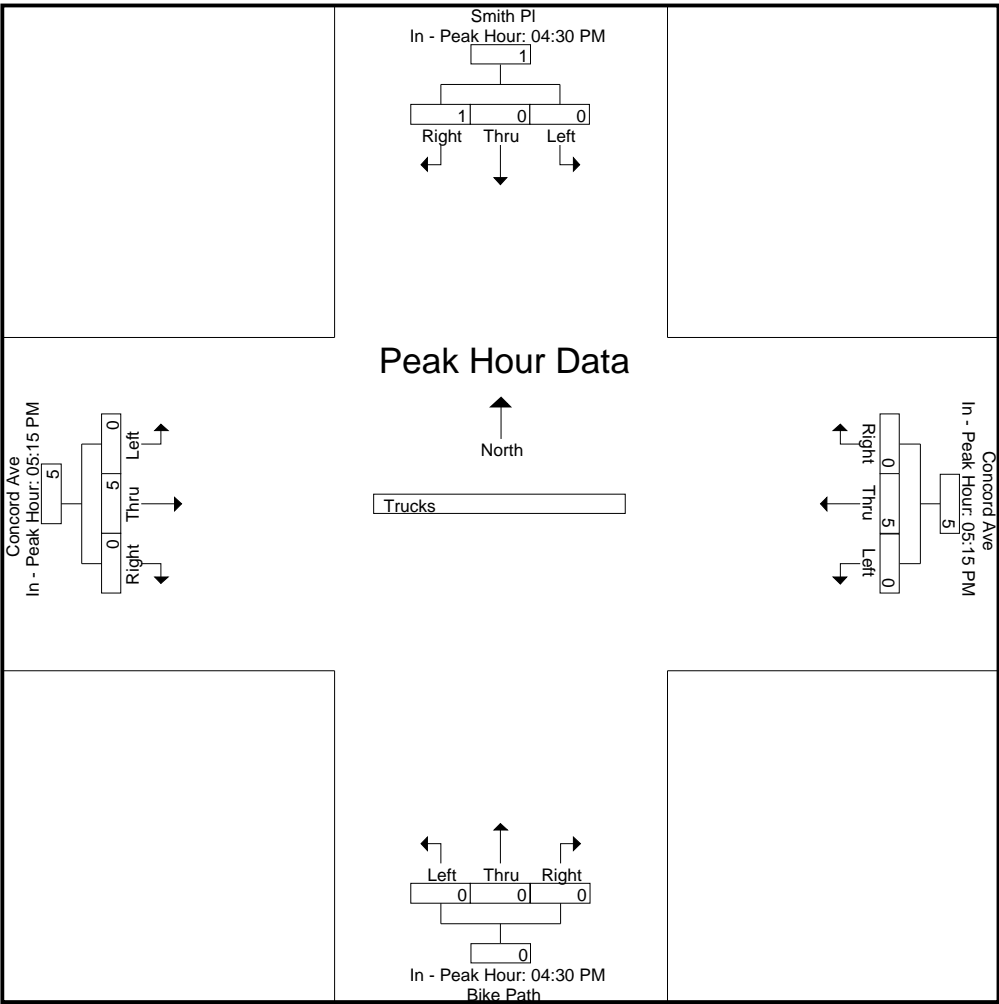
Peak Hour for Each Approach Begins at:

	04:30 PM				05:15 PM				04:30 PM				05:15 PM			
+0 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	1	1	0	2	0	2	0	0	0	0	0	2	0	2
Total Volume	0	0	1	1	0	5	0	5	0	0	0	0	0	5	0	5

Accurate Counts

978-664-2565

% App. Total	0	0	100		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.625	.000	.625	.000	.000	.000	.000	.000	.625	.000	.625



Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:30 PM	0	0	0	2	0	5	1	0	0	0	0	0	0	3	0	2	4	9	13
04:45 PM	2	0	0	5	0	3	0	0	0	0	0	0	0	3	1	4	9	9	18
Total	2	0	0	7	0	8	1	0	0	0	0	0	0	6	1	6	13	18	31
05:00 PM	0	0	0	0	0	5	0	0	0	1	0	0	0	2	1	10	10	9	19
05:15 PM	0	0	0	4	0	6	1	0	0	0	0	0	0	2	0	2	6	9	15
05:30 PM	0	0	0	7	0	7	0	0	2	1	0	0	0	3	0	5	12	13	25
05:45 PM	0	0	1	3	0	10	0	0	2	0	0	0	0	4	0	7	10	17	27
Total	0	0	1	14	0	28	1	0	4	2	0	0	0	11	1	24	38	48	86
06:00 PM	0	0	0	6	0	9	0	0	0	0	0	0	0	0	0	5	11	9	20
06:15 PM	1	0	1	2	0	8	0	0	0	0	0	0	0	4	0	4	6	14	20
Grand Total	3	0	2	29	0	53	2	0	4	2	0	0	0	21	2	39	68	89	157
Apprch %	60	0	40		0	96.4	3.6		66.7	33.3	0		0	91.3	8.7				
Total %	3.4	0	2.2		0	59.6	2.2		4.5	2.2	0		0	23.6	2.2		43.3	56.7	

Accurate Counts

978-664-2565

N/S Street : Smith Place / Bike Path
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840003
 Site Code : 80840003
 Start Date : 4/2/2019
 Page No : 14

Start Time	Smith Pl From North				Concord Ave From East				Bike Path From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	7	0	7	2	1	0	3	0	3	0	3	13
05:45 PM	0	0	1	1	0	10	0	10	2	0	0	2	0	4	0	4	17
06:00 PM	0	0	0	0	0	9	0	9	0	0	0	0	0	0	0	0	9
06:15 PM	1	0	1	2	0	8	0	8	0	0	0	0	0	4	0	4	14
Total Volume	1	0	2	3	0	34	0	34	4	1	0	5	0	11	0	11	53
% App. Total	33.3	0	66.7		0	100	0		80	20	0		0	100	0		
PHF	.250	.000	.500	.375	.000	.850	.000	.850	.500	.250	.000	.417	.000	.688	.000	.688	.779

Accurate Counts

978-664-2565

File Name : 80840003

Site Code : 80840003

Start Date : 4/2/2019

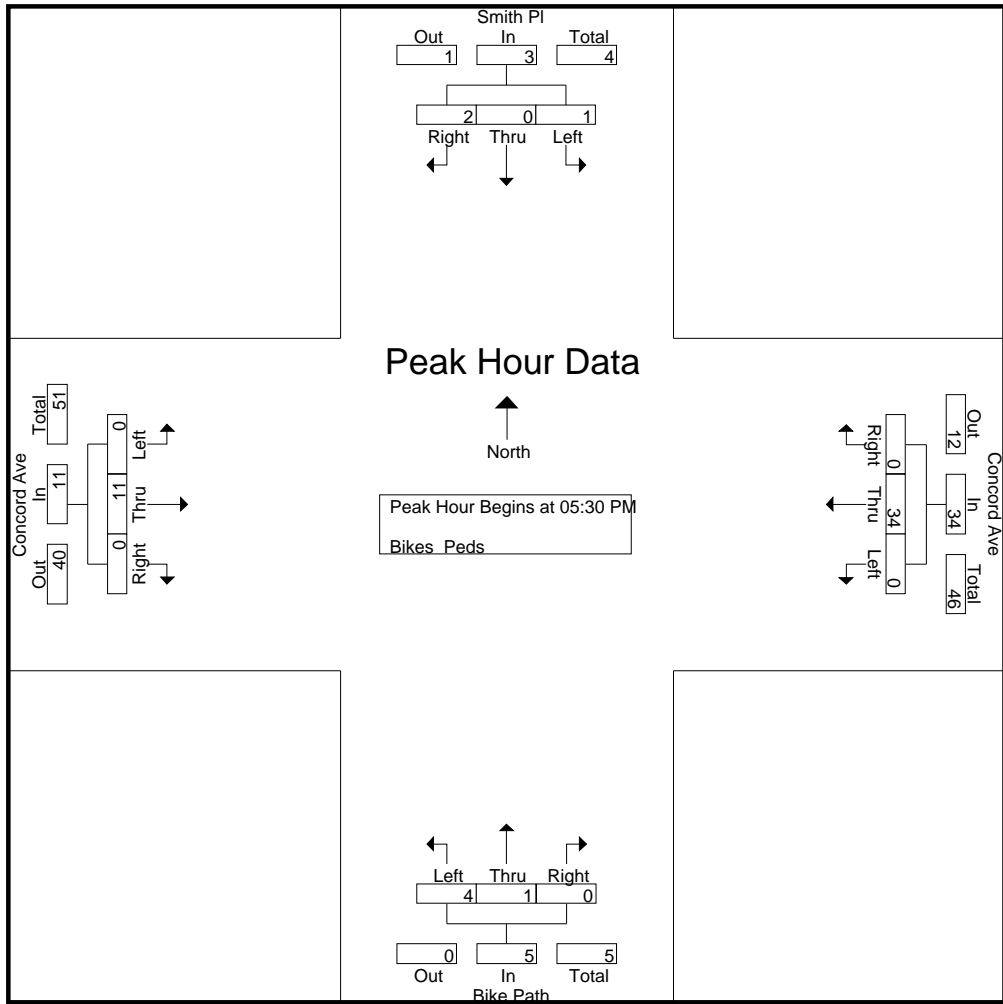
Page No : 15

N/S Street : Smith Place / Bike Path

E/W Street: Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

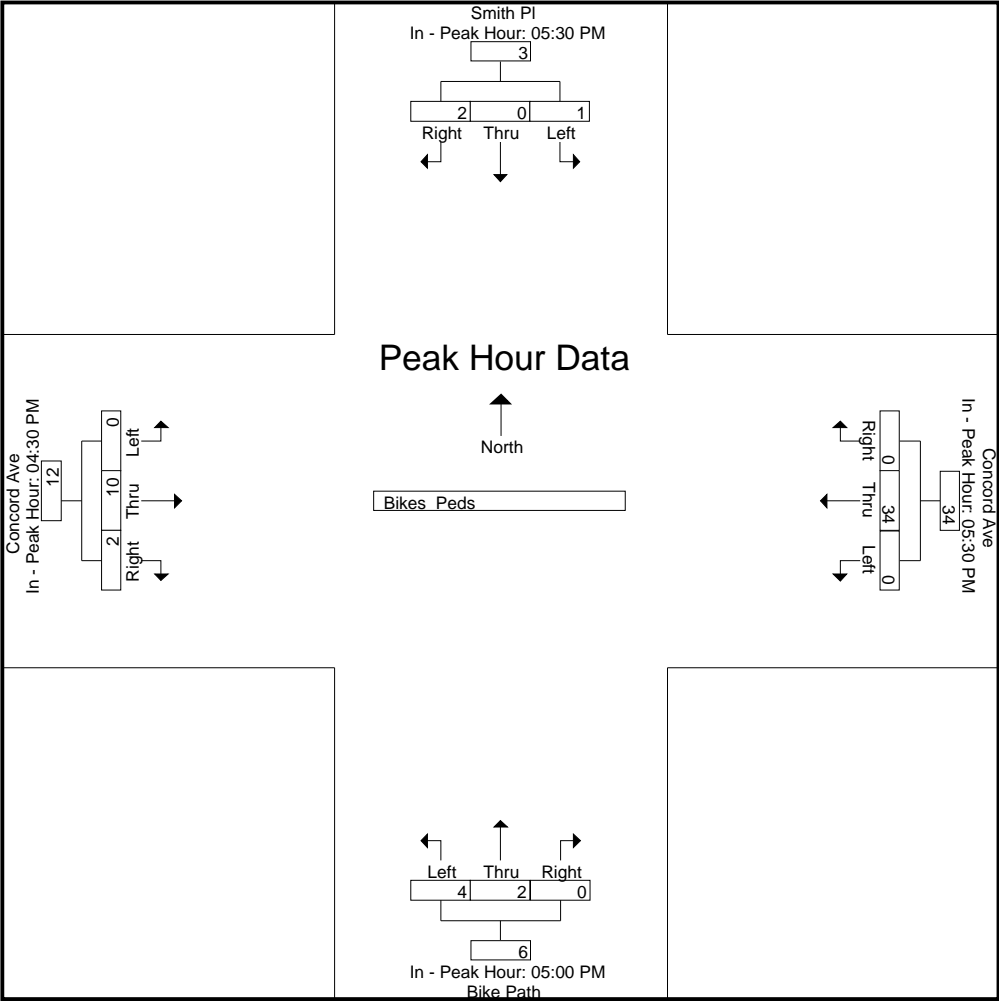
Peak Hour for Each Approach Begins at:

	05:30 PM				05:00 PM				04:30 PM							
+0 mins.	0	0	0	0	0	7	0	7	0	1	0	1	0	3	0	3
+15 mins.	0	0	1	1	0	10	0	10	0	0	0	0	0	3	1	4
+30 mins.	0	0	0	0	0	9	0	9	2	1	0	3	0	2	1	3
+45 mins.	1	0	1	2	0	8	0	8	2	0	0	2	0	2	0	2
Total Volume	1	0	2	3	0	34	0	34	4	2	0	6	0	10	2	12

Accurate Counts

978-664-2565

% App. Total	33.3	0	66.7		0	100	0		66.7	33.3	0		0	83.3	16.7	
PHF	.250	.000	.500	.375	.000	.850	.000	.850	.500	.500	.000	.500	.000	.833	.500	.750



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	16	0	3	5	120	4	0	0	2	1	183	1	335
07:45 AM	7	0	0	3	148	11	1	0	1	2	232	2	407
Total	23	0	3	8	268	15	1	0	3	3	415	3	742
08:00 AM	8	0	4	4	168	12	0	0	1	2	184	3	386
08:15 AM	7	0	1	2	169	10	2	0	1	5	198	7	402
08:30 AM	13	0	2	3	153	12	0	0	0	4	236	5	428
08:45 AM	13	1	3	3	159	18	0	0	2	7	225	4	435
Total	41	1	10	12	649	52	2	0	4	18	843	19	1651
09:00 AM	8	0	1	3	111	16	0	0	1	12	204	6	362
09:15 AM	6	0	2	10	106	17	4	0	2	8	158	1	314
Grand Total	78	1	16	33	1134	100	7	0	10	41	1620	29	3069
Apprch %	82.1	1.1	16.8	2.6	89.5	7.9	41.2	0	58.8	2.4	95.9	1.7	
Total %	2.5	0	0.5	1.1	37	3.3	0.2	0	0.3	1.3	52.8	0.9	
Cars	74	1	16	32	1108	99	6	0	10	41	1598	29	3014
% Cars	94.9	100	100	97	97.7	99	85.7	0	100	100	98.6	100	98.2
Trucks	4	0	0	1	26	1	1	0	0	0	22	0	55
% Trucks	5.1	0	0	3	2.3	1	14.3	0	0	0	1.4	0	1.8

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 2

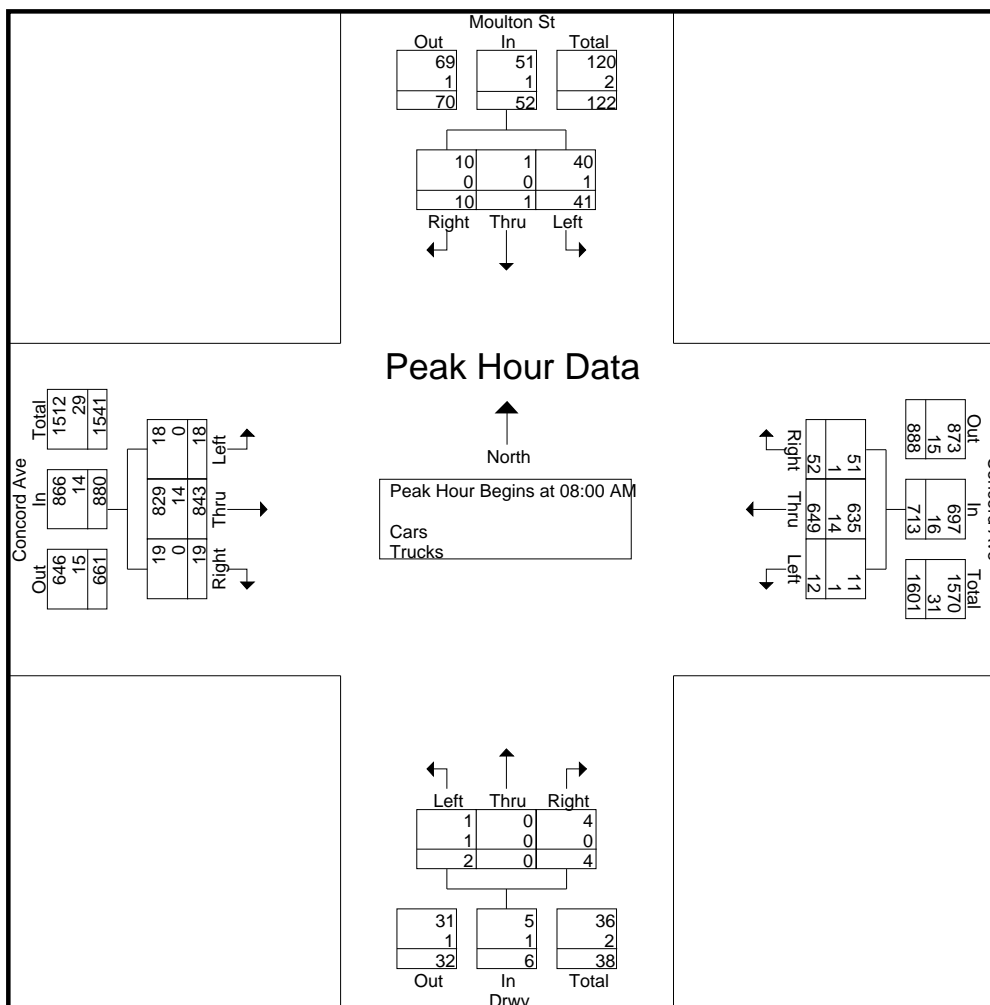
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	0	4	12	4	168	12	184	0	0	1	1	2	184	3	189	386
08:15 AM	7	0	1	8	2	169	10	181	2	0	1	3	5	198	7	210	402
08:30 AM	13	0	2	15	3	153	12	168	0	0	0	0	4	236	5	245	428
08:45 AM	13	1	3	17	3	159	18	180	0	0	2	2	7	225	4	236	435
Total Volume	41	1	10	52	12	649	52	713	2	0	4	6	18	843	19	880	1651
% App. Total	78.8	1.9	19.2		1.7	91	7.3		33.3	0	66.7		2	95.8	2.2		
PHF	.788	.250	.625	.765	.750	.960	.722	.969	.250	.000	.500	.500	.643	.893	.679	.898	.949
Cars	40	1	10	51	11	635	51	697	1	0	4	5	18	829	19	866	1619
% Cars	97.6	100	100	98.1	91.7	97.8	98.1	97.8	50.0	0	100	83.3	100	98.3	100	98.4	98.1
Trucks	1	0	0	1	1	14	1	16	1	0	0	1	0	14	0	14	32
% Trucks	2.4	0	0	1.9	8.3	2.2	1.9	2.2	50.0	0	0	16.7	0	1.7	0	1.6	1.9

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

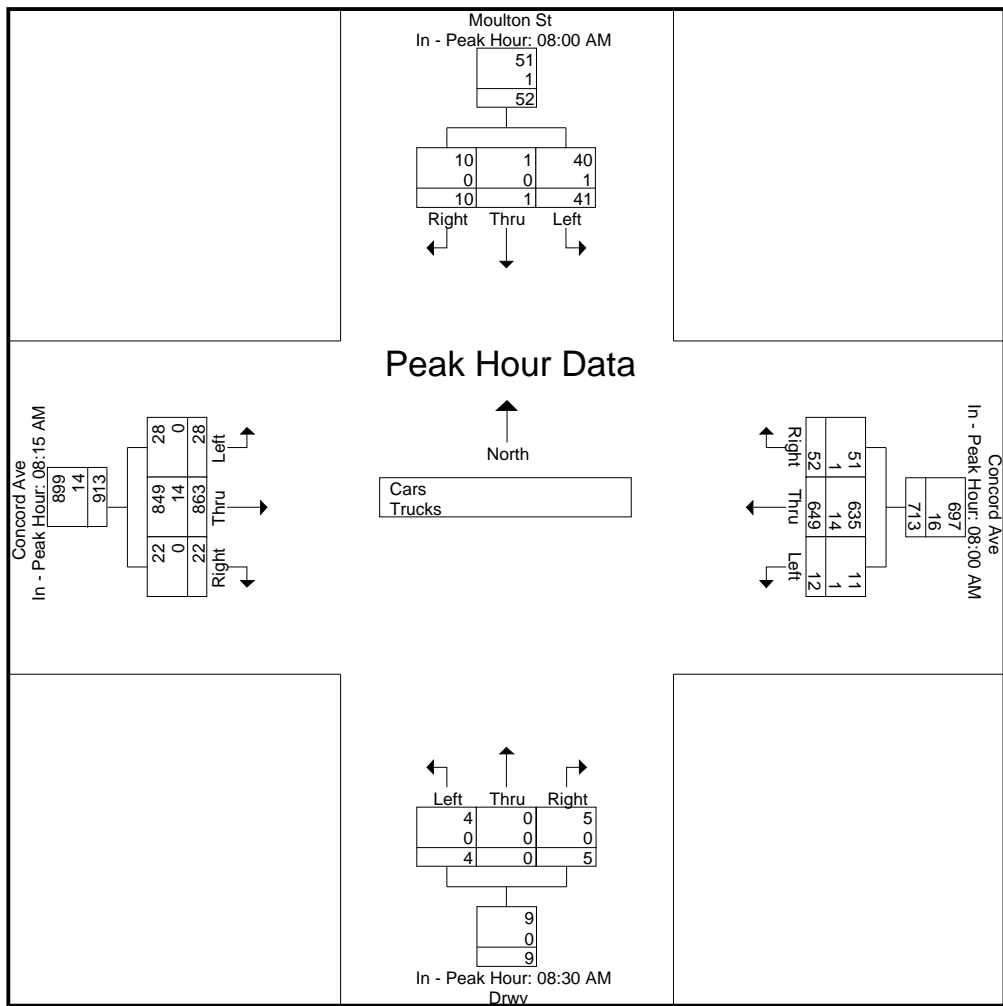
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:30 AM				08:15 AM			
+0 mins.	8	0	4	12	4	168	12	184	0	0	0	0	5	198	7	210
+15 mins.	7	0	1	8	2	169	10	181	0	0	2	2	4	236	5	245
+30 mins.	13	0	2	15	3	153	12	168	0	0	1	1	7	225	4	236
+45 mins.	13	1	3	17	3	159	18	180	4	0	2	6	12	204	6	222
Total Volume	41	1	10	52	12	649	52	713	4	0	5	9	28	863	22	913

Accurate Counts

978-664-2565

% App. Total	78.8	1.9	19.2		1.7	91	7.3		44.4	0	55.6		3.1	94.5	2.4	
PHF	.788	.250	.625	.765	.750	.960	.722	.969	.250	.000	.625	.375	.583	.914	.786	.932
Cars	40	1	10	51	11	635	51	697	4	0	5	9	28	849	22	899
% Cars	97.6	100	100	98.1	91.7	97.8	98.1	97.8	100	0	100	100	100	98.4	100	98.5
Trucks	1	0	0	1	1	14	1	16	0	0	0	0	0	14	0	14
% Trucks	2.4	0	0	1.9	8.3	2.2	1.9	2.2	0	0	0	0	0	1.6	0	1.5



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	15	0	3	5	119	4	0	0	2	1	181	1	331
07:45 AM	7	0	0	3	143	11	1	0	1	2	231	2	401
Total	22	0	3	8	262	15	1	0	3	3	412	3	732
08:00 AM	8	0	4	3	161	11	0	0	1	2	181	3	374
08:15 AM	6	0	1	2	167	10	1	0	1	5	196	7	396
08:30 AM	13	0	2	3	151	12	0	0	0	4	233	5	423
08:45 AM	13	1	3	3	156	18	0	0	2	7	219	4	426
Total	40	1	10	11	635	51	1	0	4	18	829	19	1619
09:00 AM	7	0	1	3	108	16	0	0	1	12	201	6	355
09:15 AM	5	0	2	10	103	17	4	0	2	8	156	1	308
Grand Total	74	1	16	32	1108	99	6	0	10	41	1598	29	3014
Apprch %	81.3	1.1	17.6	2.6	89.4	8	37.5	0	62.5	2.5	95.8	1.7	
Total %	2.5	0	0.5	1.1	36.8	3.3	0.2	0	0.3	1.4	53	1	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 6

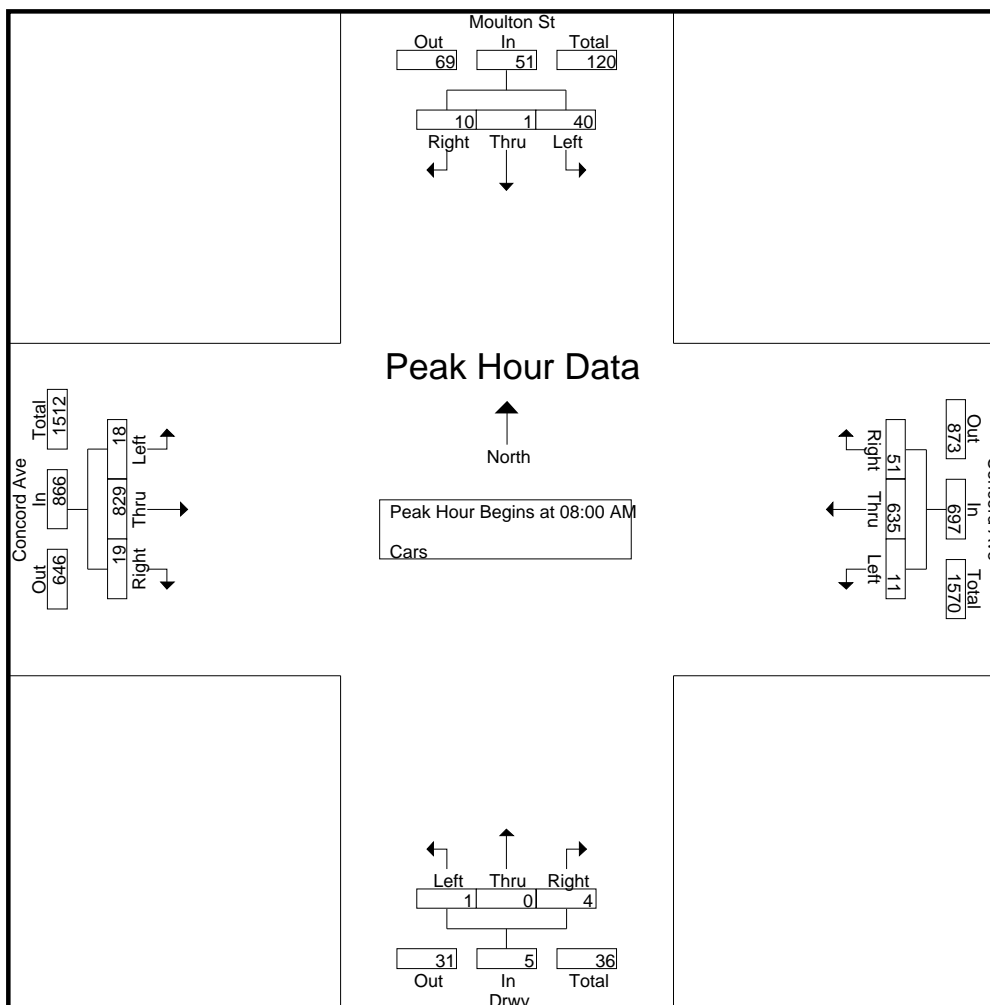
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	8	0	4	12	3	161	11	175	0	0	1	1	2	181	3	186	374
08:15 AM	6	0	1	7	2	167	10	179	1	0	1	2	5	196	7	208	396
08:30 AM	13	0	2	15	3	151	12	166	0	0	0	0	4	233	5	242	423
08:45 AM	13	1	3	17	3	156	18	177	0	0	2	2	7	219	4	230	426
Total Volume	40	1	10	51	11	635	51	697	1	0	4	5	18	829	19	866	1619
% App. Total	78.4	2	19.6		1.6	91.1	7.3		20	0	80		2.1	95.7	2.2		
PHF	.769	.250	.625	.750	.917	.951	.708	.973	.250	.000	.500	.625	.643	.889	.679	.895	.950

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 7



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

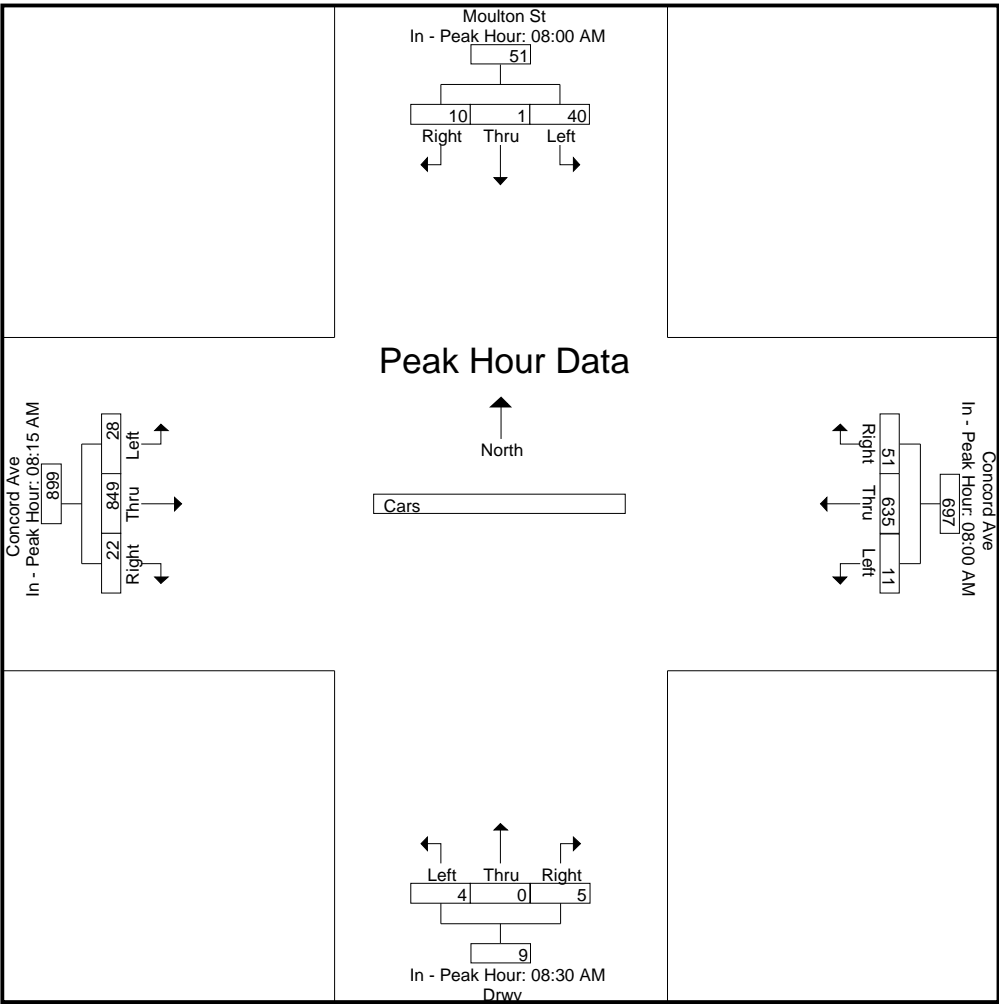
Peak Hour for Each Approach Begins at:

	08:00 AM				08:00 AM				08:30 AM				08:15 AM			
+0 mins.	8	0	4	12	3	161	11	175	0	0	0	0	5	196	7	208
+15 mins.	6	0	1	7	2	167	10	179	0	0	2	2	4	233	5	242
+30 mins.	13	0	2	15	3	151	12	166	0	0	1	1	7	219	4	230
+45 mins.	13	1	3	17	3	156	18	177	4	0	2	6	12	201	6	219
Total Volume	40	1	10	51	11	635	51	697	4	0	5	9	28	849	22	899

Accurate Counts

978-664-2565

% App. Total	78.4	2	19.6		1.6	91.1	7.3		44.4	0	55.6		3.1	94.4	2.4	
PHF	.769	.250	.625	.750	.917	.951	.708	.973	.250	.000	.625	.375	.583	.911	.786	.929



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	1	0	0	0	1	0	0	0	0	0	2	0	4
07:45 AM	0	0	0	0	5	0	0	0	0	0	1	0	6
Total	1	0	0	0	6	0	0	0	0	0	3	0	10
08:00 AM	0	0	0	1	7	1	0	0	0	0	3	0	12
08:15 AM	1	0	0	0	2	0	1	0	0	0	2	0	6
08:30 AM	0	0	0	0	2	0	0	0	0	0	3	0	5
08:45 AM	0	0	0	0	3	0	0	0	0	0	6	0	9
Total	1	0	0	1	14	1	1	0	0	0	14	0	32
09:00 AM	1	0	0	0	3	0	0	0	0	0	3	0	7
09:15 AM	1	0	0	0	3	0	0	0	0	0	2	0	6
Grand Total	4	0	0	1	26	1	1	0	0	0	22	0	55
Apprch %	100	0	0	3.6	92.9	3.6	100	0	0	0	100	0	
Total %	7.3	0	0	1.8	47.3	1.8	1.8	0	0	0	40	0	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 10

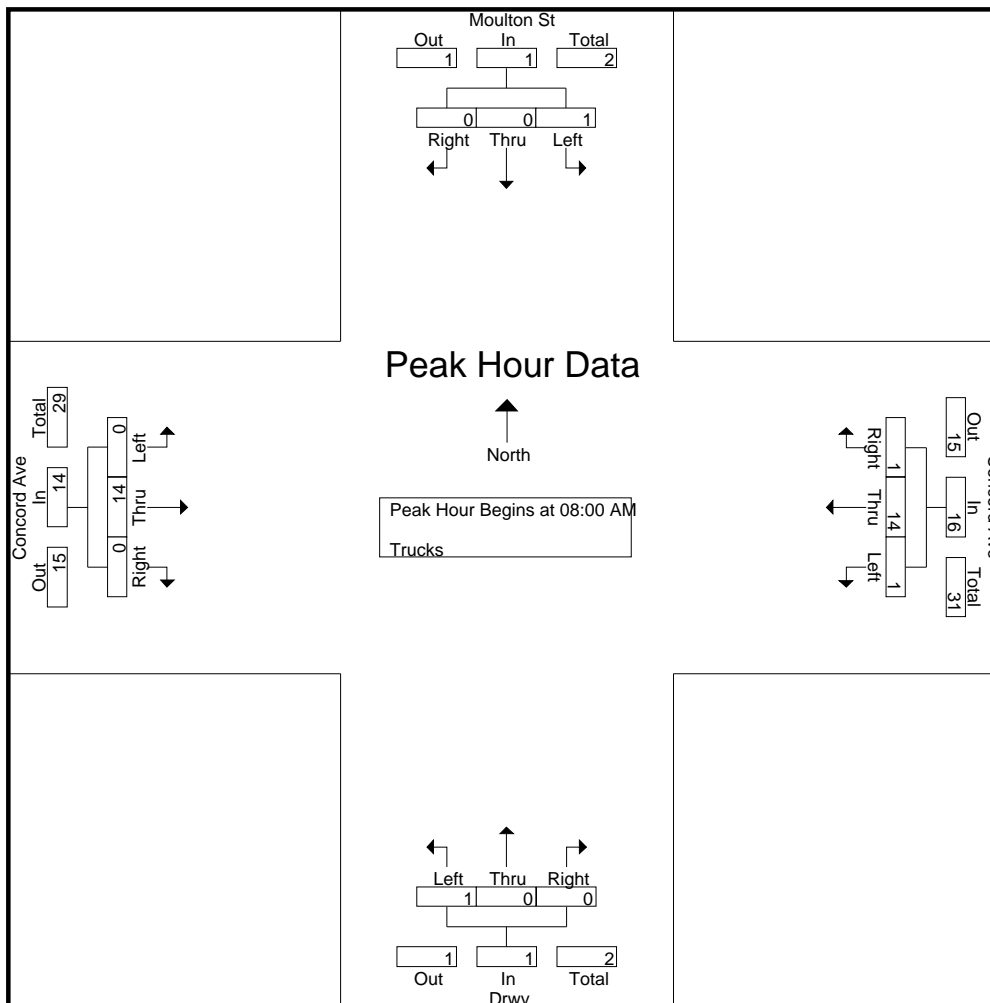
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	1	7	1	9	0	0	0	0	0	3	0	3	12
08:15 AM	1	0	0	1	0	2	0	2	1	0	0	1	0	2	0	2	6
08:30 AM	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3	5
08:45 AM	0	0	0	0	0	3	0	3	0	0	0	0	0	6	0	6	9
Total Volume	1	0	0	1	1	14	1	16	1	0	0	1	0	14	0	14	32
% App. Total	100	0	0		6.2	87.5	6.2		100	0	0		0	100	0		
PHF	.250	.000	.000	.250	.250	.500	.250	.444	.250	.000	.000	.250	.000	.583	.000	.583	.667

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

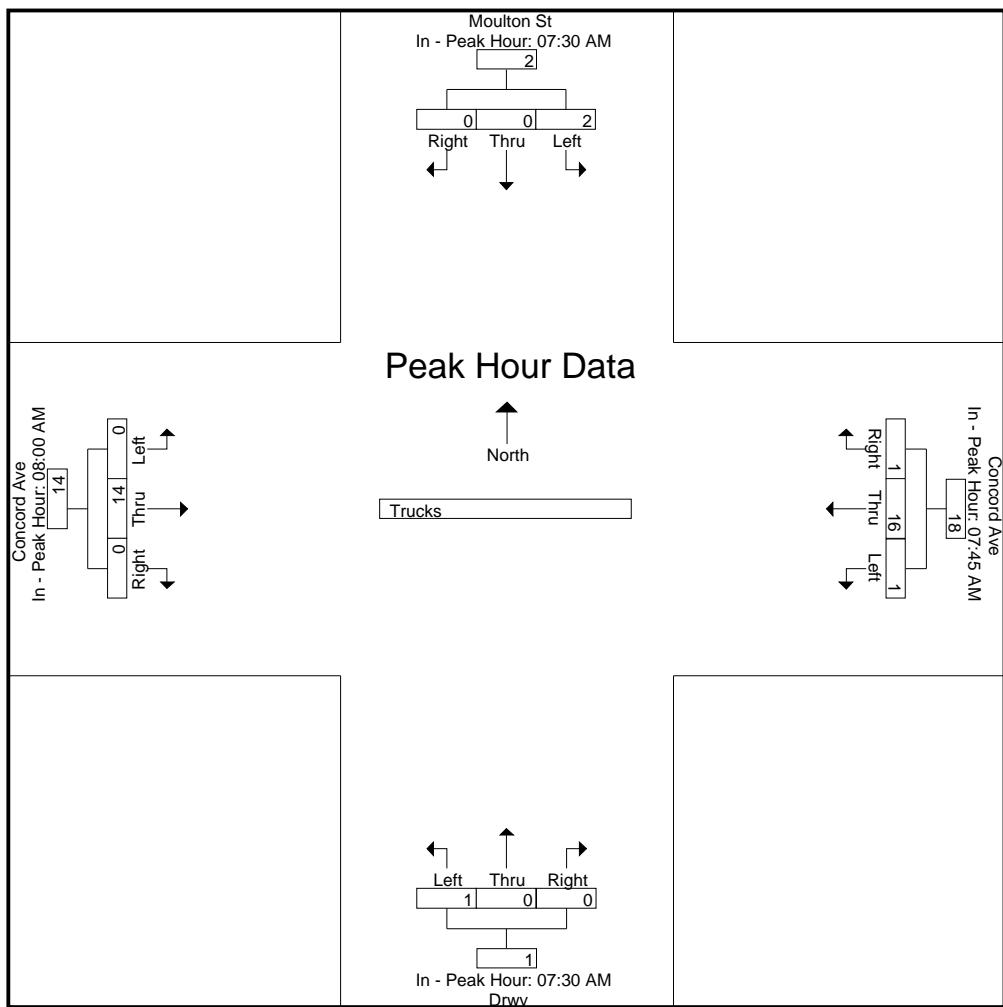
Peak Hour for Each Approach Begins at:

	07:30 AM				07:45 AM				08:00 AM				08:15 AM			
+0 mins.	1	0	0	1	0	5	0	5	0	0	0	0	0	3	0	3
+15 mins.	0	0	0	0	1	7	1	9	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	3	0	3
+45 mins.	1	0	0	1	0	2	0	2	1	0	0	1	0	6	0	6
Total Volume	2	0	0	2	1	16	1	18	1	0	0	1	0	14	0	14

Accurate Counts

978-664-2565

% App. Total	100	0	0		5.6	88.9	5.6		100	0	0		0	100	0	
PHF	.500	.000	.000	.500	.250	.571	.250	.500	.250	.000	.000	.250	.000	.583	.000	.583



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	0	1	7	8
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	4
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	11	0	0	1	11	12
08:00 AM	0	0	0	0	0	4	0	1	0	0	0	2	0	9	0	1	4	13	17
08:15 AM	0	0	0	1	1	4	1	3	0	0	0	1	0	7	0	1	6	13	19
08:30 AM	0	0	0	2	0	0	0	0	0	0	0	0	0	10	0	1	3	10	13
08:45 AM	0	0	0	3	0	3	0	1	0	1	1	1	0	5	0	3	8	10	18
Total	0	0	0	6	1	11	1	5	0	1	1	4	0	31	0	6	21	46	67
09:00 AM	0	0	0	2	0	3	1	1	0	0	0	0	0	8	0	2	5	12	17
09:15 AM	0	0	0	2	0	0	1	0	1	0	0	2	1	5	0	3	7	8	15
Grand Total	0	0	0	10	1	14	3	6	1	1	1	7	1	55	0	11	34	77	111
Apprch %	0	0	0		5.6	77.8	16.7		33.3	33.3	33.3		1.8	98.2	0				
Total %	0	0	0		1.3	18.2	3.9		1.3	1.3	1.3		1.3	71.4	0		30.6	69.4	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 14

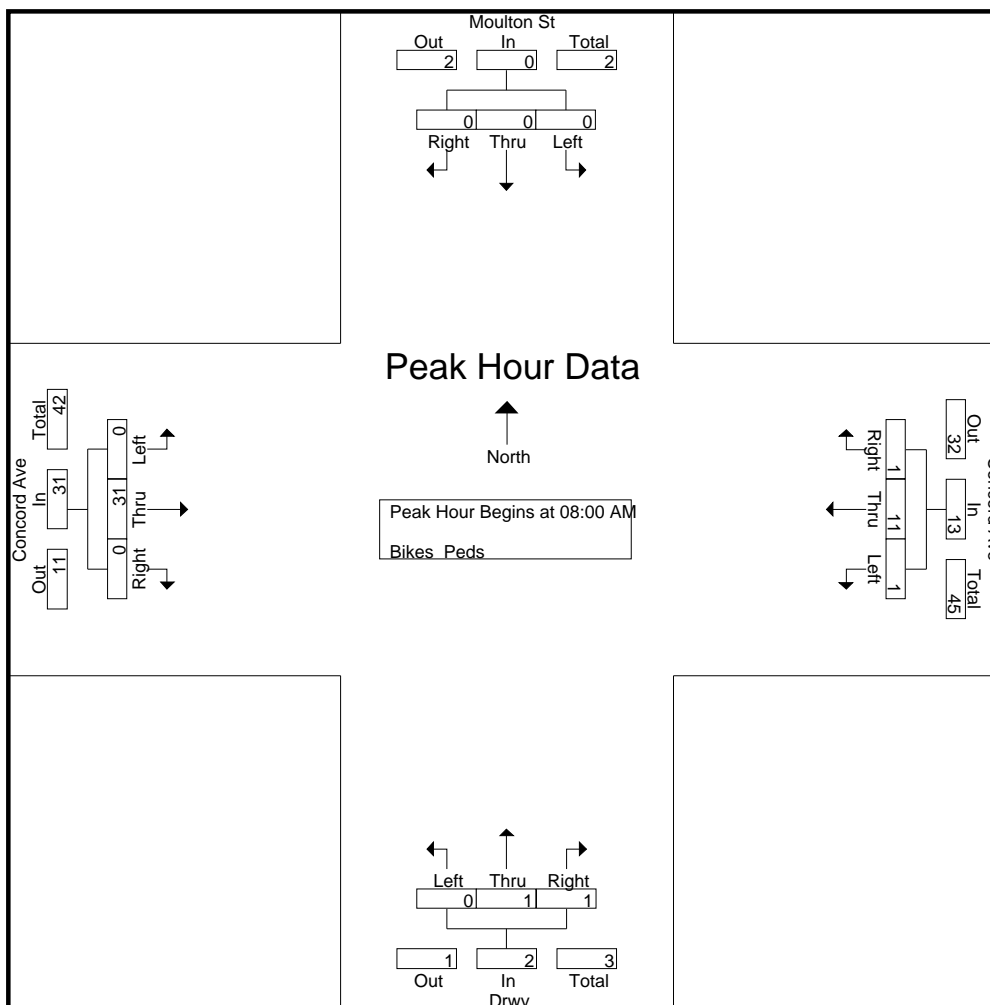
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	0	0	0	0	4	0	4	0	0	0	0	0	9	0	9	13
08:15 AM	0	0	0	0	1	4	1	6	0	0	0	0	0	7	0	7	13
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	10	10
08:45 AM	0	0	0	0	0	3	0	3	0	1	1	2	0	5	0	5	10
Total Volume	0	0	0	0	1	11	1	13	0	1	1	2	0	31	0	31	46
% App. Total	0	0	0		7.7	84.6	7.7		0	50	50		0	100	0		
PHF	.000	.000	.000	.000	.250	.688	.250	.542	.000	.250	.250	.250	.000	.775	.000	.775	.885

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

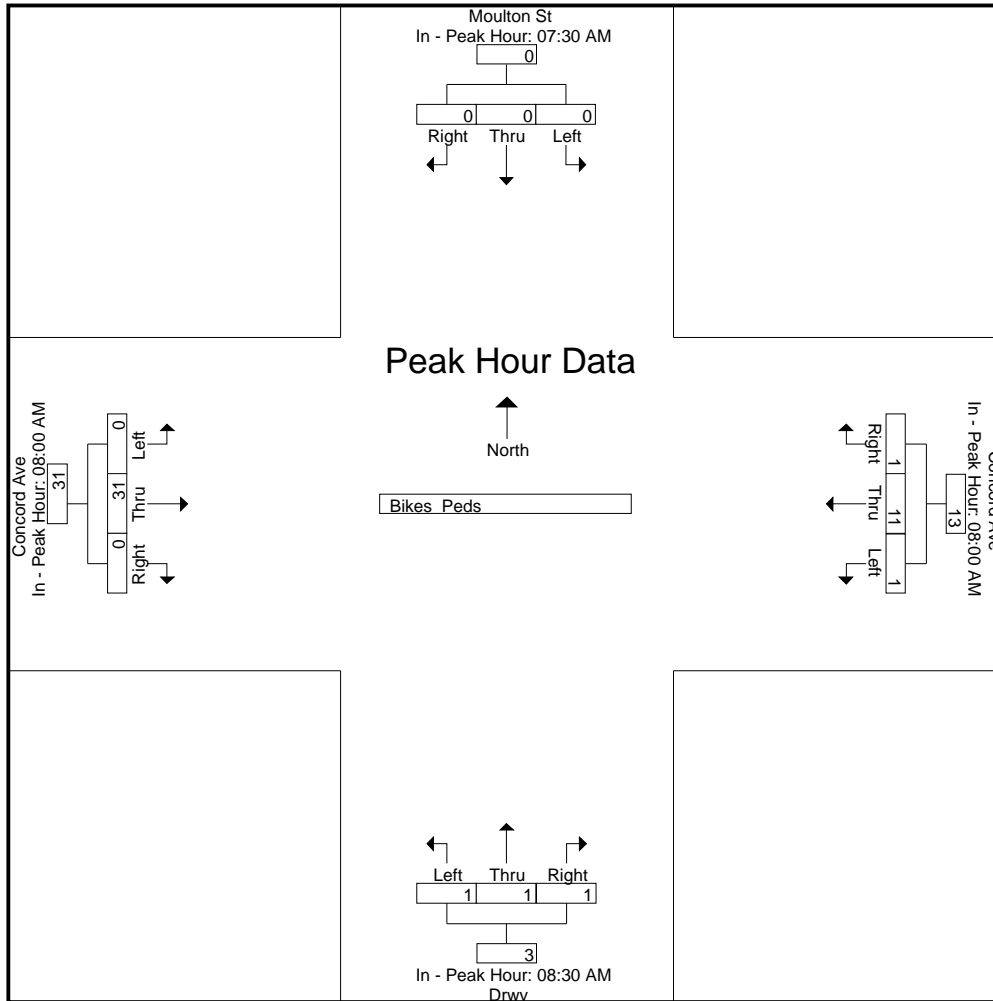
Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				08:30 AM				08:00 AM			
+0 mins.	0	0	0	0	0	4	0	4	0	0	0	0	0	9	0	9
+15 mins.	0	0	0	0	1	4	1	6	0	1	1	2	0	7	0	7
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	10
+45 mins.	0	0	0	0	0	3	0	3	1	0	0	1	0	5	0	5
Total Volume	0	0	0	0	1	11	1	13	1	1	1	3	0	31	0	31

Accurate Counts

978-664-2565

% App. Total	0	0	0		7.7	84.6	7.7		33.3	33.3	33.3		0	100	0	
PHF	.000	.000	.000	.000	.250	.688	.250	.542	.250	.250	.250	.375	.000	.775	.000	.775



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	40	0	13	4	111	2	6	0	4	3	143	3	329
04:45 PM	27	0	8	1	132	1	1	1	7	0	139	3	320
Total	67	0	21	5	243	3	7	1	11	3	282	6	649
05:00 PM	26	0	17	3	110	1	4	0	3	1	145	2	312
05:15 PM	15	0	7	1	140	3	4	0	8	0	117	1	296
05:30 PM	25	0	11	2	160	3	3	0	1	1	134	2	342
05:45 PM	16	0	8	1	99	6	4	0	1	0	126	1	262
Total	82	0	43	7	509	13	15	0	13	2	522	6	1212
06:00 PM	18	0	8	3	129	2	1	0	5	2	163	0	331
06:15 PM	16	0	9	3	158	1	2	0	3	0	119	1	312
Grand Total	183	0	81	18	1039	19	25	1	32	7	1086	13	2504
Aprch %	69.3	0	30.7	1.7	96.6	1.8	43.1	1.7	55.2	0.6	98.2	1.2	
Total %	7.3	0	3.2	0.7	41.5	0.8	1	0	1.3	0.3	43.4	0.5	
Cars	183	0	80	18	1033	19	25	1	32	7	1079	13	2490
% Cars	100	0	98.8	100	99.4	100	100	100	100	100	99.4	100	99.4
Trucks	0	0	1	0	6	0	0	0	0	0	7	0	14
% Trucks	0	0	1.2	0	0.6	0	0	0	0	0	0.6	0	0.6

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 2

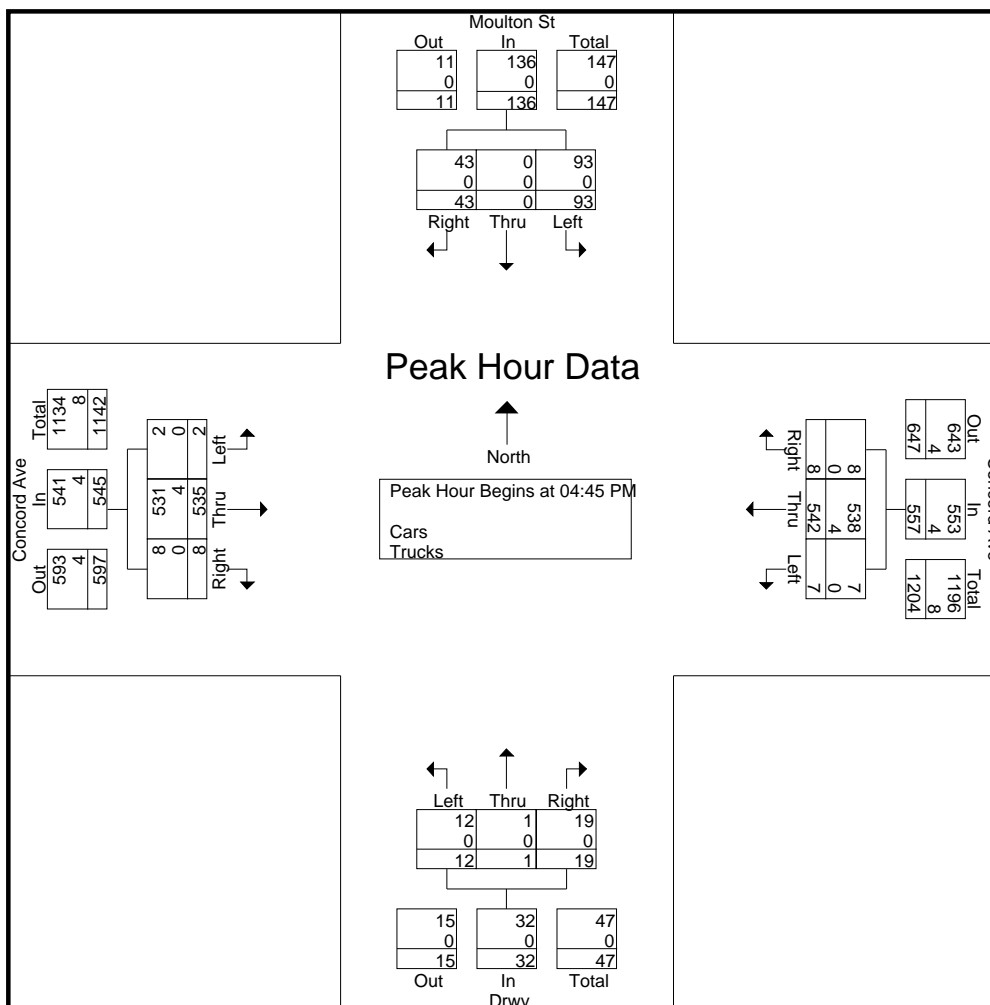
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	27	0	8	35	1	132	1	134	1	1	7	9	0	139	3	142	320
05:00 PM	26	0	17	43	3	110	1	114	4	0	3	7	1	145	2	148	312
05:15 PM	15	0	7	22	1	140	3	144	4	0	8	12	0	117	1	118	296
05:30 PM	25	0	11	36	2	160	3	165	3	0	1	4	1	134	2	137	342
Total Volume	93	0	43	136	7	542	8	557	12	1	19	32	2	535	8	545	1270
% App. Total	68.4	0	31.6		1.3	97.3	1.4		37.5	3.1	59.4		0.4	98.2	1.5		
PHF	.861	.000	.632	.791	.583	.847	.667	.844	.750	.250	.594	.667	.500	.922	.667	.921	.928
Cars	93	0	43	136	7	538	8	553	12	1	19	32	2	531	8	541	1262
% Cars	100	0	100	100	100	99.3	100	99.3	100	100	100	100	100	99.3	100	99.3	99.4
Trucks	0	0	0	0	0	4	0	4	0	0	0	0	0	4	0	4	8
% Trucks	0	0	0	0	0	0.7	0	0.7	0	0	0	0	0	0.7	0	0.7	0.6

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

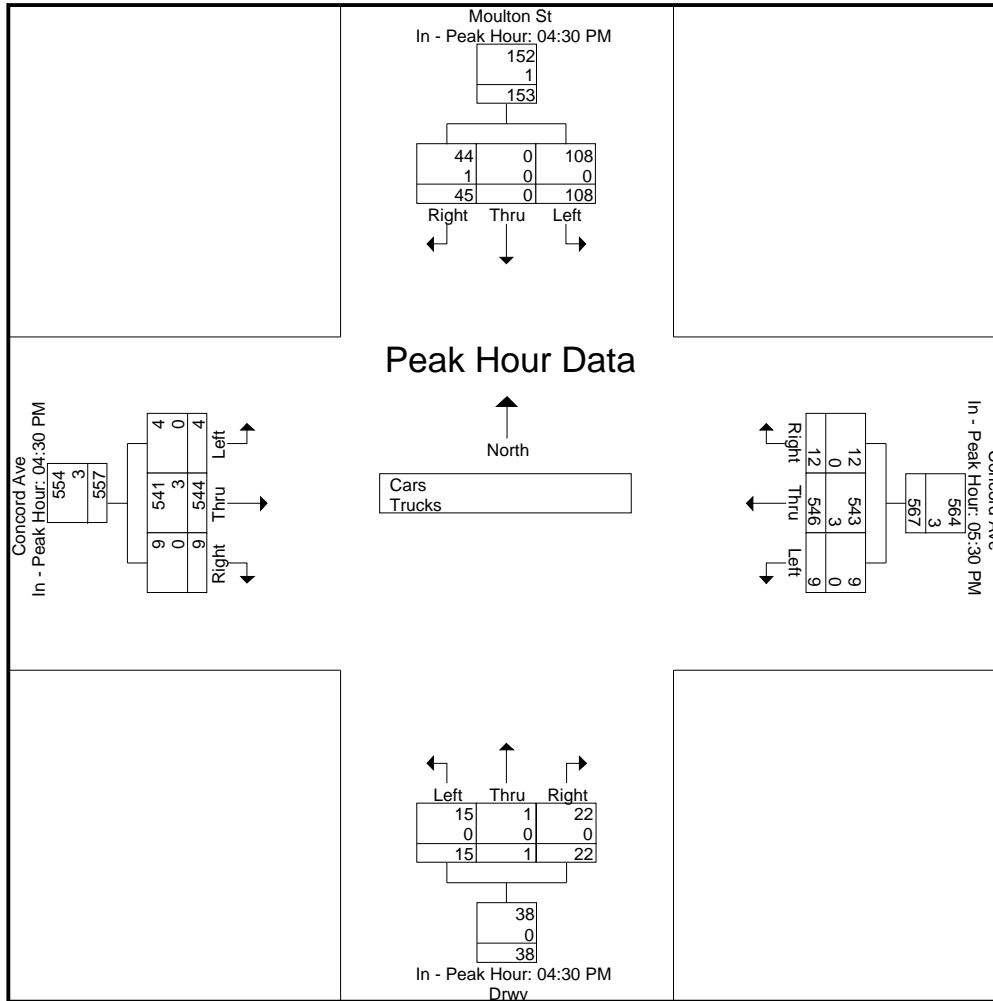
Peak Hour for Each Approach Begins at:

	04:30 PM				05:30 PM				04:30 PM				04:30 PM			
+0 mins.	40	0	13	53	2	160	3	165	6	0	4	10	3	143	3	149
+15 mins.	27	0	8	35	1	99	6	106	1	1	7	9	0	139	3	142
+30 mins.	26	0	17	43	3	129	2	134	4	0	3	7	1	145	2	148
+45 mins.	15	0	7	22	3	158	1	162	4	0	8	12	0	117	1	118
Total Volume	108	0	45	153	9	546	12	567	15	1	22	38	4	544	9	557

Accurate Counts

978-664-2565

% App. Total	70.6	0	29.4		1.6	96.3	2.1		39.5	2.6	57.9		0.7	97.7	1.6	
PHF	.675	.000	.662	.722	.750	.853	.500	.859	.625	.250	.688	.792	.333	.938	.750	.935
Cars	108	0	44	152	9	543	12	564	15	1	22	38	4	541	9	554
% Cars	100	0	97.8	99.3	100	99.5	100	99.5	100	100	100	100	100	99.4	100	99.5
Trucks	0	0	1	1	0	3	0	3	0	0	0	0	0	3	0	3
% Trucks	0	0	2.2	0.7	0	0.5	0	0.5	0	0	0	0	0	0.6	0	0.5



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	40	0	12	4	111	2	6	0	4	3	142	3	327
04:45 PM	27	0	8	1	131	1	1	1	7	0	138	3	318
Total	67	0	20	5	242	3	7	1	11	3	280	6	645
05:00 PM	26	0	17	3	110	1	4	0	3	1	145	2	312
05:15 PM	15	0	7	1	138	3	4	0	8	0	116	1	293
05:30 PM	25	0	11	2	159	3	3	0	1	1	132	2	339
05:45 PM	16	0	8	1	99	6	4	0	1	0	126	1	262
Total	82	0	43	7	506	13	15	0	13	2	519	6	1206
06:00 PM	18	0	8	3	127	2	1	0	5	2	161	0	327
06:15 PM	16	0	9	3	158	1	2	0	3	0	119	1	312
Grand Total	183	0	80	18	1033	19	25	1	32	7	1079	13	2490
Apprch %	69.6	0	30.4	1.7	96.5	1.8	43.1	1.7	55.2	0.6	98.2	1.2	
Total %	7.3	0	3.2	0.7	41.5	0.8	1	0	1.3	0.3	43.3	0.5	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 6

Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	27	0	8	35	1	131	1	133	1	1	7	9	0	138	3	141	318
05:00 PM	26	0	17	43	3	110	1	114	4	0	3	7	1	145	2	148	312
05:15 PM	15	0	7	22	1	138	3	142	4	0	8	12	0	116	1	117	293
05:30 PM	25	0	11	36	2	159	3	164	3	0	1	4	1	132	2	135	339
Total Volume	93	0	43	136	7	538	8	553	12	1	19	32	2	531	8	541	1262
% App. Total	68.4	0	31.6		1.3	97.3	1.4		37.5	3.1	59.4		0.4	98.2	1.5		
PHF	.861	.000	.632	.791	.583	.846	.667	.843	.750	.250	.594	.667	.500	.916	.667	.914	.931

Accurate Counts

978-664-2565

File Name : 80840004

Site Code : 80840004

Start Date : 4/2/2019

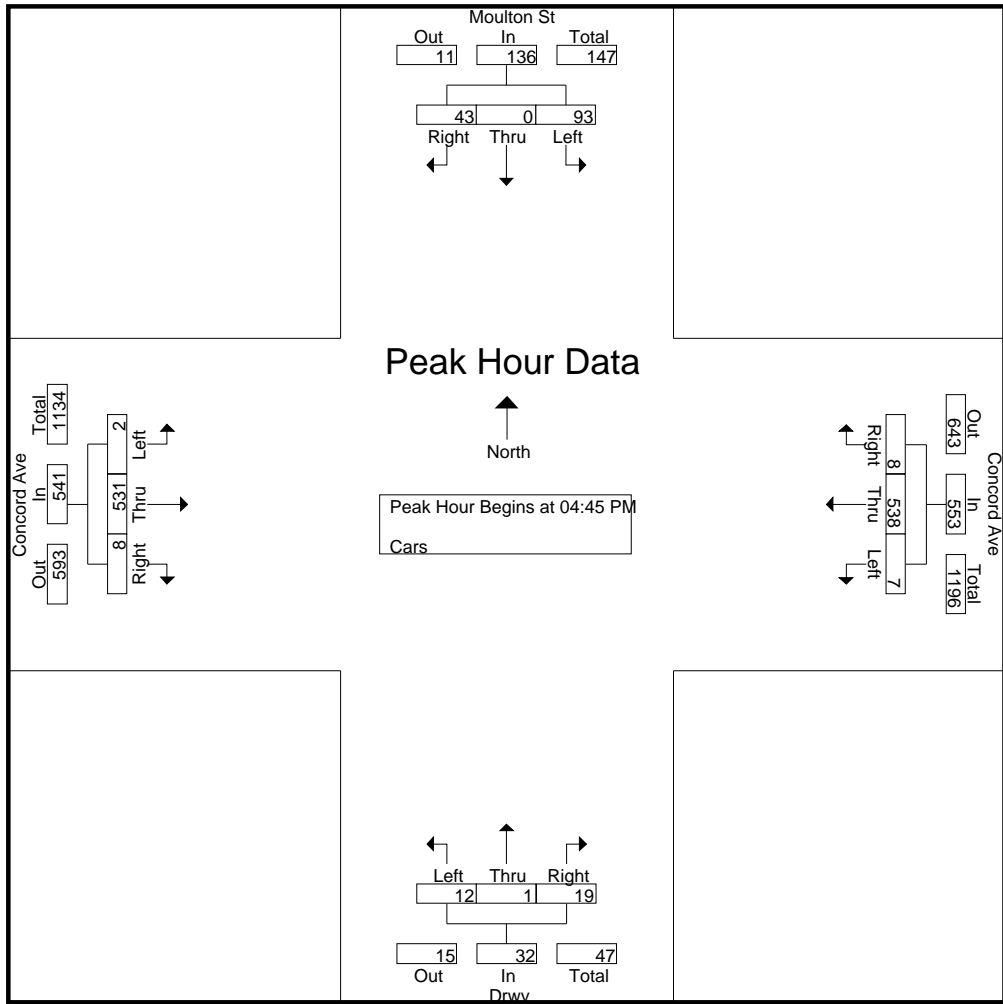
Page No : 7

N/S Street : Moulton Street / Driveway

E/W Street: Concord Avenue

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

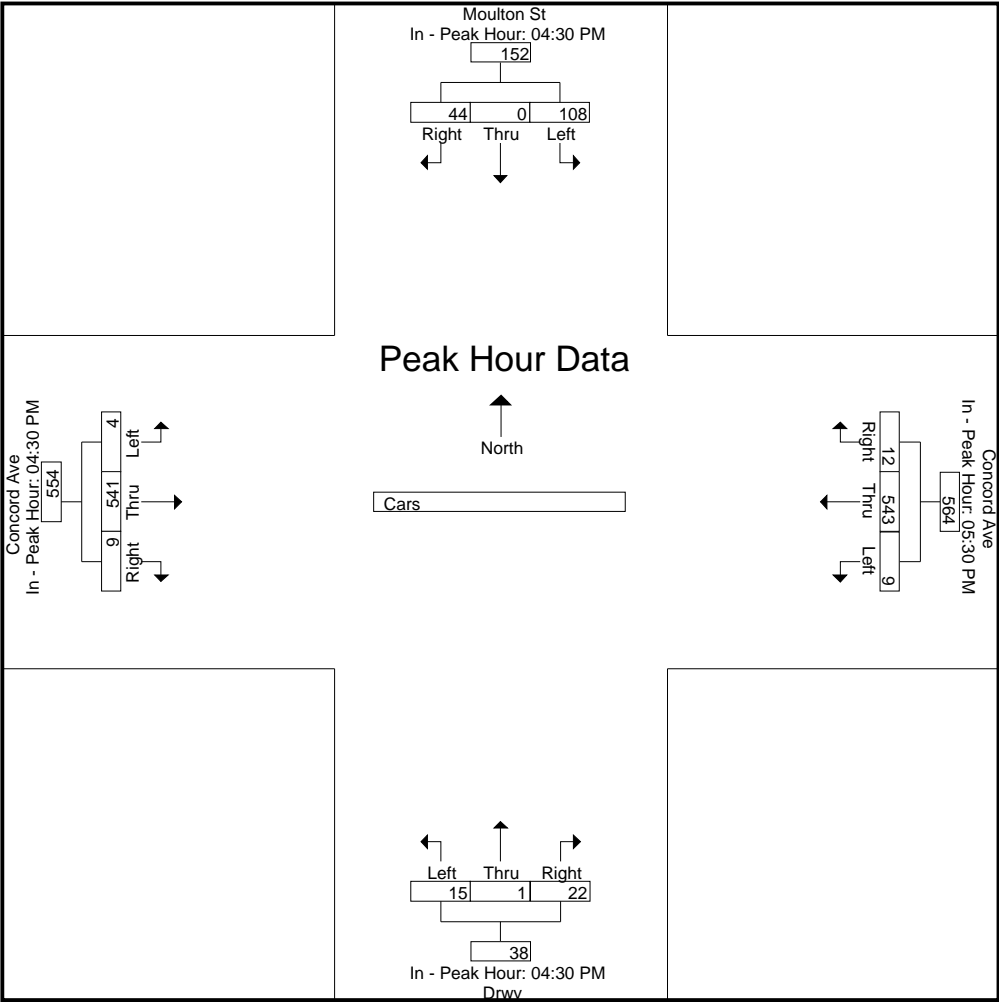
Peak Hour for Each Approach Begins at:

	04:30 PM				05:30 PM				04:30 PM				04:30 PM			
+0 mins.	40	0	12	52	2	159	3	164	6	0	4	10	3	142	3	148
+15 mins.	27	0	8	35	1	99	6	106	1	1	7	9	0	138	3	141
+30 mins.	26	0	17	43	3	127	2	132	4	0	3	7	1	145	2	148
+45 mins.	15	0	7	22	3	158	1	162	4	0	8	12	0	116	1	117
Total Volume	108	0	44	152	9	543	12	564	15	1	22	38	4	541	9	554

Accurate Counts

978-664-2565

% App. Total	71.1	0	28.9		1.6	96.3	2.1		39.5	2.6	57.9		0.7	97.7	1.6	
PHF	.675	.000	.647	.731	.750	.854	.500	.860	.625	.250	.688	.792	.333	.933	.750	.936



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Moulton St From North			Concord Ave From East			Drwy From South			Concord Ave From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	0	0	1	0	0	0	0	0	0	0	1	0	2
04:45 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
Total	0	0	1	0	1	0	0	0	0	0	2	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
05:30 PM	0	0	0	0	1	0	0	0	0	0	2	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	3	0	0	0	0	0	3	0	6
06:00 PM	0	0	0	0	2	0	0	0	0	0	2	0	4
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	1	0	6	0	0	0	0	0	7	0	14
Apprch %	0	0	100	0	100	0	0	0	0	0	100	0	
Total %	0	0	7.1	0	42.9	0	0	0	0	0	50	0	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 10

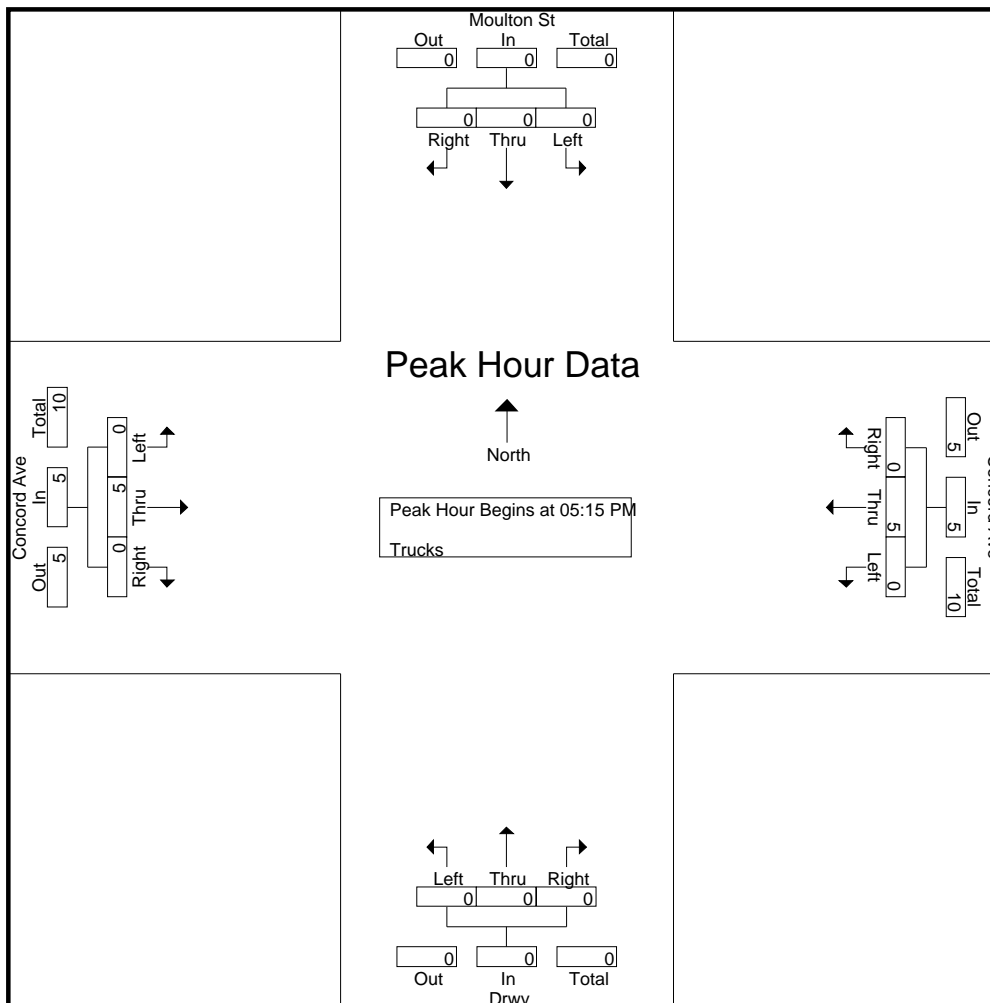
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:15 PM																	
05:15 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	1	0	1	3
05:30 PM	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00 PM	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2	4
Total Volume	0	0	0	0	0	5	0	5	0	0	0	0	0	5	0	5	10
% App. Total	0	0	0		0	100	0		0	0	0		0	100	0		
PHF	.000	.000	.000	.000	.000	.625	.000	.625	.000	.000	.000	.000	.000	.625	.000	.625	.625

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

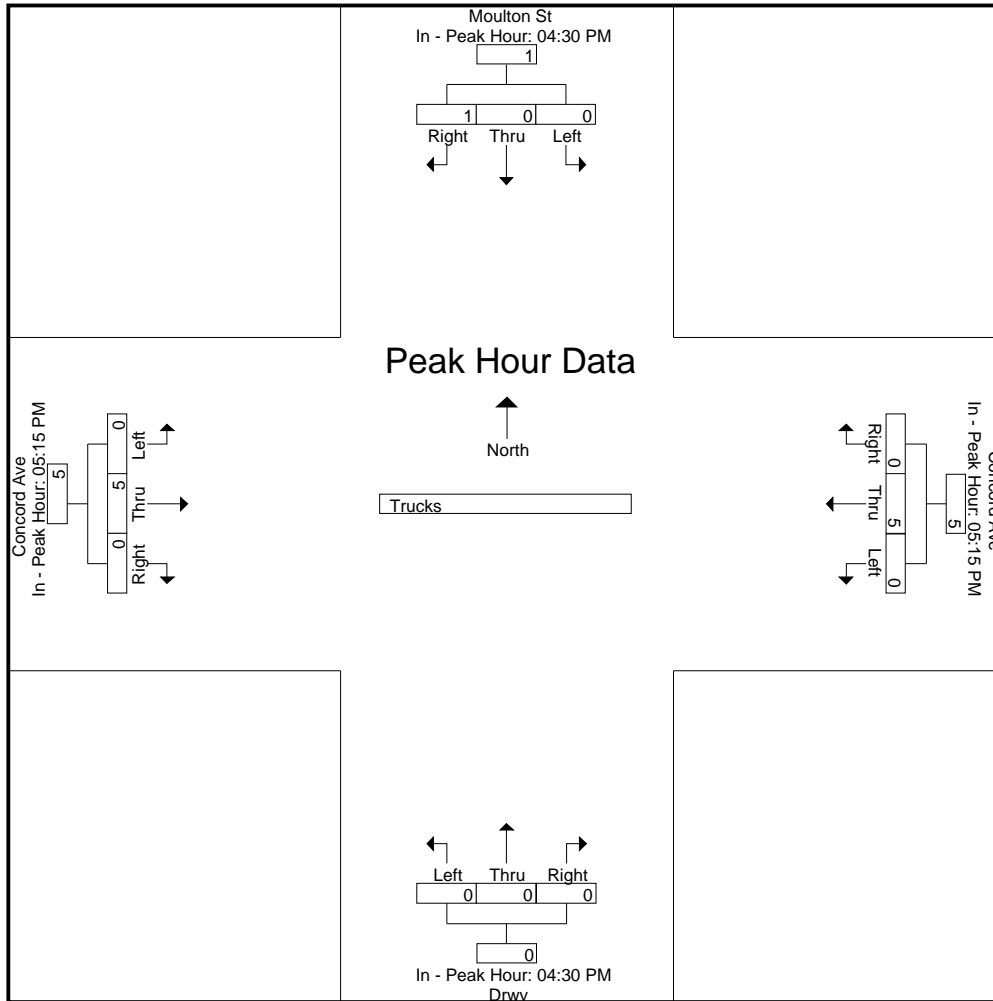
Peak Hour for Each Approach Begins at:

	04:30 PM				05:15 PM				04:30 PM				05:15 PM			
+0 mins.	0	0	1	1	0	2	0	2	0	0	0	0	0	1	0	1
+15 mins.	0	0	0	0	0	1	0	1	0	0	0	0	0	2	0	2
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	2	0	2	0	0	0	0	0	2	0	2
Total Volume	0	0	1	1	0	5	0	5	0	0	0	0	0	5	0	5

Accurate Counts

978-664-2565

% App. Total	0	0	100		0	100	0		0	0	0		0	100	0	
PHF	.000	.000	.250	.250	.000	.625	.000	.625	.000	.000	.000	.000	.000	.625	.000	.625



Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:30 PM	0	0	0	2	0	5	0	1	0	0	0	2	0	3	0	0	5	8	13
04:45 PM	0	0	0	4	0	3	0	3	0	0	1	2	0	5	0	2	11	9	20
Total	0	0	0	6	0	8	0	4	0	0	1	4	0	8	0	2	16	17	33
05:00 PM	1	0	0	5	0	6	0	0	0	0	0	4	0	2	0	3	12	9	21
05:15 PM	0	0	0	11	0	6	0	4	0	0	0	2	0	2	0	1	18	8	26
05:30 PM	0	0	0	12	0	8	0	2	0	0	0	2	0	4	0	0	16	12	28
05:45 PM	0	0	0	5	0	11	0	1	0	0	0	4	0	6	0	3	13	17	30
Total	1	0	0	33	0	31	0	7	0	0	0	12	0	14	0	7	59	46	105
06:00 PM	0	0	0	3	0	8	0	3	0	0	0	4	0	0	0	0	10	8	18
06:15 PM	1	0	0	2	0	9	0	2	0	0	0	9	0	7	0	0	13	17	30
Grand Total	2	0	0	44	0	56	0	16	0	0	1	29	0	29	0	9	98	88	186
Apprch %	100	0	0		0	100	0		0	0	100		0	100	0				
Total %	2.3	0	0		0	63.6	0		0	0	1.1		0	33	0		52.7	47.3	

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 14

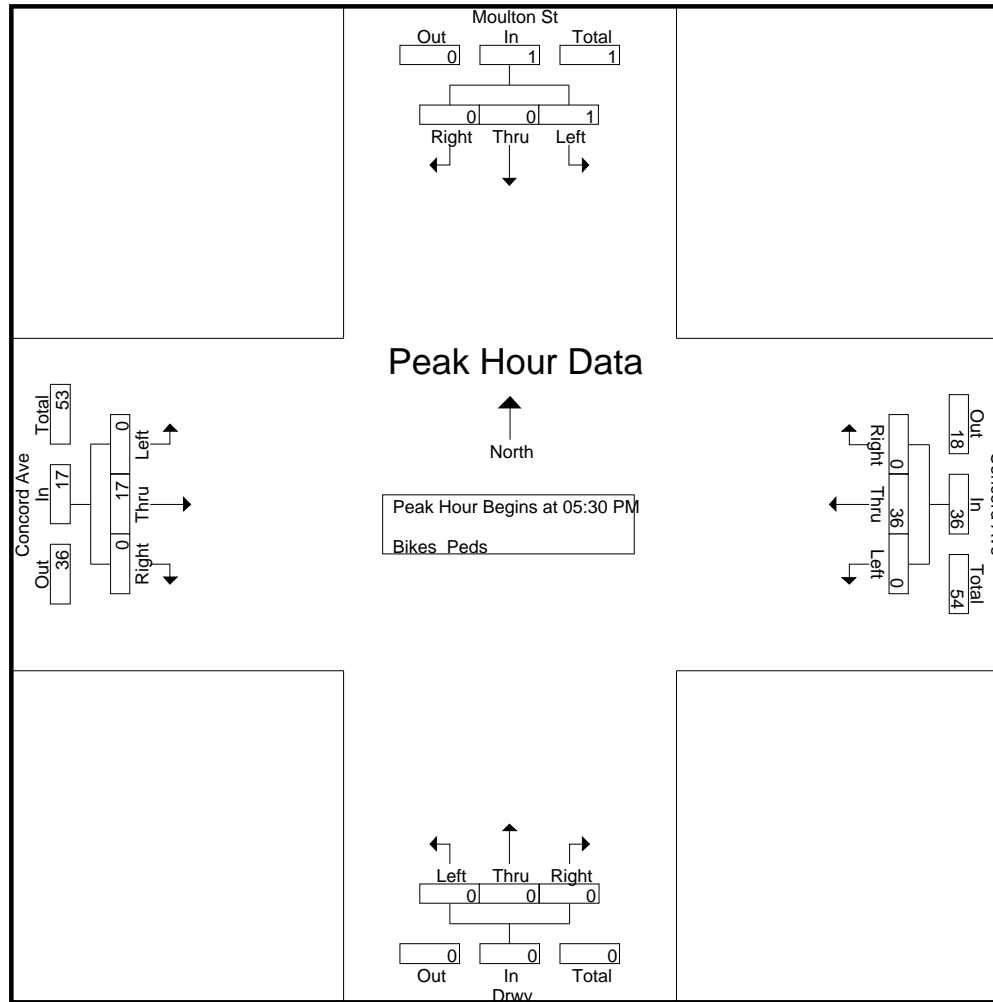
Start Time	Moulton St From North				Concord Ave From East				Drwy From South				Concord Ave From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 05:30 PM																	
05:30 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	4	0	4	12
05:45 PM	0	0	0	0	0	11	0	11	0	0	0	0	0	6	0	6	17
06:00 PM	0	0	0	0	0	8	0	8	0	0	0	0	0	0	0	0	8
06:15 PM	1	0	0	1	0	9	0	9	0	0	0	0	0	7	0	7	17
Total Volume	1	0	0	1	0	36	0	36	0	0	0	0	0	17	0	17	54
% App. Total	100	0	0		0	100	0		0	0	0		0	100	0		
PHF	.250	.000	.000	.250	.000	.818	.000	.818	.000	.000	.000	.000	.000	.607	.000	.607	.794

Accurate Counts

978-664-2565

N/S Street : Moulton Street / Driveway
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840004
 Site Code : 80840004
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

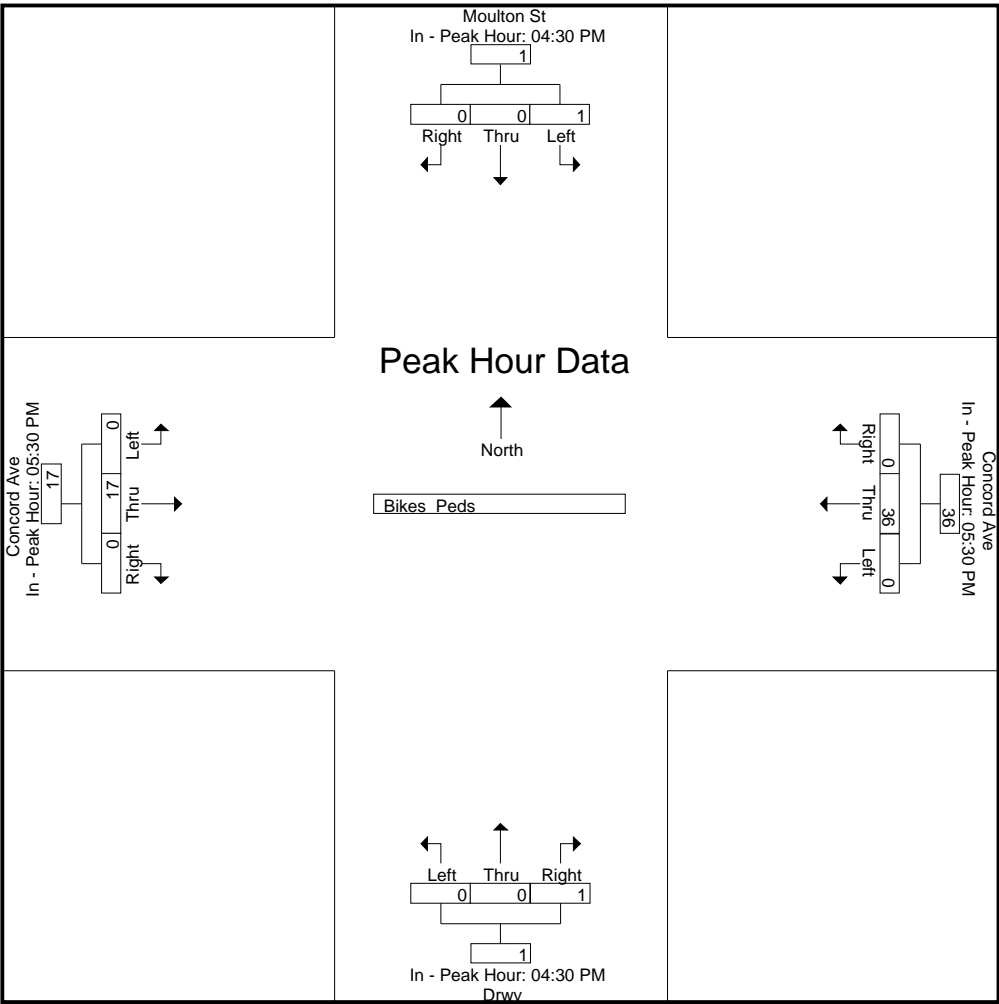
Peak Hour for Each Approach Begins at:

	04:30 PM				05:30 PM				04:30 PM				05:30 PM			
+0 mins.	0	0	0	0	0	8	0	8	0	0	0	0	0	4	0	4
+15 mins.	0	0	0	0	0	11	0	11	0	0	1	1	0	6	0	6
+30 mins.	1	0	0	1	0	8	0	8	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	9	0	9	0	0	0	0	0	7	0	7
Total Volume	1	0	0	1	0	36	0	36	0	0	1	1	0	17	0	17

Accurate Counts

978-664-2565

% App. Total	100	0	0		0	100	0		0	0	100		0	100	0	
PHF	.250	.000	.000	.250	.000	.818	.000	.818	.000	.000	.250	.250	.000	.607	.000	.607



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
07:30 AM	30	6	124	26	3	192	381
07:45 AM	15	4	153	40	7	198	417
Total	45	10	277	66	10	390	798
08:00 AM	18	6	173	35	2	223	457
08:15 AM	14	10	175	27	5	198	429
08:30 AM	24	9	163	48	7	249	500
08:45 AM	17	6	168	39	8	229	467
Total	73	31	679	149	22	899	1853
09:00 AM	24	5	132	56	17	190	424
09:15 AM	22	8	126	49	20	145	370
Grand Total	164	54	1214	320	69	1624	3445
Aprrch %	75.2	24.8	79.1	20.9	4.1	95.9	
Total %	4.8	1.6	35.2	9.3	2	47.1	
Cars	156	53	1178	310	68	1596	3361
% Cars	95.1	98.1	97	96.9	98.6	98.3	97.6
Trucks	8	1	36	10	1	28	84
% Trucks	4.9	1.9	3	3.1	1.4	1.7	2.4

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 2

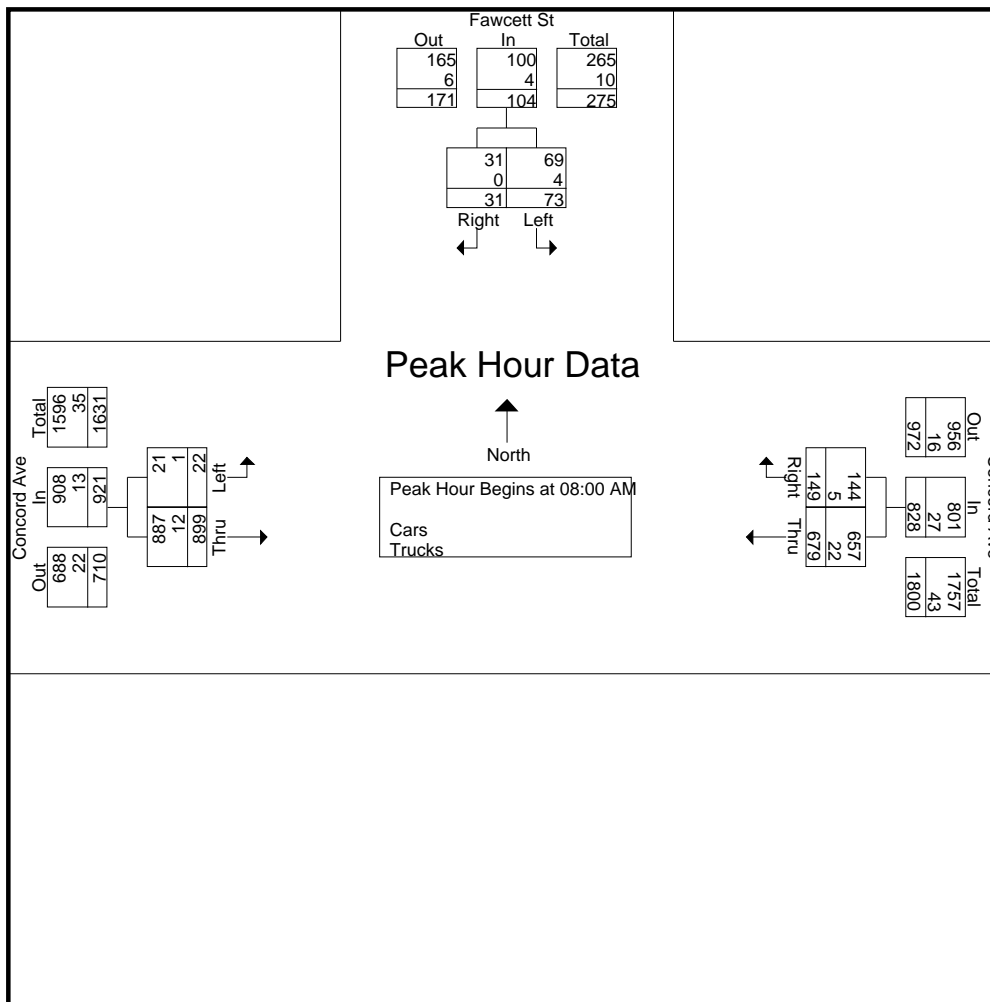
Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	18	6	24	173	35	208	2	223	225	457
08:15 AM	14	10	24	175	27	202	5	198	203	429
08:30 AM	24	9	33	163	48	211	7	249	256	500
08:45 AM	17	6	23	168	39	207	8	229	237	467
Total Volume	73	31	104	679	149	828	22	899	921	1853
% App. Total	70.2	29.8		82	18		2.4	97.6		
PHF	.760	.775	.788	.970	.776	.981	.688	.903	.899	.927
Cars	69	31	100	657	144	801	21	887	908	1809
% Cars	94.5	100	96.2	96.8	96.6	96.7	95.5	98.7	98.6	97.6
Trucks	4	0	4	22	5	27	1	12	13	44
% Trucks	5.5	0	3.8	3.2	3.4	3.3	4.5	1.3	1.4	2.4

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

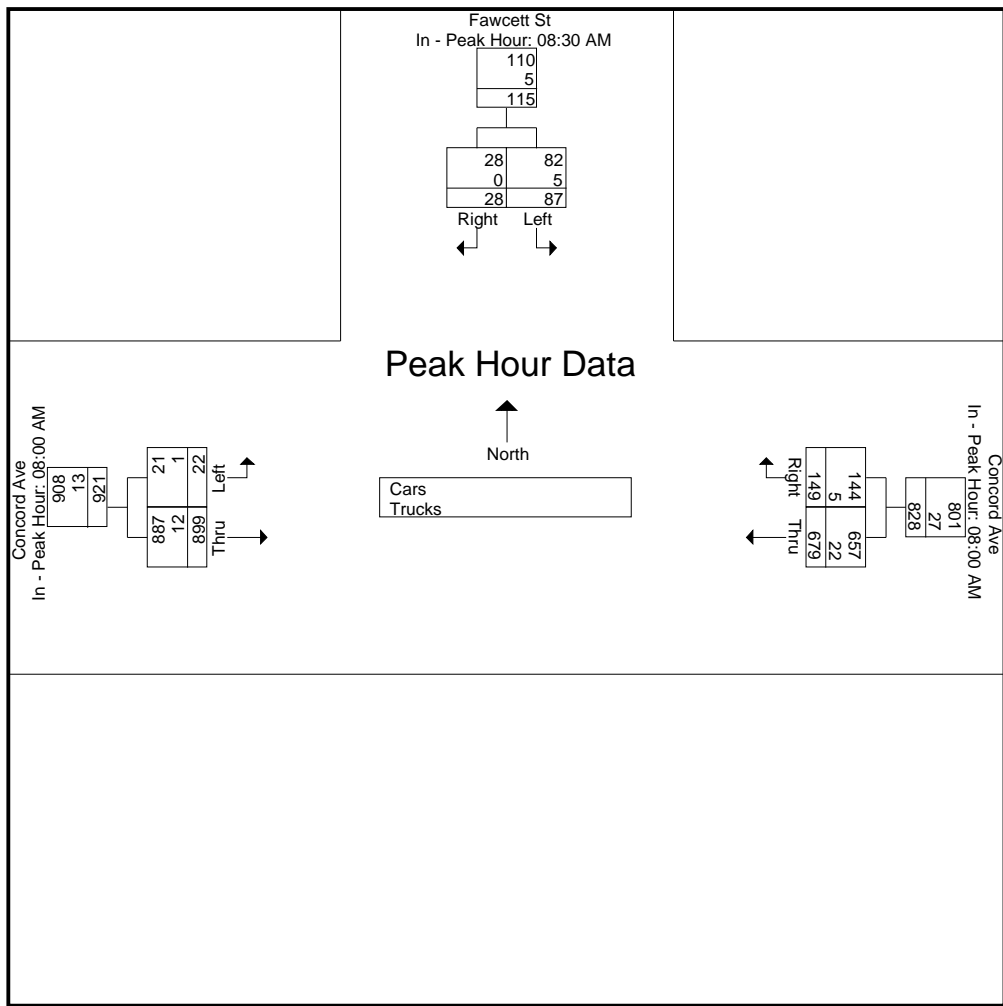
Peak Hour for Each Approach Begins at:

	08:30 AM			08:00 AM			08:00 AM		
+0 mins.	24	9	33	173	35	208	2	223	225
+15 mins.	17	6	23	175	27	202	5	198	203
+30 mins.	24	5	29	163	48	211	7	249	256
+45 mins.	22	8	30	168	39	207	8	229	237
Total Volume	87	28	115	679	149	828	22	899	921

Accurate Counts

978-664-2565

% App. Total	75.7	24.3		82	18		2.4	97.6	
PHF	.906	.778	.871	.970	.776	.981	.688	.903	.899
Cars	82	28	110	657	144	801	21	887	908
% Cars	94.3	100	95.7	96.8	96.6	96.7	95.5	98.7	98.6
Trucks	5	0	5	22	5	27	1	12	13
% Trucks	5.7	0	4.3	3.2	3.4	3.3	4.5	1.3	1.4



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
07:30 AM	29	5	124	25	3	188	374
07:45 AM	15	4	148	39	7	196	409
Total	44	9	272	64	10	384	783
08:00 AM	17	6	164	33	2	220	442
08:15 AM	13	10	172	27	5	194	421
08:30 AM	23	9	157	47	7	248	491
08:45 AM	16	6	164	37	7	225	455
Total	69	31	657	144	21	887	1809
09:00 AM	23	5	127	55	17	185	412
09:15 AM	20	8	122	47	20	140	357
Grand Total	156	53	1178	310	68	1596	3361
Apprch %	74.6	25.4	79.2	20.8	4.1	95.9	
Total %	4.6	1.6	35	9.2	2	47.5	

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 6

Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	17	6	23	164	33	197	2	220	222	442
08:15 AM	13	10	23	172	27	199	5	194	199	421
08:30 AM	23	9	32	157	47	204	7	248	255	491
08:45 AM	16	6	22	164	37	201	7	225	232	455
Total Volume	69	31	100	657	144	801	21	887	908	1809
% App. Total	69	31		82	18		2.3	97.7		
PHF	.750	.775	.781	.955	.766	.982	.750	.894	.890	.921

Accurate Counts

978-664-2565

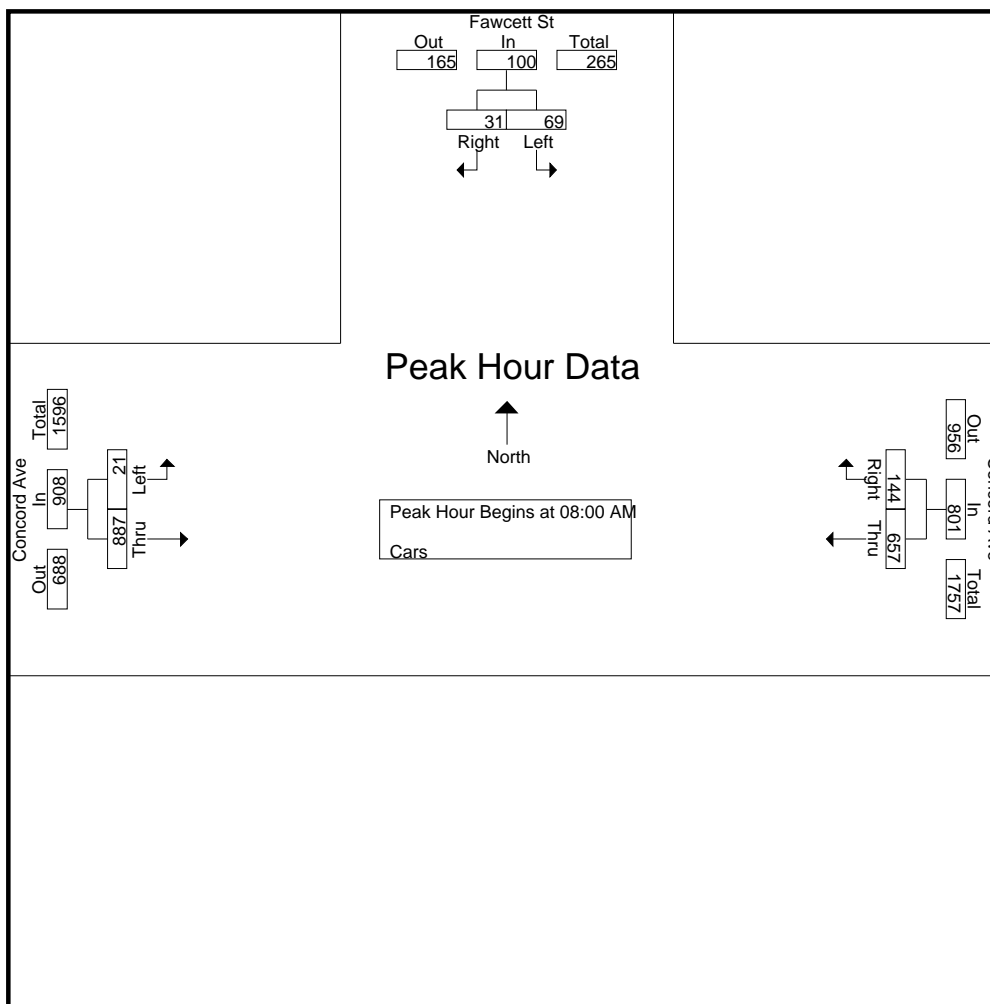
File Name : 80840005

Site Code : 80840005

Start Date : 4/2/2019

Page No : 7

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

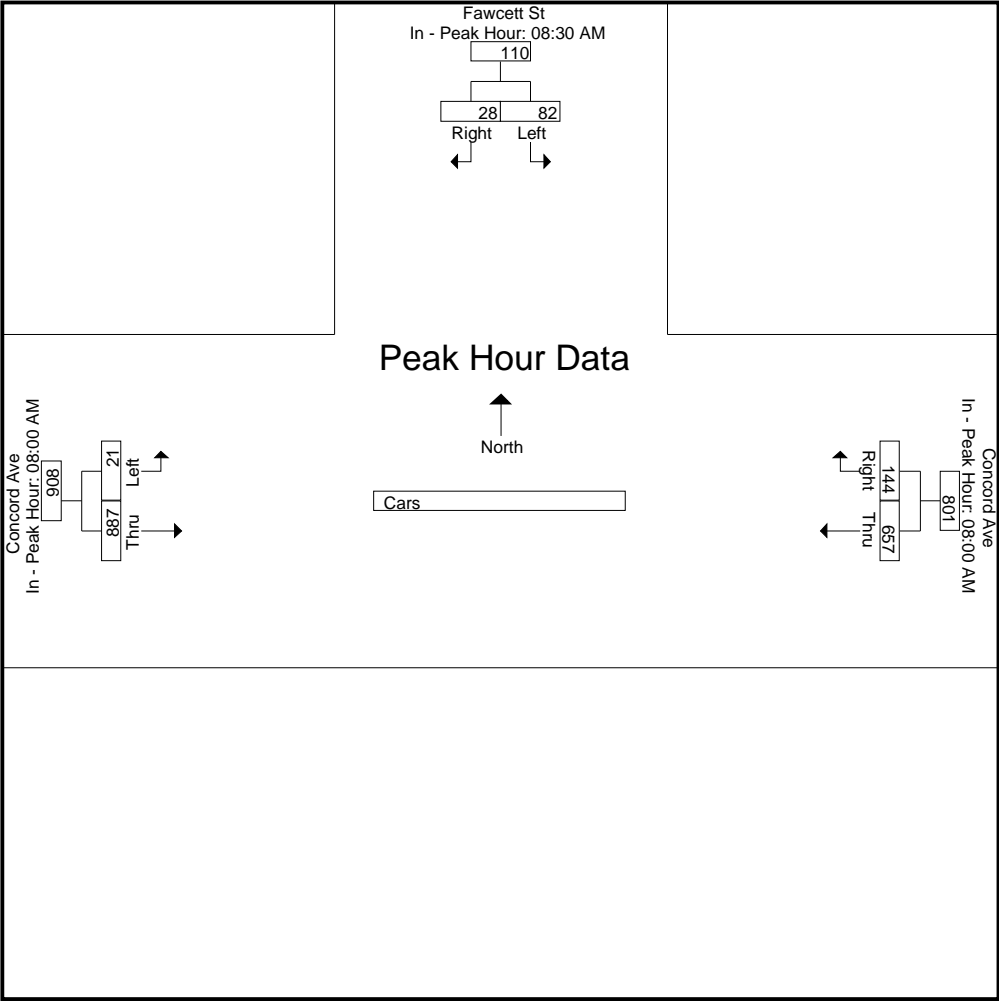
Peak Hour for Each Approach Begins at:

	08:30 AM			08:00 AM			08:00 AM		
+0 mins.	23	9	32	164	33	197	2	220	222
+15 mins.	16	6	22	172	27	199	5	194	199
+30 mins.	23	5	28	157	47	204	7	248	255
+45 mins.	20	8	28	164	37	201	7	225	232
Total Volume	82	28	110	657	144	801	21	887	908

Accurate Counts

978-664-2565

% App. Total	74.5	25.5		82	18		2.3	97.7	
PHF	.891	.778	.859	.955	.766	.982	.750	.894	.890



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
07:30 AM	1	1	0	1	0	4	7
07:45 AM	0	0	5	1	0	2	8
Total	1	1	5	2	0	6	15
08:00 AM	1	0	9	2	0	3	15
08:15 AM	1	0	3	0	0	4	8
08:30 AM	1	0	6	1	0	1	9
08:45 AM	1	0	4	2	1	4	12
Total	4	0	22	5	1	12	44
09:00 AM	1	0	5	1	0	5	12
09:15 AM	2	0	4	2	0	5	13
Grand Total	8	1	36	10	1	28	84
Apprch %	88.9	11.1	78.3	21.7	3.4	96.6	
Total %	9.5	1.2	42.9	11.9	1.2	33.3	

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 10

Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:30 AM										
08:30 AM	1	0	1	6	1	7	0	1	1	9
08:45 AM	1	0	1	4	2	6	1	4	5	12
09:00 AM	1	0	1	5	1	6	0	5	5	12
09:15 AM	2	0	2	4	2	6	0	5	5	13
Total Volume	5	0	5	19	6	25	1	15	16	46
% App. Total	100	0		76	24		6.2	93.8		
PHF	.625	.000	.625	.792	.750	.893	.250	.750	.800	.885

Accurate Counts

978-664-2565

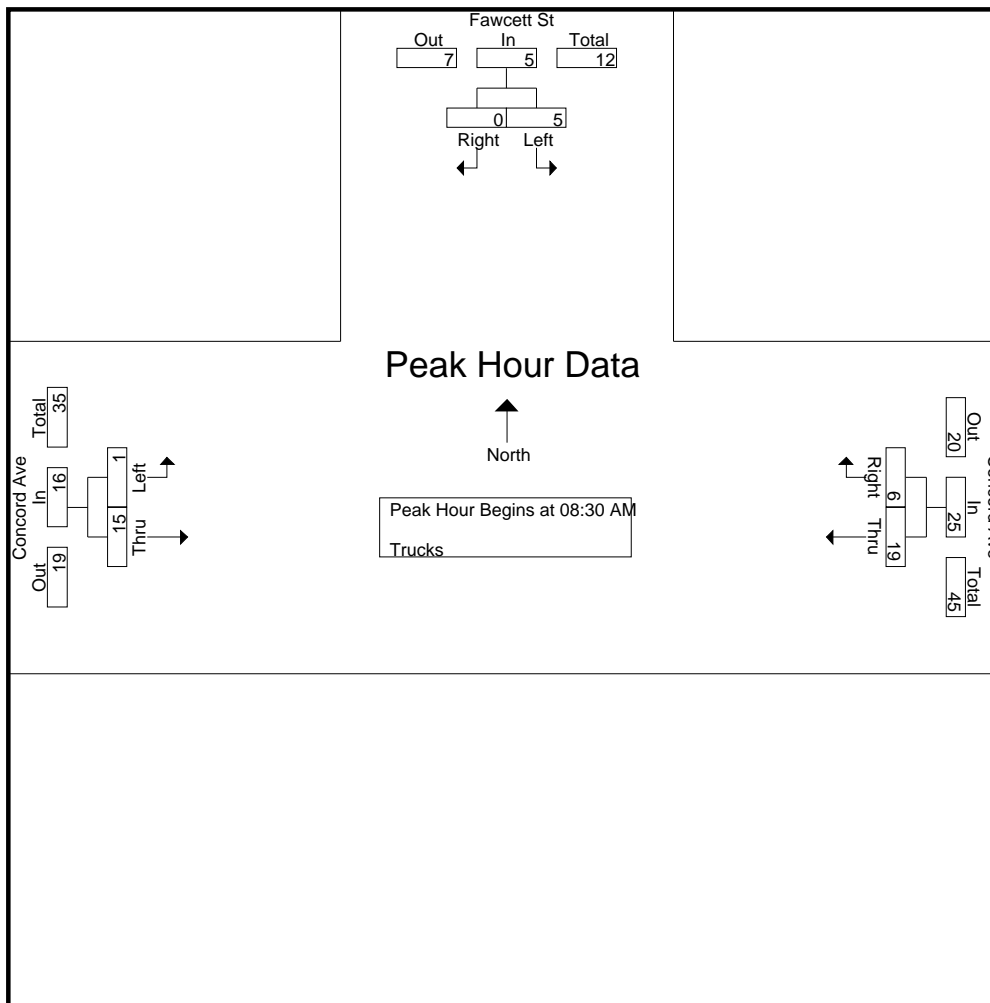
File Name : 80840005

Site Code : 80840005

Start Date : 4/2/2019

Page No : 11

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

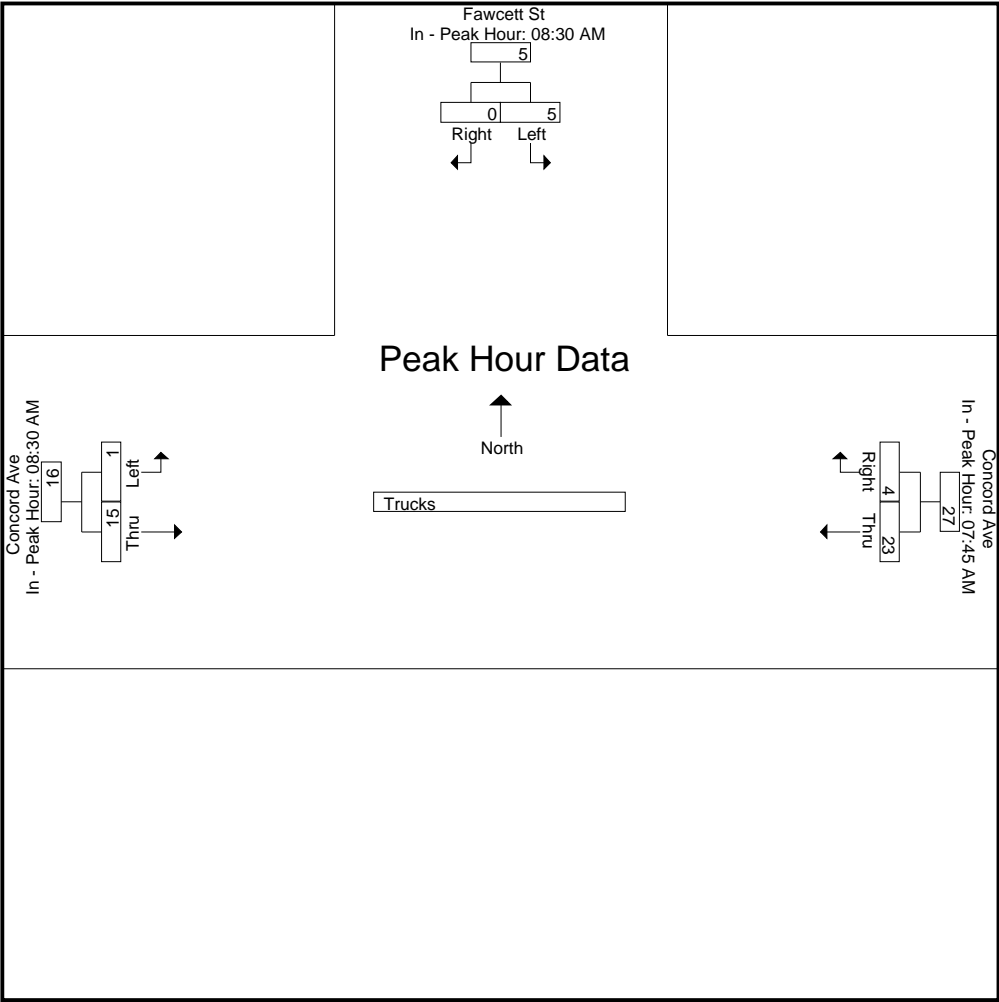
Peak Hour for Each Approach Begins at:

	08:30 AM			07:45 AM			08:30 AM		
+0 mins.	1	0	1	5	1	6	0	1	1
+15 mins.	1	0	1	9	2	11	1	4	5
+30 mins.	1	0	1	3	0	3	0	5	5
+45 mins.	2	0	2	6	1	7	0	5	5
Total Volume	5	0	5	23	4	27	1	15	16

Accurate Counts

978-664-2565

% App. Total	100	0	.625	85.2	14.8	.614	6.2	93.8	
PHF	.625	.000	.625	.639	.500	.614	.250	.750	.800



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bfikes Peds

Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
07:30 AM	0	0	4	1	1	0	0	6	7	11	8	19
07:45 AM	0	0	4	1	0	0	0	6	4	8	7	15
Total	0	0	8	2	1	0	0	12	11	19	15	34
08:00 AM	2	0	1	6	1	0	0	10	4	5	19	24
08:15 AM	0	0	6	7	1	0	0	6	1	7	14	21
08:30 AM	0	0	7	1	1	0	0	11	1	8	13	21
08:45 AM	2	0	24	6	3	0	0	6	4	28	17	45
Total	4	0	38	20	6	0	0	33	10	48	63	111
09:00 AM	0	0	8	4	1	0	0	8	2	10	13	23
09:15 AM	0	0	4	3	0	0	0	5	3	7	8	15
Grand Total	4	0	58	29	8	0	0	58	26	84	99	183
Apprch %	100	0		78.4	21.6		0	100				
Total %	4	0		29.3	8.1		0	58.6		45.9	54.1	

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 14

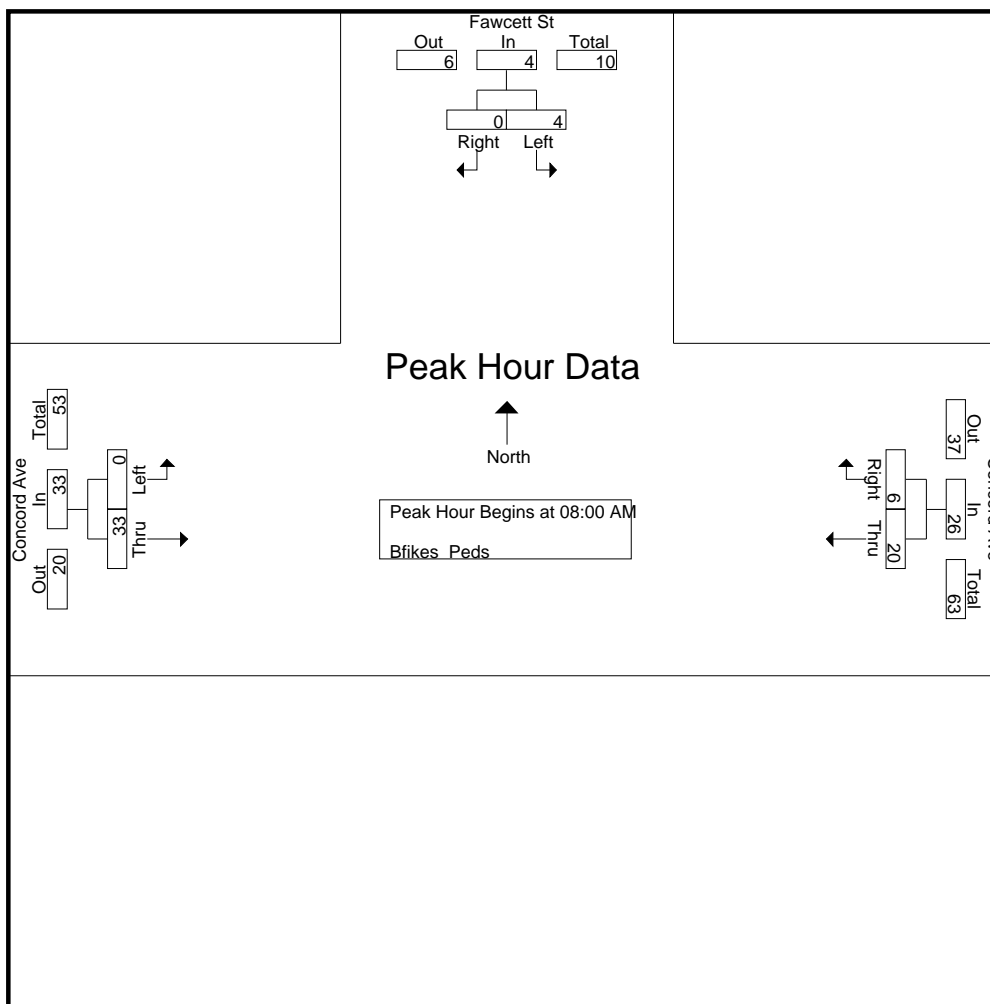
Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:00 AM										
08:00 AM	2	0	2	6	1	7	0	10	10	19
08:15 AM	0	0	0	7	1	8	0	6	6	14
08:30 AM	0	0	0	1	1	2	0	11	11	13
08:45 AM	2	0	2	6	3	9	0	6	6	17
Total Volume	4	0	4	20	6	26	0	33	33	63
% App. Total	100	0		76.9	23.1		0	100		
PHF	.500	.000	.500	.714	.500	.722	.000	.750	.750	.829

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

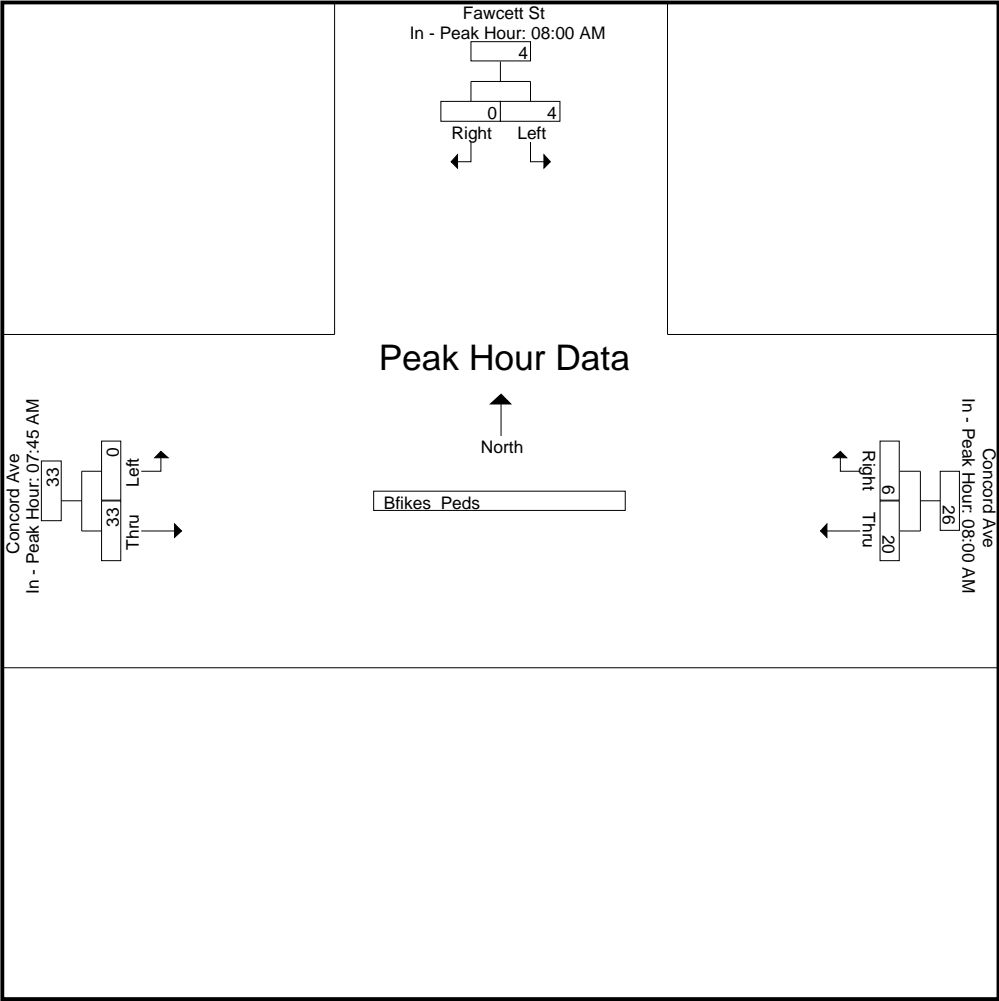
Peak Hour for Each Approach Begins at:

	08:00 AM			08:00 AM			07:45 AM		
+0 mins.	2	0	2	6	1	7	0	6	6
+15 mins.	0	0	0	7	1	8	0	10	10
+30 mins.	0	0	0	1	1	2	0	6	6
+45 mins.	2	0	2	6	3	9	0	11	11
Total Volume	4	0	4	20	6	26	0	33	33

Accurate Counts

978-664-2565

% App. Total	100	0		76.9	23.1		0	100	
PHF	.500	.000	.500	.714	.500	.722	.000	.750	.750



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
04:30 PM	19	10	98	17	5	180	329
04:45 PM	25	8	119	19	6	165	342
Total	44	18	217	36	11	345	671
05:00 PM	24	7	103	19	9	164	326
05:15 PM	29	8	129	29	5	140	340
05:30 PM	32	9	142	32	2	149	366
05:45 PM	23	5	97	30	12	135	302
Total	108	29	471	110	28	588	1334
06:00 PM	18	11	119	15	12	181	356
06:15 PM	17	10	140	28	5	137	337
Grand Total	187	68	947	189	56	1251	2698
Apprch %	73.3	26.7	83.4	16.6	4.3	95.7	
Total %	6.9	2.5	35.1	7	2.1	46.4	
Cars	187	68	939	187	56	1242	2679
% Cars	100	100	99.2	98.9	100	99.3	99.3
Trucks	0	0	8	2	0	9	19
% Trucks	0	0	0.8	1.1	0	0.7	0.7

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 2

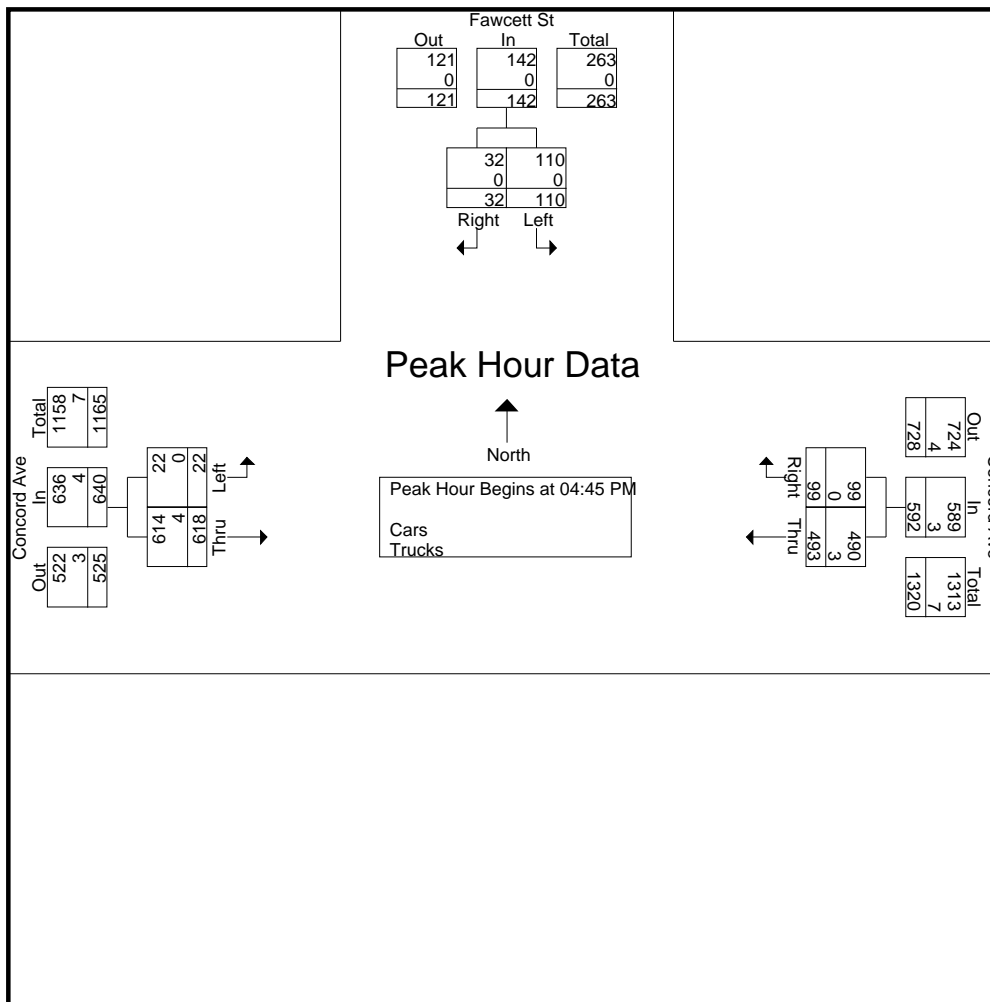
Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	25	8	33	119	19	138	6	165	171	342
05:00 PM	24	7	31	103	19	122	9	164	173	326
05:15 PM	29	8	37	129	29	158	5	140	145	340
05:30 PM	32	9	41	142	32	174	2	149	151	366
Total Volume	110	32	142	493	99	592	22	618	640	1374
% App. Total	77.5	22.5		83.3	16.7		3.4	96.6		
PHF	.859	.889	.866	.868	.773	.851	.611	.936	.925	.939
Cars	110	32	142	490	99	589	22	614	636	1367
% Cars	100	100	100	99.4	100	99.5	100	99.4	99.4	99.5
Trucks	0	0	0	3	0	3	0	4	4	7
% Trucks	0	0	0	0.6	0	0.5	0	0.6	0.6	0.5

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

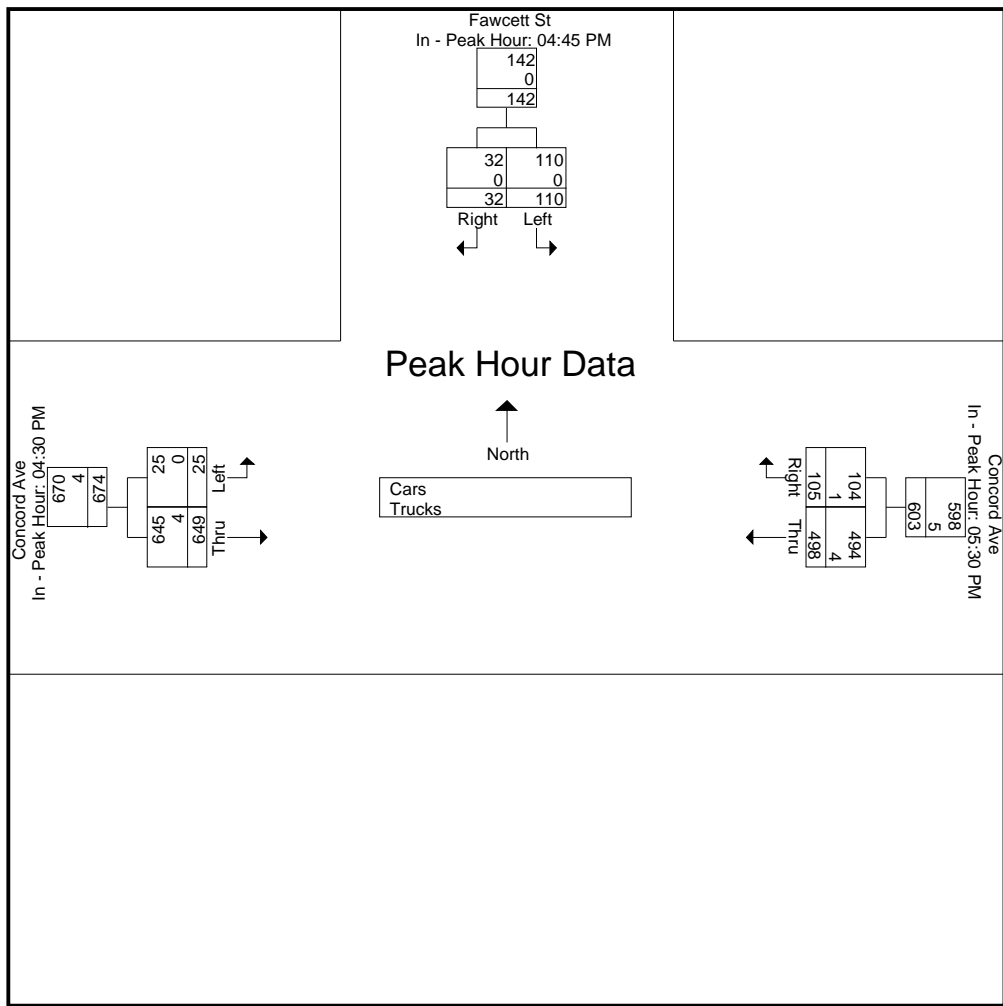
Peak Hour for Each Approach Begins at:

	04:45 PM			05:30 PM			04:30 PM		
+0 mins.	25	8	33	142	32	174	5	180	185
+15 mins.	24	7	31	97	30	127	6	165	171
+30 mins.	29	8	37	119	15	134	9	164	173
+45 mins.	32	9	41	140	28	168	5	140	145
Total Volume	110	32	142	498	105	603	25	649	674

Accurate Counts

978-664-2565

% App. Total	77.5	22.5		82.6	17.4		3.7	96.3	
PHF	.859	.889	.866	.877	.820	.866	.694	.901	.911
Cars	110	32	142	494	104	598	25	645	670
% Cars	100	100	100	99.2	99	99.2	100	99.4	99.4
Trucks	0	0	0	4	1	5	0	4	4
% Trucks	0	0	0	0.8	1	0.8	0	0.6	0.6



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
04:30 PM	19	10	96	16	5	178	324
04:45 PM	25	8	119	19	6	164	341
Total	44	18	215	35	11	342	665
05:00 PM	24	7	103	19	9	164	326
05:15 PM	29	8	127	29	5	139	337
05:30 PM	32	9	141	32	2	147	363
05:45 PM	23	5	97	30	12	134	301
Total	108	29	468	110	28	584	1327
06:00 PM	18	11	117	15	12	179	352
06:15 PM	17	10	139	27	5	137	335
Grand Total	187	68	939	187	56	1242	2679
Apprch %	73.3	26.7	83.4	16.6	4.3	95.7	
Total %	7	2.5	35.1	7	2.1	46.4	

Accurate Counts

978-664-2565

File Name : 80840005

Site Code : 80840005

Start Date : 4/2/2019

Page No : 6

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:45 PM										
04:45 PM	25	8	33	119	19	138	6	164	170	341
05:00 PM	24	7	31	103	19	122	9	164	173	326
05:15 PM	29	8	37	127	29	156	5	139	144	337
05:30 PM	32	9	41	141	32	173	2	147	149	363
Total Volume	110	32	142	490	99	589	22	614	636	1367
% App. Total	77.5	22.5		83.2	16.8		3.5	96.5		
PHF	.859	.889	.866	.869	.773	.851	.611	.936	.919	.941

Accurate Counts

978-664-2565

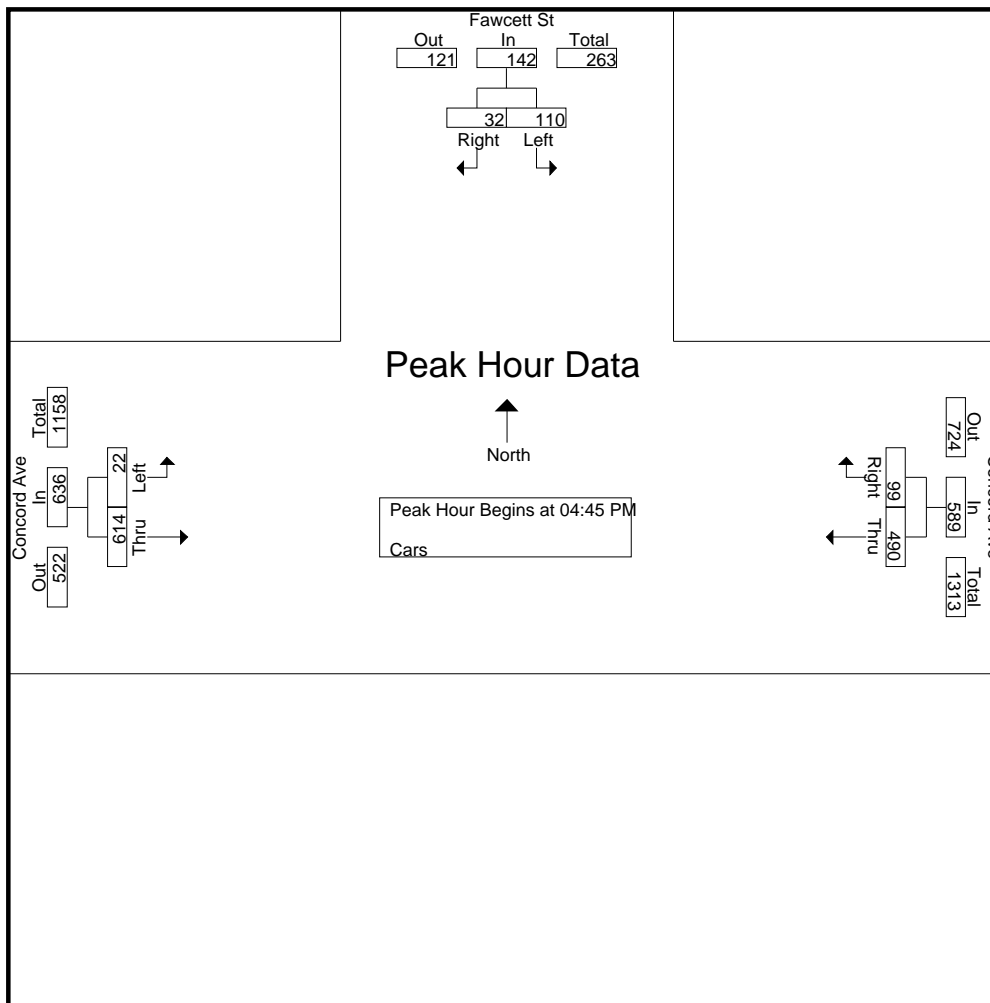
File Name : 80840005

Site Code : 80840005

Start Date : 4/2/2019

Page No : 7

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

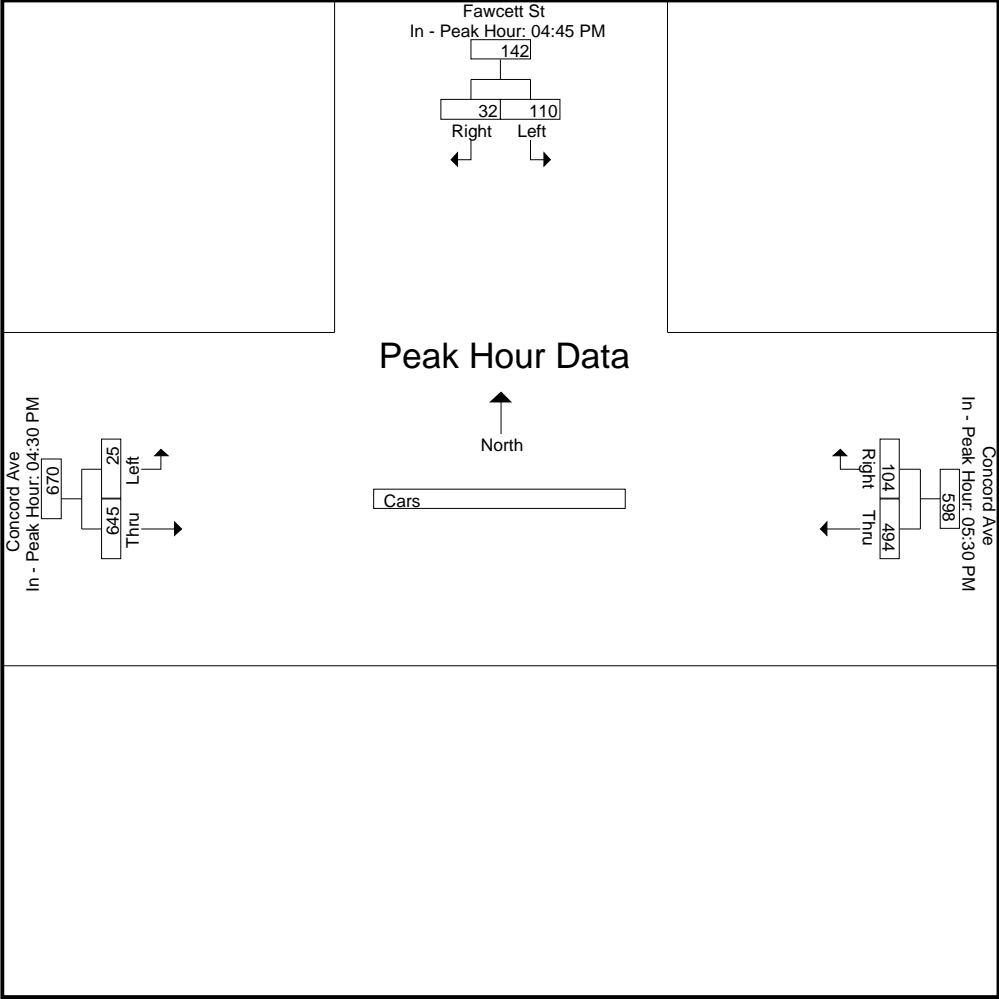
Peak Hour for Each Approach Begins at:

	04:45 PM			05:30 PM			04:30 PM		
+0 mins.	25	8	33	141	32	173	5	178	183
+15 mins.	24	7	31	97	30	127	6	164	170
+30 mins.	29	8	37	117	15	132	9	164	173
+45 mins.	32	9	41	139	27	166	5	139	144
Total Volume	110	32	142	494	104	598	25	645	670

Accurate Counts

978-664-2565

% App. Total	77.5	22.5		82.6	17.4		3.7	96.3
PHF	.859	.889	.866	.876	.813	.864	.694	.906
								.915



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Fawcett St From North		Concord Ave From East		Concord Ave From West		Int. Total
	Left	Right	Thru	Right	Left	Thru	
04:30 PM	0	0	2	1	0	2	5
04:45 PM	0	0	0	0	0	1	1
Total	0	0	2	1	0	3	6
05:00 PM	0	0	0	0	0	0	0
05:15 PM	0	0	2	0	0	1	3
05:30 PM	0	0	1	0	0	2	3
05:45 PM	0	0	0	0	0	1	1
Total	0	0	3	0	0	4	7
06:00 PM	0	0	2	0	0	2	4
06:15 PM	0	0	1	1	0	0	2
Grand Total	0	0	8	2	0	9	19
Apprch %	0	0	80	20	0	100	
Total %	0	0	42.1	10.5	0	47.4	

Accurate Counts

978-664-2565

File Name : 80840005

Site Code : 80840005

Start Date : 4/2/2019

Page No : 10

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

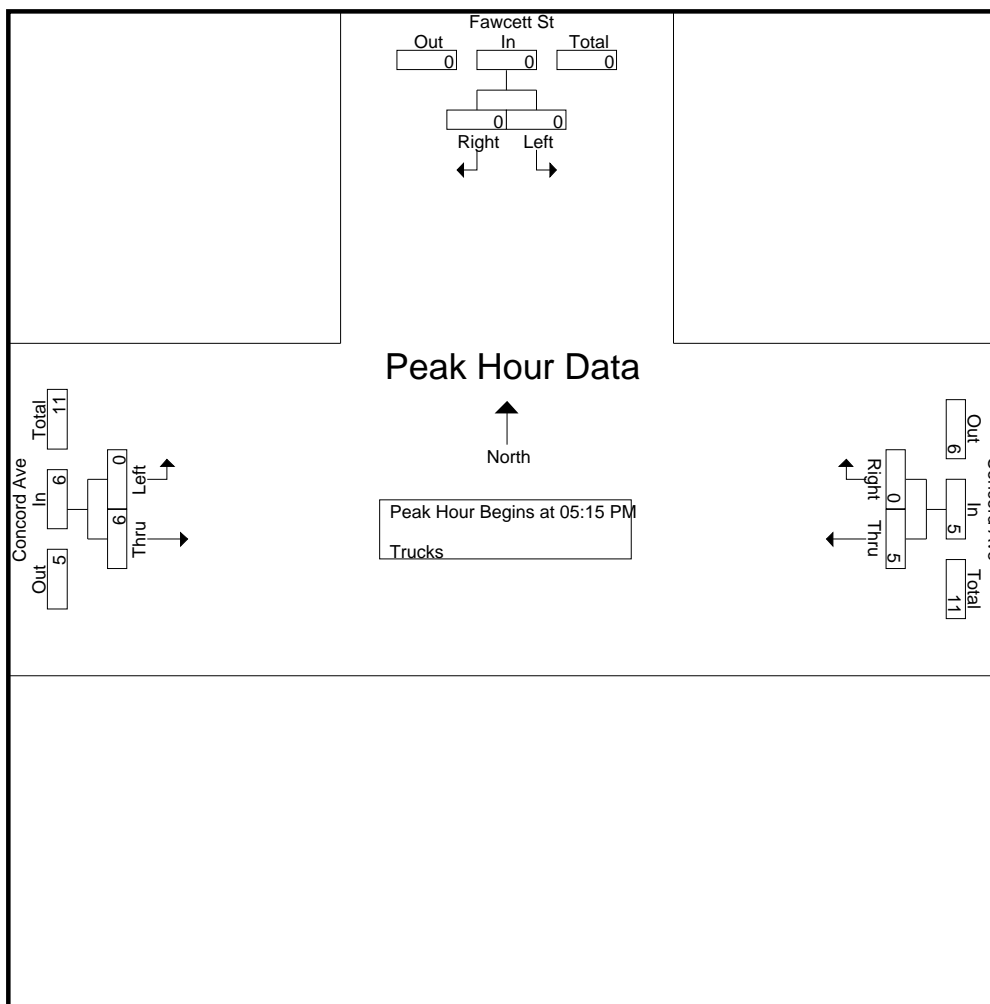
Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:15 PM										
05:15 PM	0	0	0	2	0	2	0	1	1	3
05:30 PM	0	0	0	1	0	1	0	2	2	3
05:45 PM	0	0	0	0	0	0	0	1	1	1
06:00 PM	0	0	0	2	0	2	0	2	2	4
Total Volume	0	0	0	5	0	5	0	6	6	11
% App. Total	0	0		100	0		0	100		
PHF	.000	.000	.000	.625	.000	.625	.000	.750	.750	.688

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

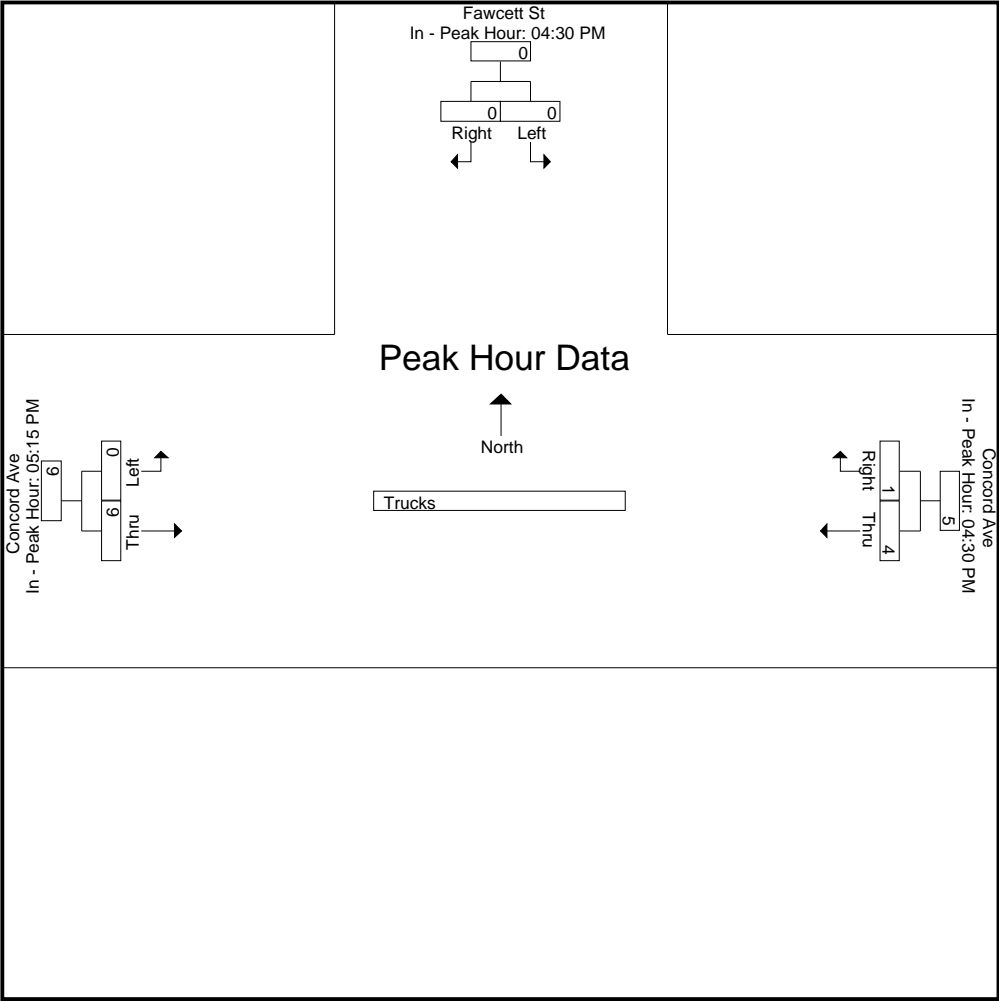
Peak Hour for Each Approach Begins at:

	04:30 PM			04:30 PM			05:15 PM		
+0 mins.	0	0	0	2	1	3	0	1	1
+15 mins.	0	0	0	0	0	0	0	2	2
+30 mins.	0	0	0	0	0	0	0	1	1
+45 mins.	0	0	0	2	0	2	0	2	2
Total Volume	0	0	0	4	1	5	0	6	6

Accurate Counts

978-664-2565

% App. Total	0	0		80	20		0	100	
PHF	.000	.000	.000	.500	.250	.417	.000	.750	.750



Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bfikes Peds

Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Exclu. Total	Inclu. Total	Int. Total
	Left	Right	Peds	Thru	Right	Peds	Left	Thru	Peds			
04:30 PM	1	0	7	5	4	0	0	4	5	12	14	26
04:45 PM	0	0	6	3	1	0	0	6	6	12	10	22
Total	1	0	13	8	5	0	0	10	11	24	24	48
05:00 PM	0	0	9	6	2	0	0	2	2	11	10	21
05:15 PM	0	0	17	9	2	0	0	5	4	21	16	37
05:30 PM	2	0	12	8	0	0	0	3	1	13	13	26
05:45 PM	1	0	14	12	3	0	0	6	2	16	22	38
Total	3	0	52	35	7	0	0	16	9	61	61	122
06:00 PM	5	0	8	9	1	0	0	4	0	8	19	27
06:15 PM	2	1	6	9	2	0	0	9	0	6	23	29
Grand Total	11	1	79	61	15	0	0	39	20	99	127	226
Apprch %	91.7	8.3		80.3	19.7		0	100				
Total %	8.7	0.8		48	11.8		0	30.7		43.8	56.2	

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 14

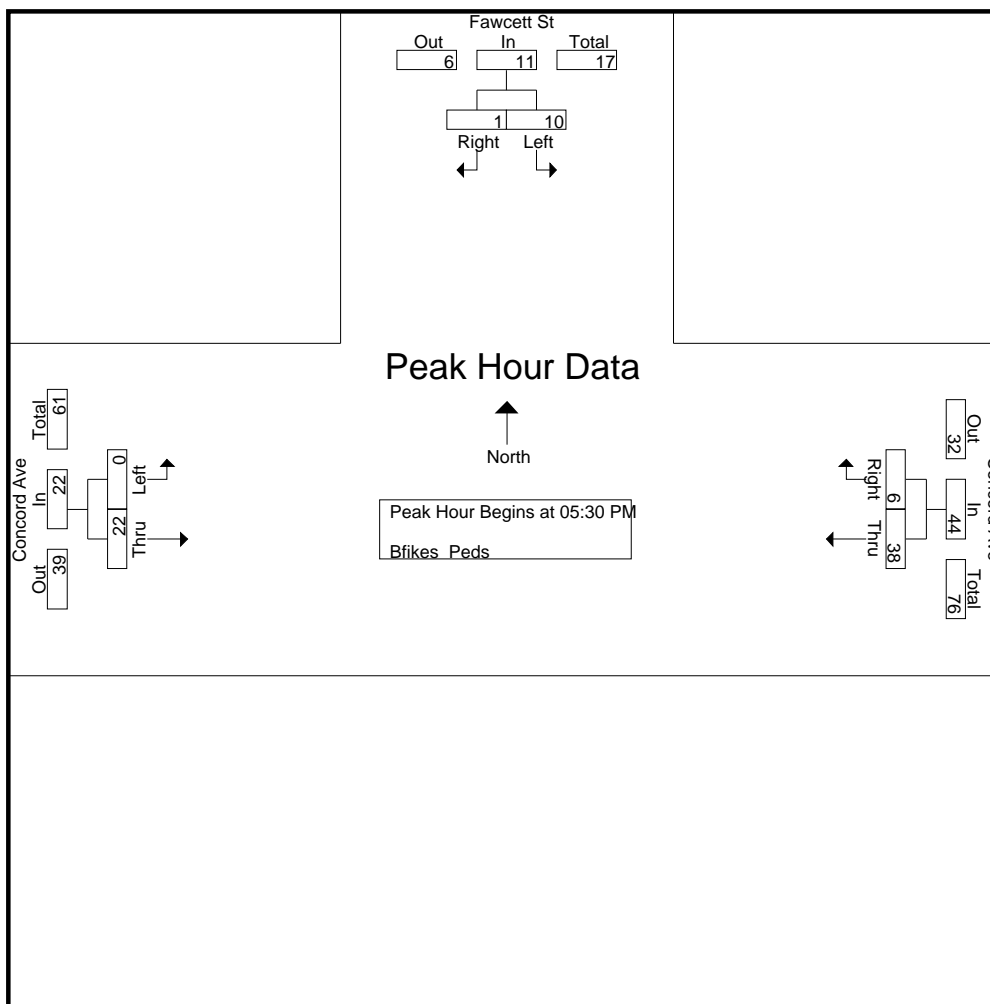
Start Time	Fawcett St From North			Concord Ave From East			Concord Ave From West			Int. Total
	Left	Right	App. Total	Thru	Right	App. Total	Left	Thru	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	2	0	2	8	0	8	0	3	3	13
05:45 PM	1	0	1	12	3	15	0	6	6	22
06:00 PM	5	0	5	9	1	10	0	4	4	19
06:15 PM	2	1	3	9	2	11	0	9	9	23
Total Volume	10	1	11	38	6	44	0	22	22	77
% App. Total	90.9	9.1		86.4	13.6		0	100		
PHF	.500	.250	.550	.792	.500	.733	.000	.611	.611	.837

Accurate Counts

978-664-2565

N/S Street : Fawcett Street
 E/W Street: Concord Avenue
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840005
 Site Code : 80840005
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

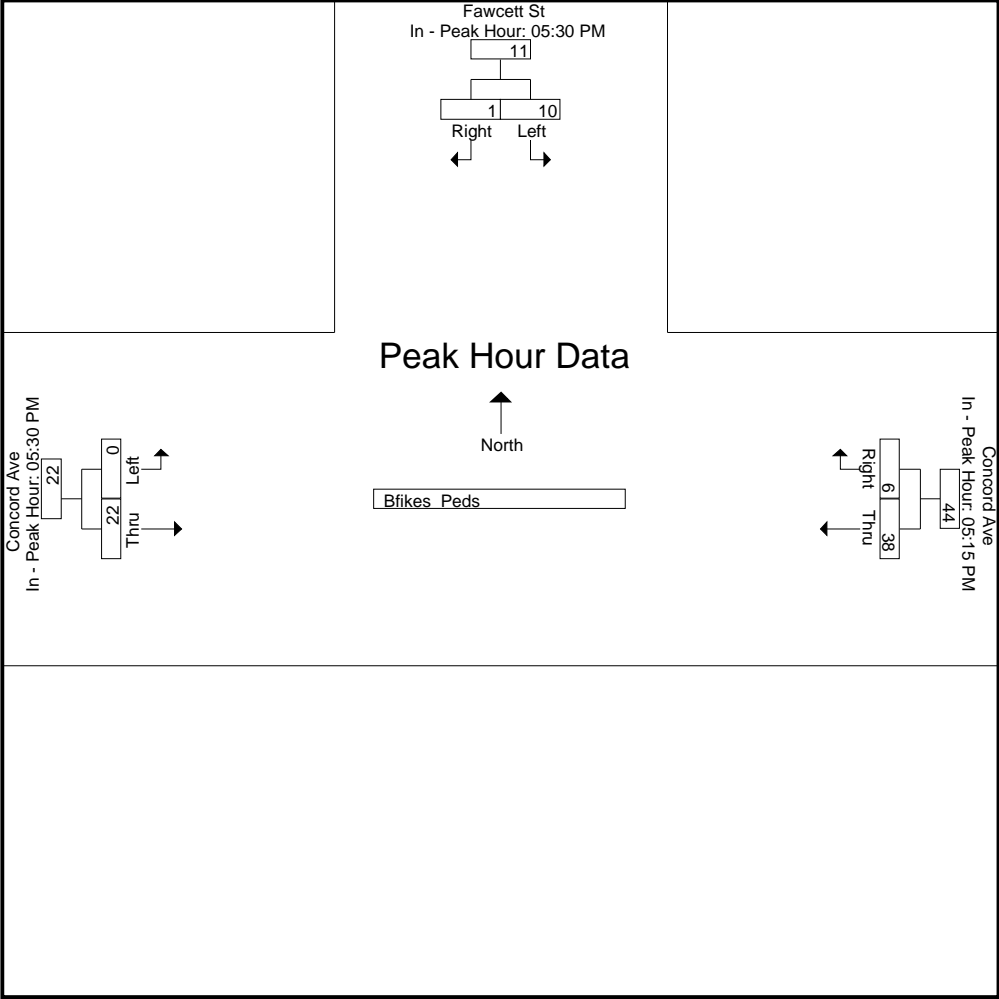
Peak Hour for Each Approach Begins at:

	05:30 PM			05:15 PM			05:30 PM		
+0 mins.	2	0	2	9	2	11	0	3	3
+15 mins.	1	0	1	8	0	8	0	6	6
+30 mins.	5	0	5	12	3	15	0	4	4
+45 mins.	2	1	3	9	1	10	0	9	9
Total Volume	10	1	11	38	6	44	0	22	22

Accurate Counts

978-664-2565

% App. Total	90.9	9.1		86.4	13.6		0	100	
PHF	.500	.250	.550	.792	.500	.733	.000	.611	.611



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Smith Pl From North			Fawcett St From East			Smith Pl From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	3	8	0	6	4	6	1	8	8	0	0	1	45
07:45 AM	1	2	0	11	1	10	1	9	5	0	1	1	42
Total	4	10	0	17	5	16	2	17	13	0	1	2	87
08:00 AM	2	3	0	7	0	15	0	2	12	1	1	2	45
08:15 AM	4	7	0	7	1	5	1	7	8	0	0	2	42
08:30 AM	4	11	0	9	0	4	0	9	3	0	0	2	42
08:45 AM	3	10	0	7	0	9	0	8	9	0	0	0	46
Total	13	31	0	30	1	33	1	26	32	1	1	6	175
09:00 AM	2	8	0	7	0	6	0	7	8	0	1	0	39
09:15 AM	2	8	0	9	0	3	0	14	2	0	0	0	38
Grand Total	21	57	0	63	6	58	3	64	55	1	3	8	339
Apprch %	26.9	73.1	0	49.6	4.7	45.7	2.5	52.5	45.1	8.3	25	66.7	
Total %	6.2	16.8	0	18.6	1.8	17.1	0.9	18.9	16.2	0.3	0.9	2.4	
Cars	19	47	0	61	6	53	2	49	55	1	3	7	303
% Cars	90.5	82.5	0	96.8	100	91.4	66.7	76.6	100	100	100	87.5	89.4
Trucks	2	10	0	2	0	5	1	15	0	0	0	1	36
% Trucks	9.5	17.5	0	3.2	0	8.6	33.3	23.4	0	0	0	12.5	10.6

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 2

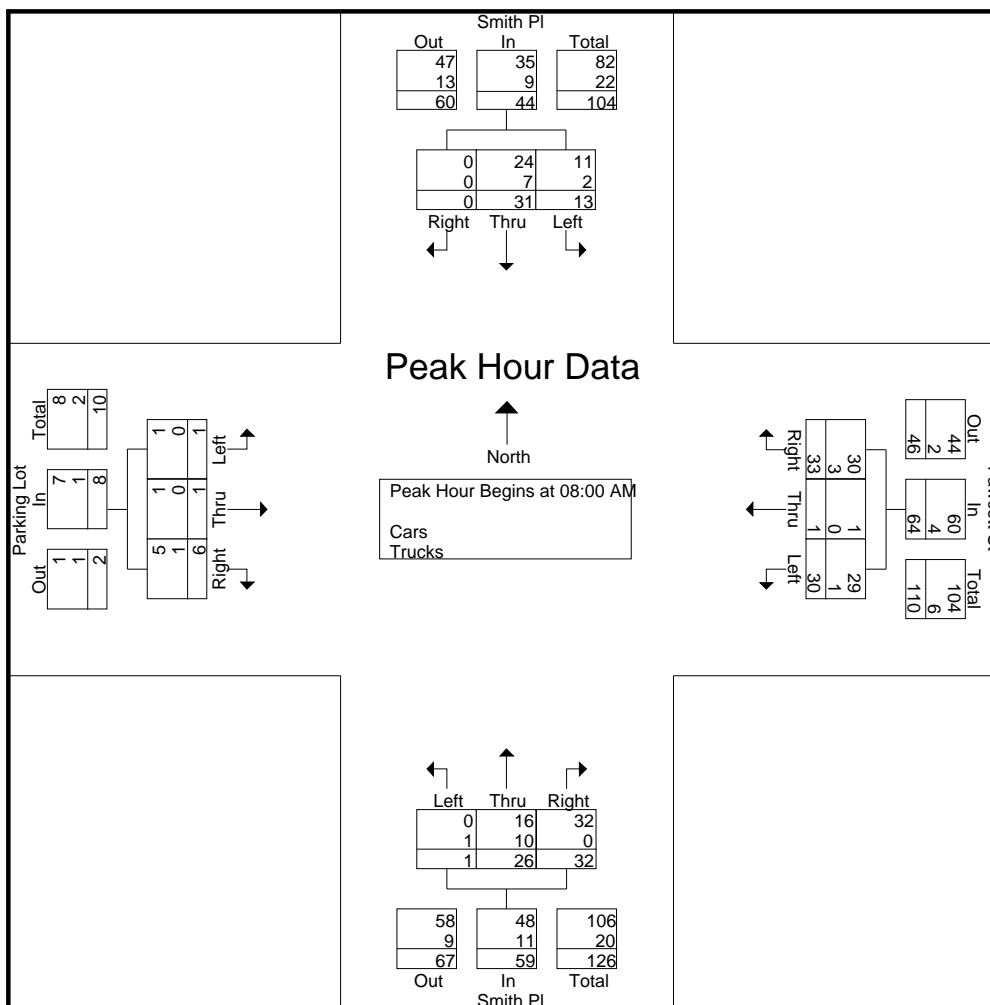
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	2	3	0	5	7	0	15	22	0	2	12	14	1	1	2	4	45
08:15 AM	4	7	0	11	7	1	5	13	1	7	8	16	0	0	2	2	42
08:30 AM	4	11	0	15	9	0	4	13	0	9	3	12	0	0	2	2	42
08:45 AM	3	10	0	13	7	0	9	16	0	8	9	17	0	0	0	0	46
Total Volume	13	31	0	44	30	1	33	64	1	26	32	59	1	1	6	8	175
% App. Total	29.5	70.5	0		46.9	1.6	51.6		1.7	44.1	54.2		12.5	12.5	75		
PHF	.813	.705	.000	.733	.833	.250	.550	.727	.250	.722	.667	.868	.250	.250	.750	.500	.951
Cars	11	24	0	35	29	1	30	60	0	16	32	48	1	1	5	7	150
% Cars	84.6	77.4	0	79.5	96.7	100	90.9	93.8	0	61.5	100	81.4	100	100	83.3	87.5	85.7
Trucks	2	7	0	9	1	0	3	4	1	10	0	11	0	0	1	1	25
% Trucks	15.4	22.6	0	20.5	3.3	0	9.1	6.3	100	38.5	0	18.6	0	0	16.7	12.5	14.3

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

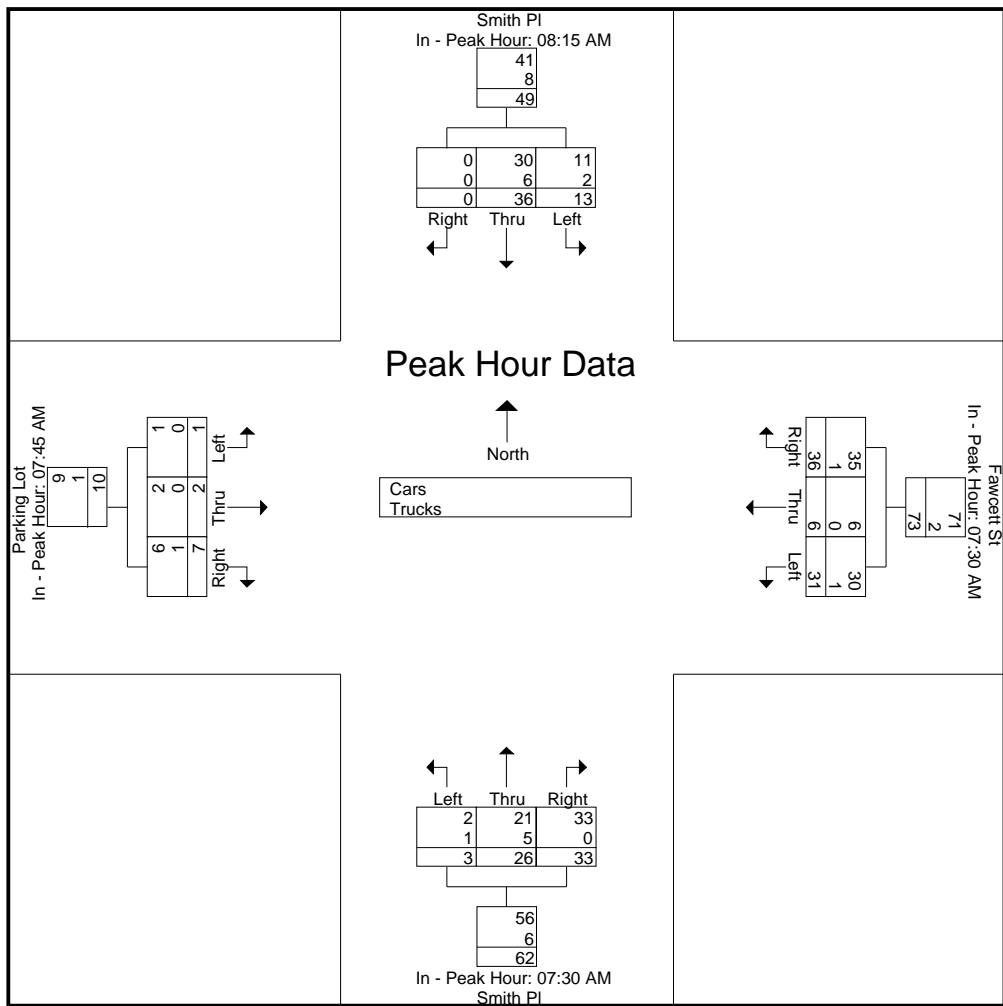
Peak Hour for Each Approach Begins at:

	08:15 AM				07:30 AM				07:30 AM				07:45 AM			
+0 mins.	4	7	0	11	6	4	6	16	1	8	8	17	0	1	1	2
+15 mins.	4	11	0	15	11	1	10	22	1	9	5	15	1	1	2	4
+30 mins.	3	10	0	13	7	0	15	22	0	2	12	14	0	0	2	2
+45 mins.	2	8	0	10	7	1	5	13	1	7	8	16	0	0	2	2
Total Volume	13	36	0	49	31	6	36	73	3	26	33	62	1	2	7	10

Accurate Counts

978-664-2565

% App. Total	26.5	73.5	0		42.5	8.2	49.3		4.8	41.9	53.2		10	20	70	
PHF	.813	.818	.000	.817	.705	.375	.600	.830	.750	.722	.688	.912	.250	.500	.875	.625
Cars	11	30	0	41	30	6	35	71	2	21	33	56	1	2	6	9
% Cars	84.6	83.3	0	83.7	96.8	100	97.2	97.3	66.7	80.8	100	90.3	100	100	85.7	90
Trucks	2	6	0	8	1	0	1	2	1	5	0	6	0	0	1	1
% Trucks	15.4	16.7	0	16.3	3.2	0	2.8	2.7	33.3	19.2	0	9.7	0	0	14.3	10



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Smith Pl From North			Fawcett St From East			Smith Pl From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	3	8	0	6	4	6	1	7	8	0	0	1	44
07:45 AM	1	1	0	10	1	9	1	8	5	0	1	1	38
Total	4	9	0	16	5	15	2	15	13	0	1	2	82
08:00 AM	2	1	0	7	0	15	0	1	12	1	1	2	42
08:15 AM	3	5	0	7	1	5	0	5	8	0	0	1	35
08:30 AM	4	9	0	8	0	3	0	5	3	0	0	2	34
08:45 AM	2	9	0	7	0	7	0	5	9	0	0	0	39
Total	11	24	0	29	1	30	0	16	32	1	1	5	150
09:00 AM	2	7	0	7	0	6	0	7	8	0	1	0	38
09:15 AM	2	7	0	9	0	2	0	11	2	0	0	0	33
Grand Total	19	47	0	61	6	53	2	49	55	1	3	7	303
Apprch %	28.8	71.2	0	50.8	5	44.2	1.9	46.2	51.9	9.1	27.3	63.6	
Total %	6.3	15.5	0	20.1	2	17.5	0.7	16.2	18.2	0.3	1	2.3	

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 6

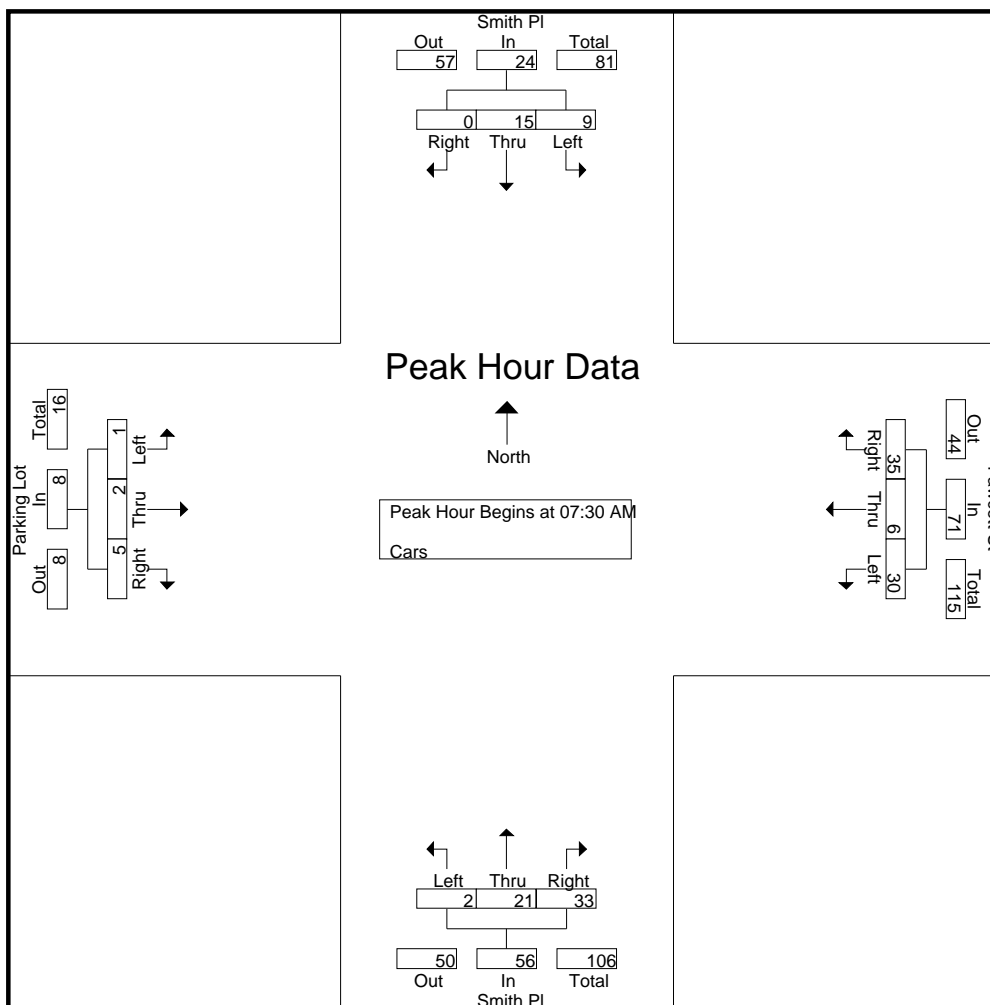
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	3	8	0	11	6	4	6	16	1	7	8	16	0	0	1	1	44
07:45 AM	1	1	0	2	10	1	9	20	1	8	5	14	0	1	1	2	38
08:00 AM	2	1	0	3	7	0	15	22	0	1	12	13	1	1	2	4	42
08:15 AM	3	5	0	8	7	1	5	13	0	5	8	13	0	0	1	1	35
Total Volume	9	15	0	24	30	6	35	71	2	21	33	56	1	2	5	8	159
% App. Total	37.5	62.5	0		42.3	8.5	49.3		3.6	37.5	58.9		12.5	25	62.5		
PHF	.750	.469	.000	.545	.750	.375	.583	.807	.500	.656	.688	.875	.250	.500	.625	.500	.903

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 7



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

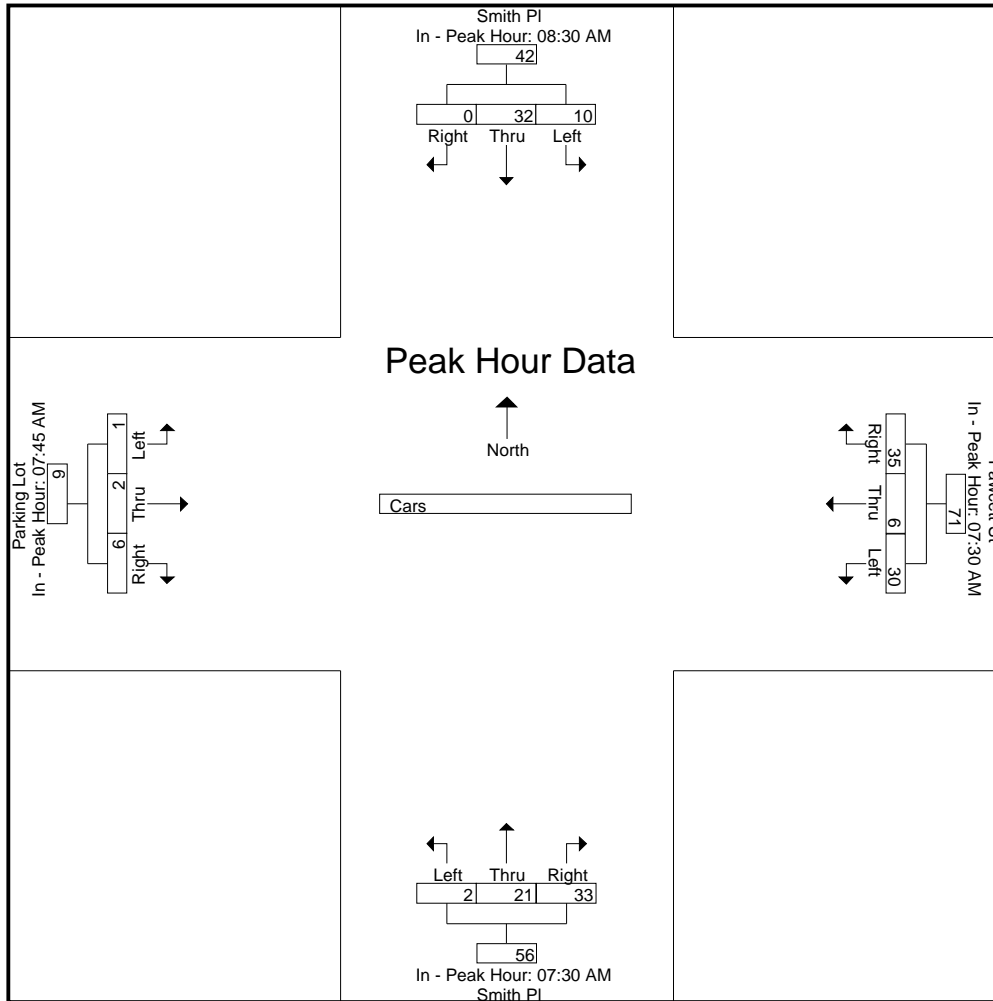
Peak Hour for Each Approach Begins at:

	08:30 AM				07:30 AM				07:30 AM				07:45 AM			
+0 mins.	4	9	0	13	6	4	6	16	1	7	8	16	0	1	1	2
+15 mins.	2	9	0	11	10	1	9	20	1	8	5	14	1	1	2	4
+30 mins.	2	7	0	9	7	0	15	22	0	1	12	13	0	0	1	1
+45 mins.	2	7	0	9	7	1	5	13	0	5	8	13	0	0	2	2
Total Volume	10	32	0	42	30	6	35	71	2	21	33	56	1	2	6	9

Accurate Counts

978-664-2565

% App. Total	23.8	76.2	0		42.3	8.5	49.3		3.6	37.5	58.9		11.1	22.2	66.7	
PHF	.625	.889	.000	.808	.750	.375	.583	.807	.500	.656	.688	.875	.250	.500	.750	.563



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Smith Pl From North			Fawcett St From East			Smith Pl From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:30 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
07:45 AM	0	1	0	1	0	1	0	1	0	0	0	0	4
Total	0	1	0	1	0	1	0	2	0	0	0	0	5
08:00 AM	0	2	0	0	0	0	0	1	0	0	0	0	3
08:15 AM	1	2	0	0	0	0	1	2	0	0	0	1	7
08:30 AM	0	2	0	1	0	1	0	4	0	0	0	0	8
08:45 AM	1	1	0	0	0	2	0	3	0	0	0	0	7
Total	2	7	0	1	0	3	1	10	0	0	0	1	25
09:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
09:15 AM	0	1	0	0	0	1	0	3	0	0	0	0	5
Grand Total	2	10	0	2	0	5	1	15	0	0	0	1	36
Apprch %	16.7	83.3	0	28.6	0	71.4	6.2	93.8	0	0	0	100	
Total %	5.6	27.8	0	5.6	0	13.9	2.8	41.7	0	0	0	2.8	

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 10

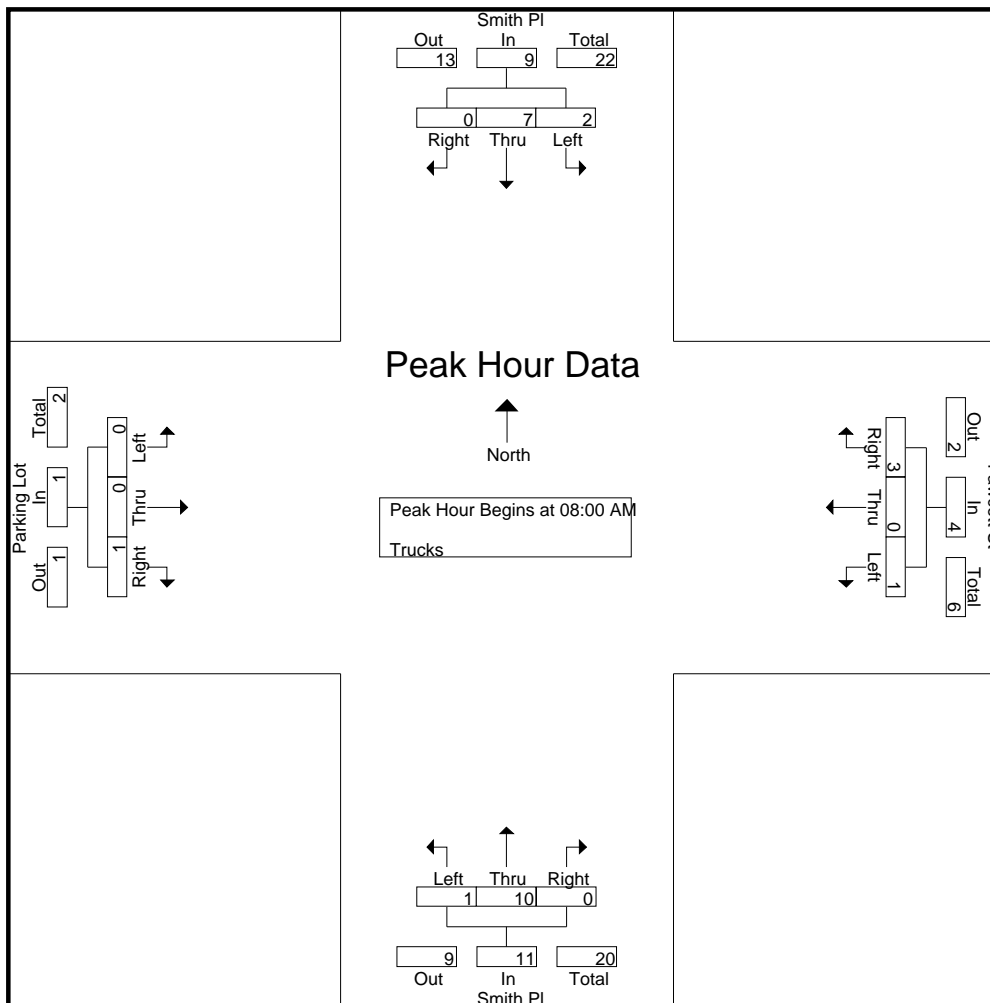
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	0	3
08:15 AM	1	2	0	3	0	0	0	0	1	2	0	3	0	0	1	1	7
08:30 AM	0	2	0	2	1	0	1	2	0	4	0	4	0	0	0	0	8
08:45 AM	1	1	0	2	0	0	2	2	0	3	0	3	0	0	0	0	7
Total Volume	2	7	0	9	1	0	3	4	1	10	0	11	0	0	1	1	25
% App. Total	22.2	77.8	0		25	0	75		9.1	90.9	0		0	0	100		
PHF	.500	.875	.000	.750	.250	.000	.375	.500	.250	.625	.000	.688	.000	.000	.250	.250	.781

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

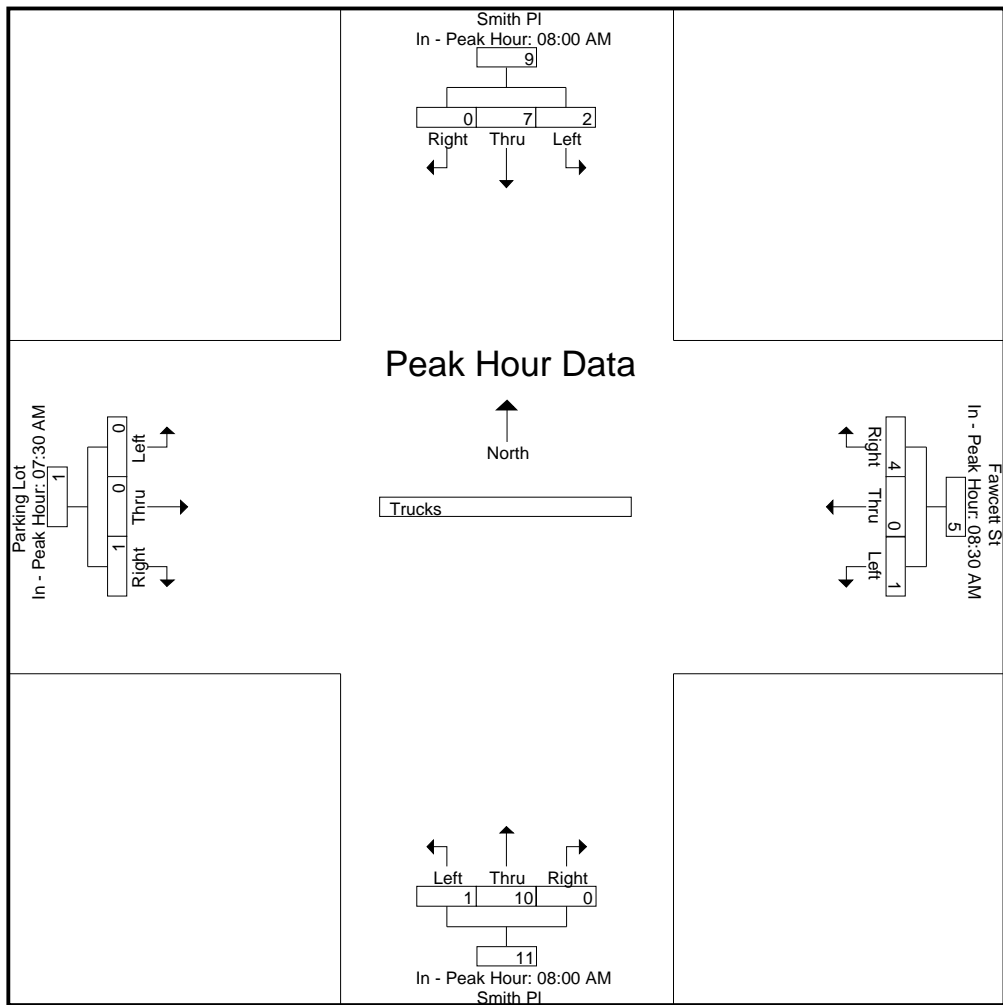
Peak Hour for Each Approach Begins at:

	08:00 AM				08:30 AM				08:00 AM				07:30 AM			
+0 mins.	0	2	0	2	1	0	1	2	0	1	0	1	0	0	0	0
+15 mins.	1	2	0	3	0	0	2	2	1	2	0	3	0	0	0	0
+30 mins.	0	2	0	2	0	0	0	0	0	4	0	4	0	0	0	0
+45 mins.	1	1	0	2	0	0	1	1	0	3	0	3	0	0	1	1
Total Volume	2	7	0	9	1	0	4	5	1	10	0	11	0	0	1	1

Accurate Counts

978-664-2565

% App. Total	22.2	77.8	0		20	0	80		9.1	90.9	0		0	0	100	
PHF	.500	.875	.000	.750	.250	.000	.500	.625	.250	.625	.000	.688	.000	.000	.250	.250



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	0	3
Total	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	1	3	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	2	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	1
08:45 AM	0	0	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	2	3
Total	0	0	0	0	0	0	2	0	0	0	2	3	0	0	0	1	4	4	8
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1
Grand Total	0	0	0	1	0	0	2	2	0	0	2	3	0	0	0	2	8	4	12
Apprch %	0	0	0		0	0	100		0	0	100		0	0	0				
Total %	0	0	0		0	0	50		0	0	50		0	0	0		66.7	33.3	

Accurate Counts

978-664-2565

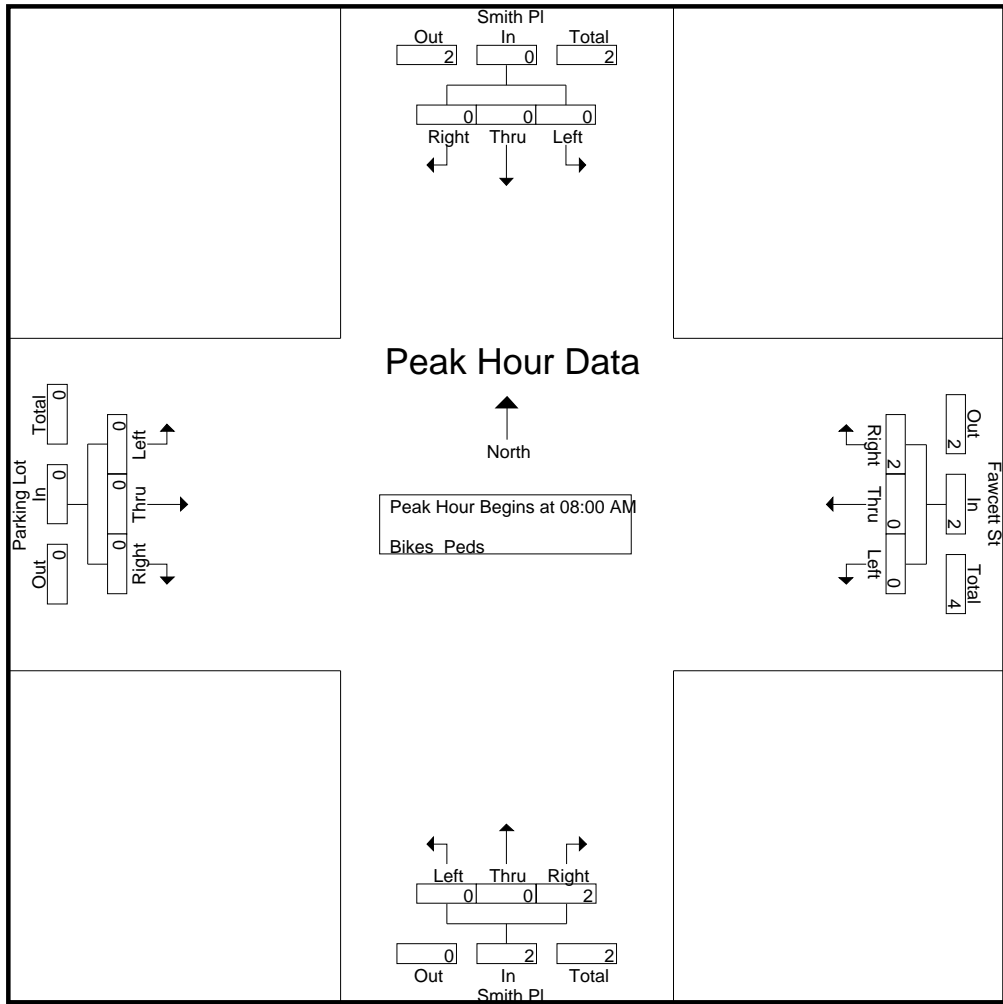
File Name : 80840009

Site Code : 80840009

Start Date : 4/2/2019

Page No : 15

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1

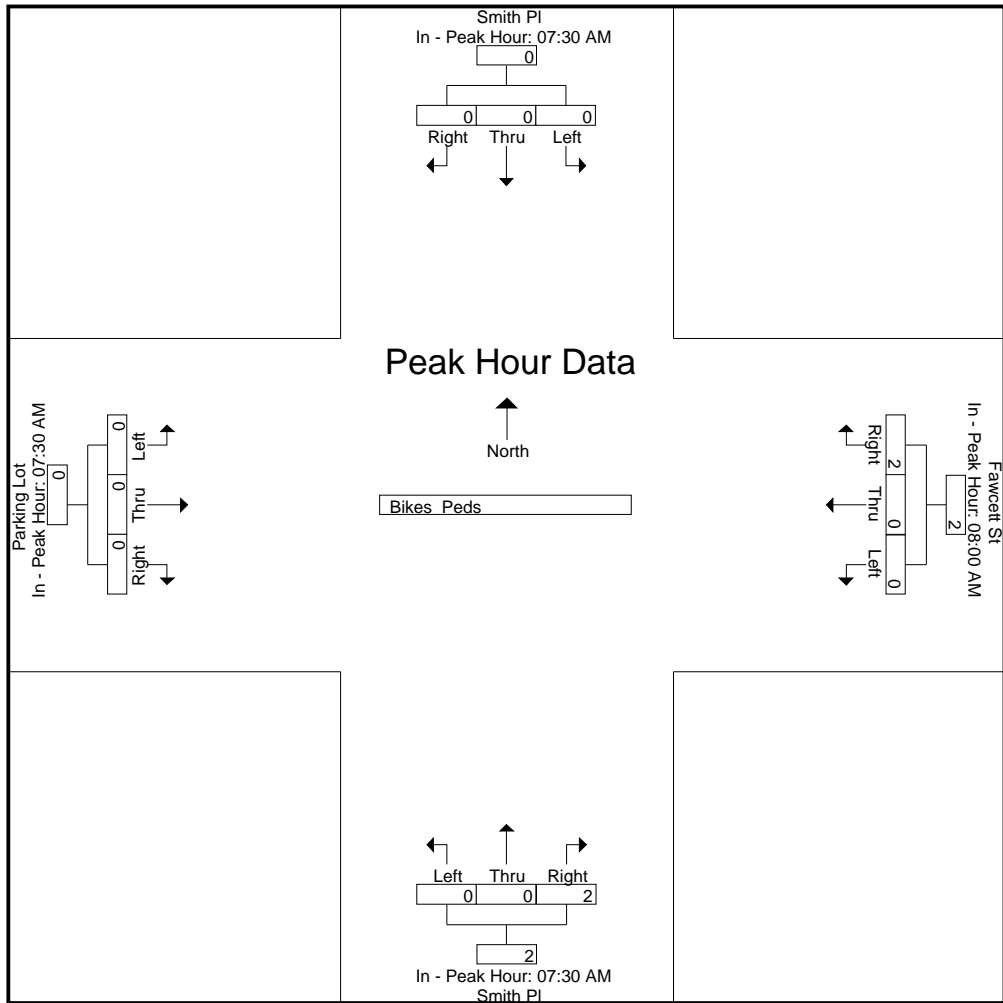
Peak Hour for Each Approach Begins at:

	07:30 AM				08:00 AM				07:30 AM				07:30 AM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	2	2	0	0	1	1	0	0	0	0
Total Volume	0	0	0	0	0	0	2	2	0	0	2	2	0	0	0	0

Accurate Counts

978-664-2565

% App. Total	0	0	0	0	0	0	100	0	0	100	0	0	0			
PHF	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.500	.500	.000	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Cars - Trucks

Start Time	Smith Pl From North			Fawcett St From East			Smith Pl From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	3	35	1	5	2	9	6	8	4	0	1	5	79
04:45 PM	4	13	0	5	5	6	12	6	11	0	0	1	63
Total	7	48	1	10	7	15	18	14	15	0	1	6	142
05:00 PM	3	7	0	11	2	8	8	1	4	0	0	2	46
05:15 PM	3	18	0	3	0	3	18	4	2	0	1	6	58
05:30 PM	4	19	0	8	2	5	7	6	3	0	1	2	57
05:45 PM	2	16	0	4	1	5	2	3	2	0	1	2	38
Total	12	60	0	26	5	21	35	14	11	0	3	12	199
06:00 PM	2	19	2	7	0	3	6	6	2	0	0	0	47
06:15 PM	2	9	0	3	4	5	7	4	1	0	0	1	36
Grand Total	23	136	3	46	16	44	66	38	29	0	4	19	424
Apprch %	14.2	84	1.9	43.4	15.1	41.5	49.6	28.6	21.8	0	17.4	82.6	
Total %	5.4	32.1	0.7	10.8	3.8	10.4	15.6	9	6.8	0	0.9	4.5	
Cars	22	134	3	46	16	43	66	37	29	0	4	19	419
% Cars	95.7	98.5	100	100	100	97.7	100	97.4	100	0	100	100	98.8
Trucks	1	2	0	0	0	1	0	1	0	0	0	0	5
% Trucks	4.3	1.5	0	0	0	2.3	0	2.6	0	0	0	0	1.2

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 2

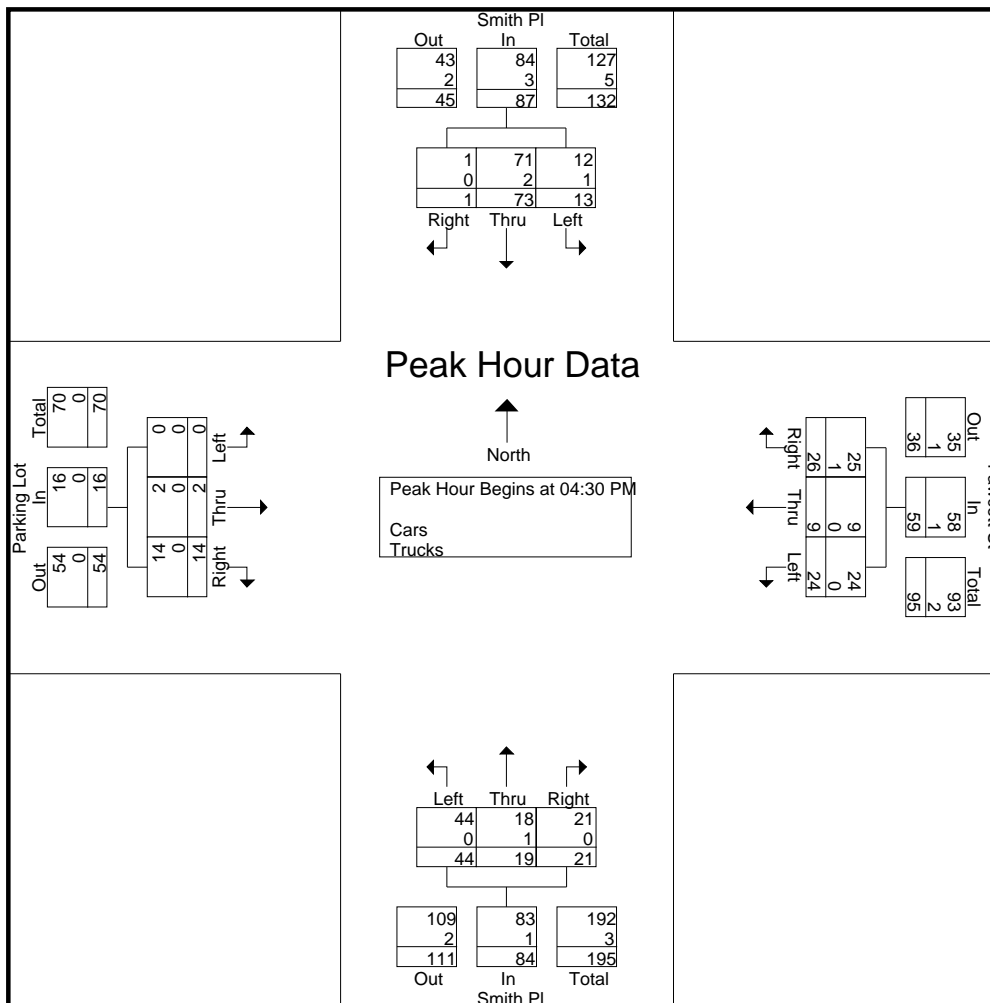
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	3	35	1	39	5	2	9	16	6	8	4	18	0	1	5	6	79
04:45 PM	4	13	0	17	5	5	6	16	12	6	11	29	0	0	1	1	63
05:00 PM	3	7	0	10	11	2	8	21	8	1	4	13	0	0	2	2	46
05:15 PM	3	18	0	21	3	0	3	6	18	4	2	24	0	1	6	7	58
Total Volume	13	73	1	87	24	9	26	59	44	19	21	84	0	2	14	16	246
% App. Total	14.9	83.9	1.1		40.7	15.3	44.1		52.4	22.6	25		0	12.5	87.5		
PHF	.813	.521	.250	.558	.545	.450	.722	.702	.611	.594	.477	.724	.000	.500	.583	.571	.778
Cars	12	71	1	84	24	9	25	58	44	18	21	83	0	2	14	16	241
% Cars	92.3	97.3	100	96.6	100	100	96.2	98.3	100	94.7	100	98.8	0	100	100	100	98.0
Trucks	1	2	0	3	0	0	1	1	0	1	0	1	0	0	0	0	5
% Trucks	7.7	2.7	0	3.4	0	0	3.8	1.7	0	5.3	0	1.2	0	0	0	0	2.0

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 3



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

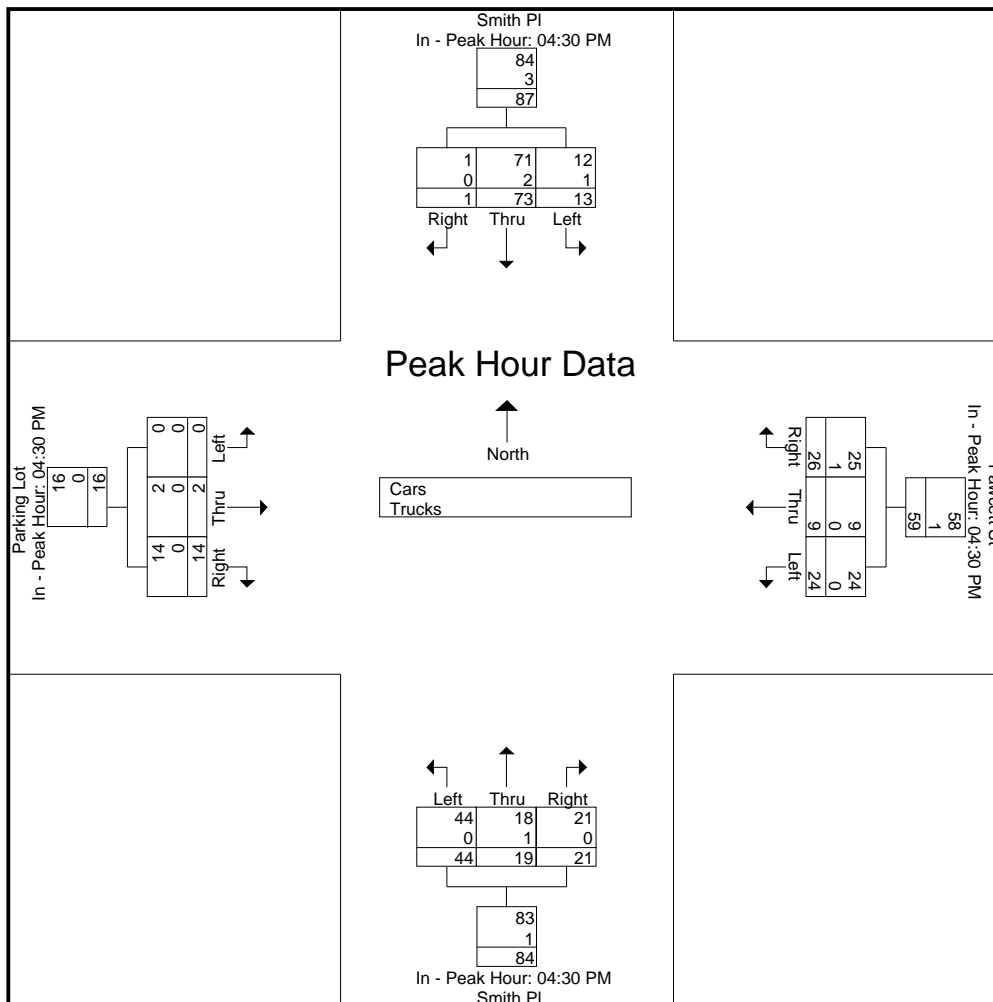
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	3	35	1	39	5	2	9	16	6	8	4	18	0	1	5	6
+15 mins.	4	13	0	17	5	5	6	16	12	6	11	29	0	0	1	1
+30 mins.	3	7	0	10	11	2	8	21	8	1	4	13	0	0	2	2
+45 mins.	3	18	0	21	3	0	3	6	18	4	2	24	0	1	6	7
Total Volume	13	73	1	87	24	9	26	59	44	19	21	84	0	2	14	16

Accurate Counts

978-664-2565

% App. Total	14.9	83.9	1.1		40.7	15.3	44.1		52.4	22.6	25		0	12.5	87.5	
PHF	.813	.521	.250	.558	.545	.450	.722	.702	.611	.594	.477	.724	.000	.500	.583	.571
Cars	12	71	1	84	24	9	25	58	44	18	21	83	0	2	14	16
% Cars	92.3	97.3	100	96.6	100	100	96.2	98.3	100	94.7	100	98.8	0	100	100	100
Trucks	1	2	0	3	0	0	1	1	0	1	0	1	0	0	0	0
% Trucks	7.7	2.7	0	3.4	0	0	3.8	1.7	0	5.3	0	1.2	0	0	0	0



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 5

Groups Printed- Cars

Start Time	Smith Pl From North			Fawcett St From East			Smith Pl From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	3	34	1	5	2	9	6	7	4	0	1	5	77
04:45 PM	3	12	0	5	5	6	12	6	11	0	0	1	61
Total	6	46	1	10	7	15	18	13	15	0	1	6	138
05:00 PM	3	7	0	11	2	7	8	1	4	0	0	2	45
05:15 PM	3	18	0	3	0	3	18	4	2	0	1	6	58
05:30 PM	4	19	0	8	2	5	7	6	3	0	1	2	57
05:45 PM	2	16	0	4	1	5	2	3	2	0	1	2	38
Total	12	60	0	26	5	20	35	14	11	0	3	12	198
06:00 PM	2	19	2	7	0	3	6	6	2	0	0	0	47
06:15 PM	2	9	0	3	4	5	7	4	1	0	0	1	36
Grand Total	22	134	3	46	16	43	66	37	29	0	4	19	419
Apprch %	13.8	84.3	1.9	43.8	15.2	41	50	28	22	0	17.4	82.6	
Total %	5.3	32	0.7	11	3.8	10.3	15.8	8.8	6.9	0	1	4.5	

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 6

Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	3	34	1	38	5	2	9	16	6	7	4	17	0	1	5	6	77
04:45 PM	3	12	0	15	5	5	6	16	12	6	11	29	0	0	1	1	61
05:00 PM	3	7	0	10	11	2	7	20	8	1	4	13	0	0	2	2	45
05:15 PM	3	18	0	21	3	0	3	6	18	4	2	24	0	1	6	7	58
Total Volume	12	71	1	84	24	9	25	58	44	18	21	83	0	2	14	16	241
% App. Total	14.3	84.5	1.2		41.4	15.5	43.1		53	21.7	25.3		0	12.5	87.5		
PHF	1.00	.522	.250	.553	.545	.450	.694	.725	.611	.643	.477	.716	.000	.500	.583	.571	.782

Accurate Counts

978-664-2565

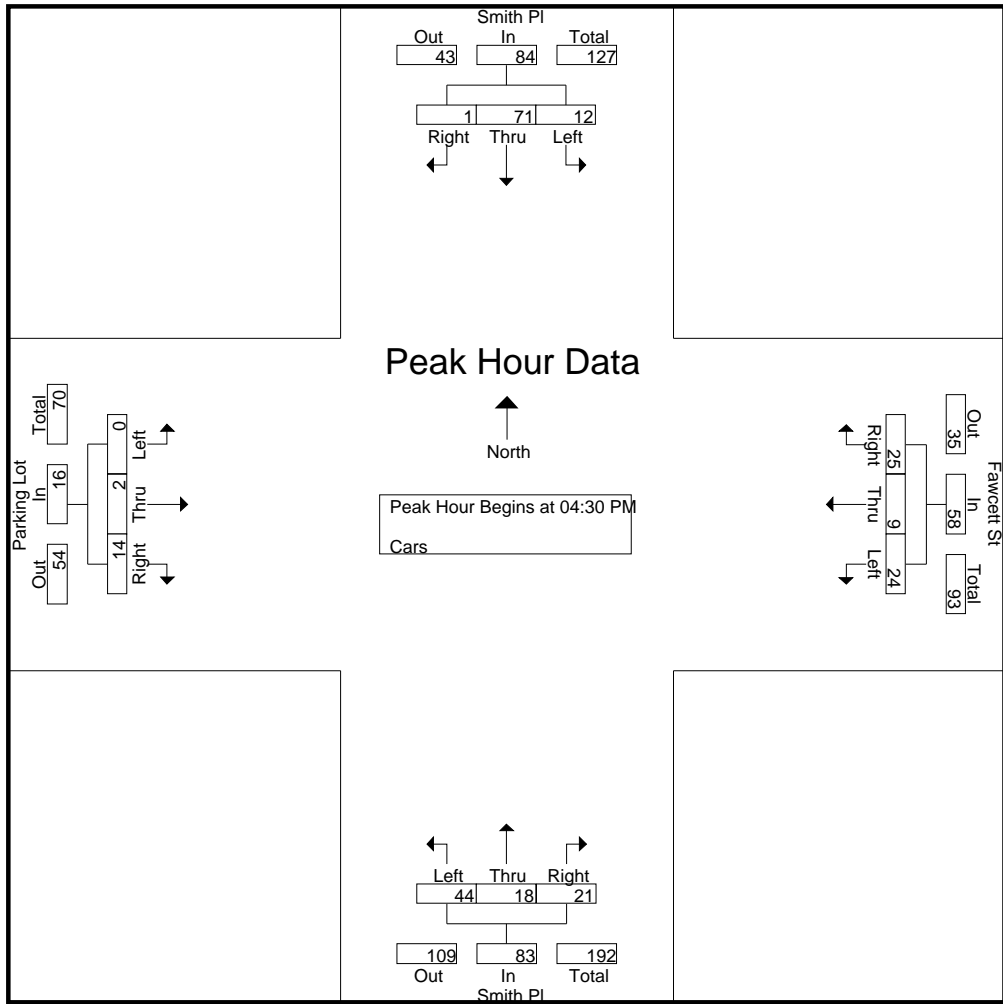
File Name : 80840009

Site Code : 80840009

Start Date : 4/2/2019

Page No : 7

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

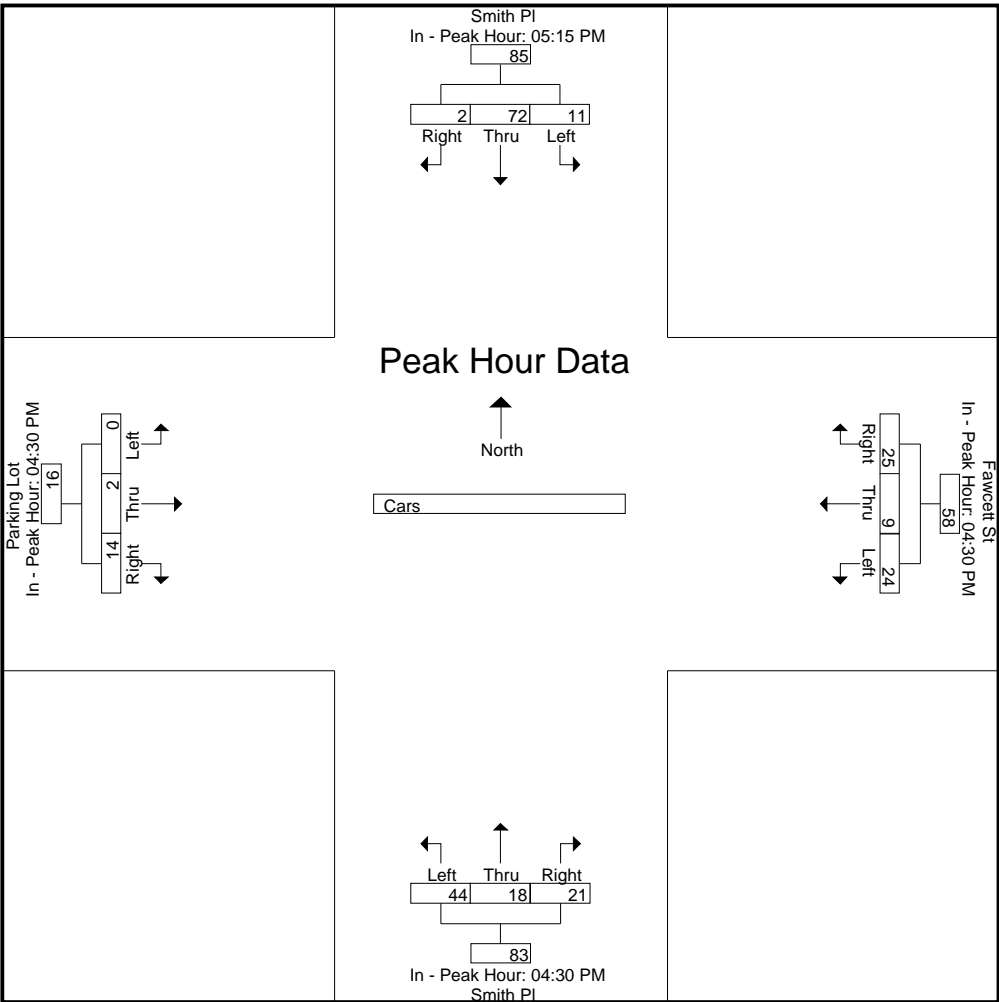
Peak Hour for Each Approach Begins at:

	05:15 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	3	18	0	21	5	2	9	16	6	7	4	17	0	1	5	6
+15 mins.	4	19	0	23	5	5	6	16	12	6	11	29	0	0	1	1
+30 mins.	2	16	0	18	11	2	7	20	8	1	4	13	0	0	2	2
+45 mins.	2	19	2	23	3	0	3	6	18	4	2	24	0	1	6	7
Total Volume	11	72	2	85	24	9	25	58	44	18	21	83	0	2	14	16

Accurate Counts

978-664-2565

% App. Total	12.9	84.7	2.4		41.4	15.5	43.1		53	21.7	25.3		0	12.5	87.5	
PHF	.688	.947	.250	.924	.545	.450	.694	.725	.611	.643	.477	.716	.000	.500	.583	.571



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 9

Groups Printed- Trucks

Start Time	Smith PI From North			Fawcett St From East			Smith PI From South			Parking Lot From West			Int. Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
04:30 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
04:45 PM	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	1	2	0	0	0	0	0	1	0	0	0	0	4
05:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	0	0	0	0	1
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	2	0	0	0	1	0	1	0	0	0	0	5
Apprch %	33.3	66.7	0	0	0	100	0	100	0	0	0	0	
Total %	20	40	0	0	0	20	0	20	0	0	0	0	

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 10

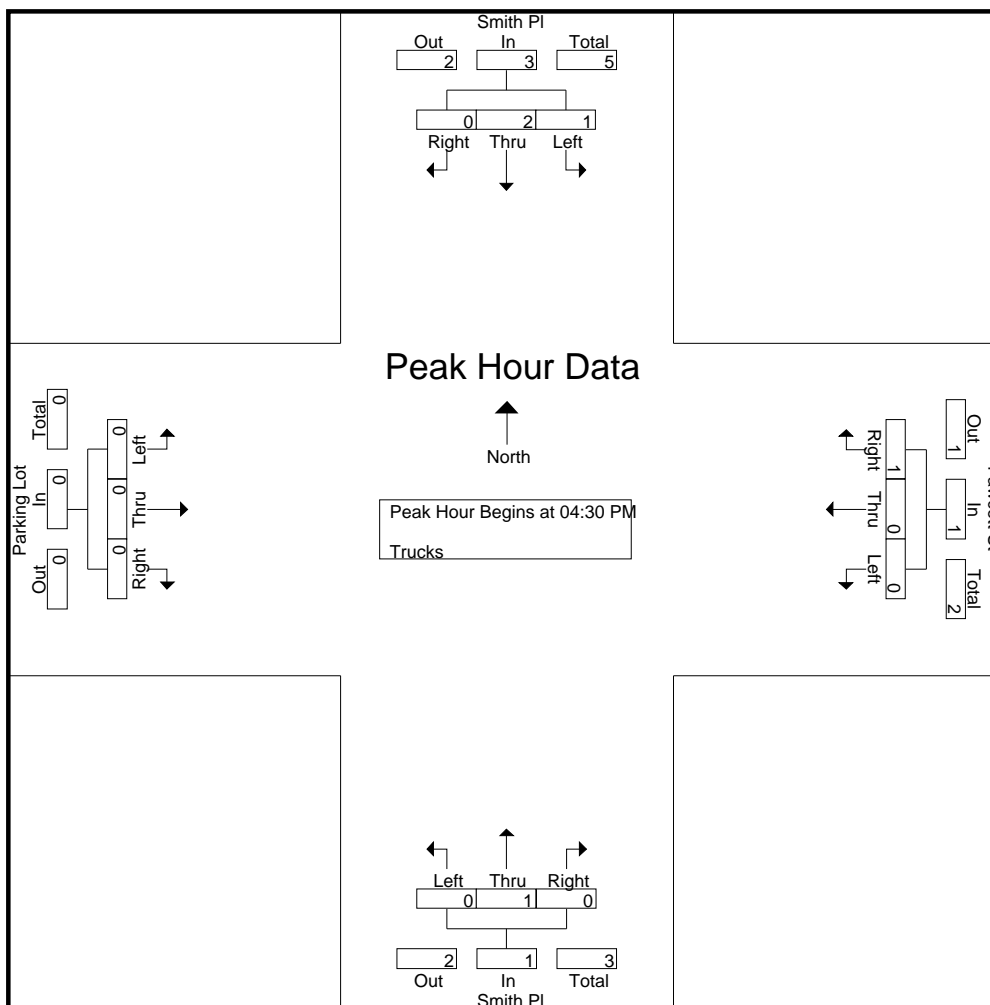
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0	2
04:45 PM	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	0	3	0	0	1	1	0	1	0	1	0	0	0	0	5
% App. Total	33.3	66.7	0		0	0	100		0	100	0		0	0	0		
PHF	.250	.500	.000	.375	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.000	.000	.625

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
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Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

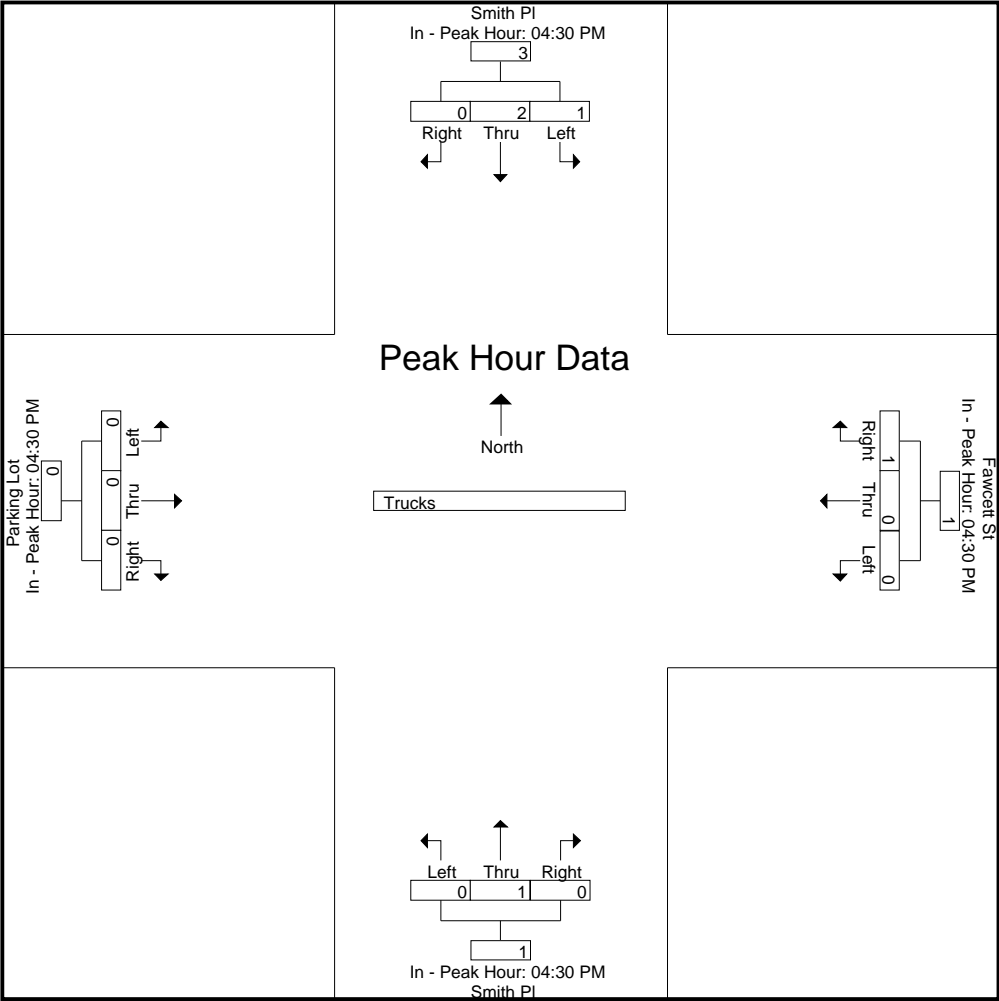
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	1	0	1	0	0	0	0	0	1	0	1	0	0	0	0
+15 mins.	1	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	2	0	3	0	0	1	1	0	1	0	1	0	0	0	0

Accurate Counts

978-664-2565

% App. Total	33.3	66.7	0		0	0	100		0	100	0		0	0	0
PHF	.250	.500	.000	.375	.000	.000	.250	.250	.000	.250	.000	.250	.000	.000	.000



Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 13

Groups Printed- Bikes Peds

Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Exclu. Total	Inclu. Total	Int. Total
	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds			
04:30 PM	0	0	0	2	0	0	0	0	0	0	0	3	0	0	0	0	5	0	5
04:45 PM	1	0	0	2	1	0	0	2	0	1	0	1	0	0	0	0	5	3	8
Total	1	0	0	4	1	0	0	2	0	1	0	4	0	0	0	0	10	3	13
05:00 PM	0	0	0	3	0	0	0	2	0	1	0	1	0	0	0	2	8	1	9
05:15 PM	0	0	0	1	0	0	0	2	1	1	0	0	0	0	0	0	3	2	5
05:30 PM	0	0	0	7	0	0	0	3	0	0	0	0	0	0	0	3	13	0	13
05:45 PM	0	0	0	2	0	1	0	1	0	1	0	0	0	0	0	0	3	2	5
Total	0	0	0	13	0	1	0	8	1	3	0	1	0	0	0	5	27	5	32
06:00 PM	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	5	0	5
06:15 PM	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	2	1	3
Grand Total	1	0	0	20	1	1	0	11	1	5	0	5	0	0	0	8	44	9	53
Apprch %	100	0	0		50	50	0		16.7	83.3	0		0	0	0				
Total %	11.1	0	0		11.1	11.1	0		11.1	55.6	0		0	0	0		83	17	

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 14

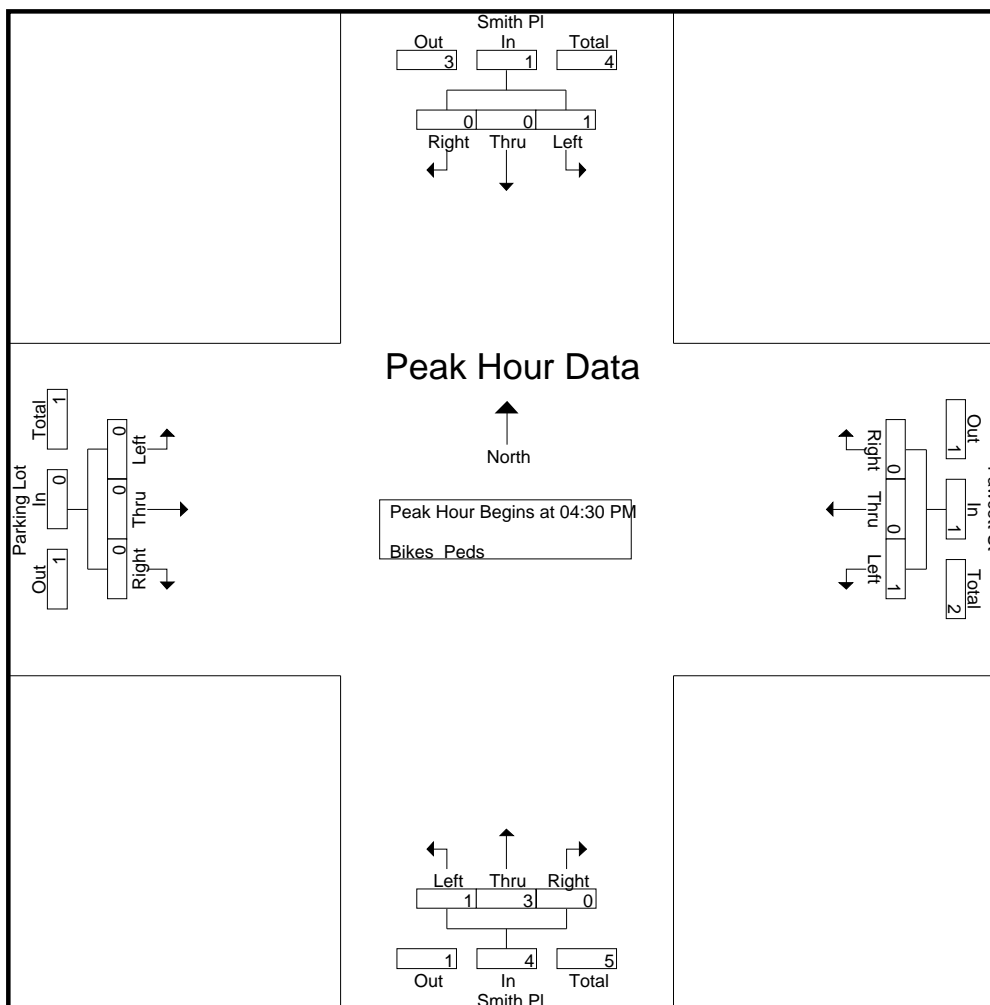
Start Time	Smith Pl From North				Fawcett St From East				Smith Pl From South				Parking Lot From West				Int. Total
	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	1	0	0	1	1	0	0	1	0	1	0	1	0	0	0	0	3
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	2
Total Volume	1	0	0	1	1	0	0	1	1	3	0	4	0	0	0	0	6
% App. Total	100	0	0		100	0	0		25	75	0		0	0	0		
PHF	.250	.000	.000	.250	.250	.000	.000	.250	.250	.750	.000	.500	.000	.000	.000	.000	.500

Accurate Counts

978-664-2565

N/S Street : Smith Place
 E/W Street: Fawcett St / Parking Lot
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840009
 Site Code : 80840009
 Start Date : 4/2/2019
 Page No : 15



Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1

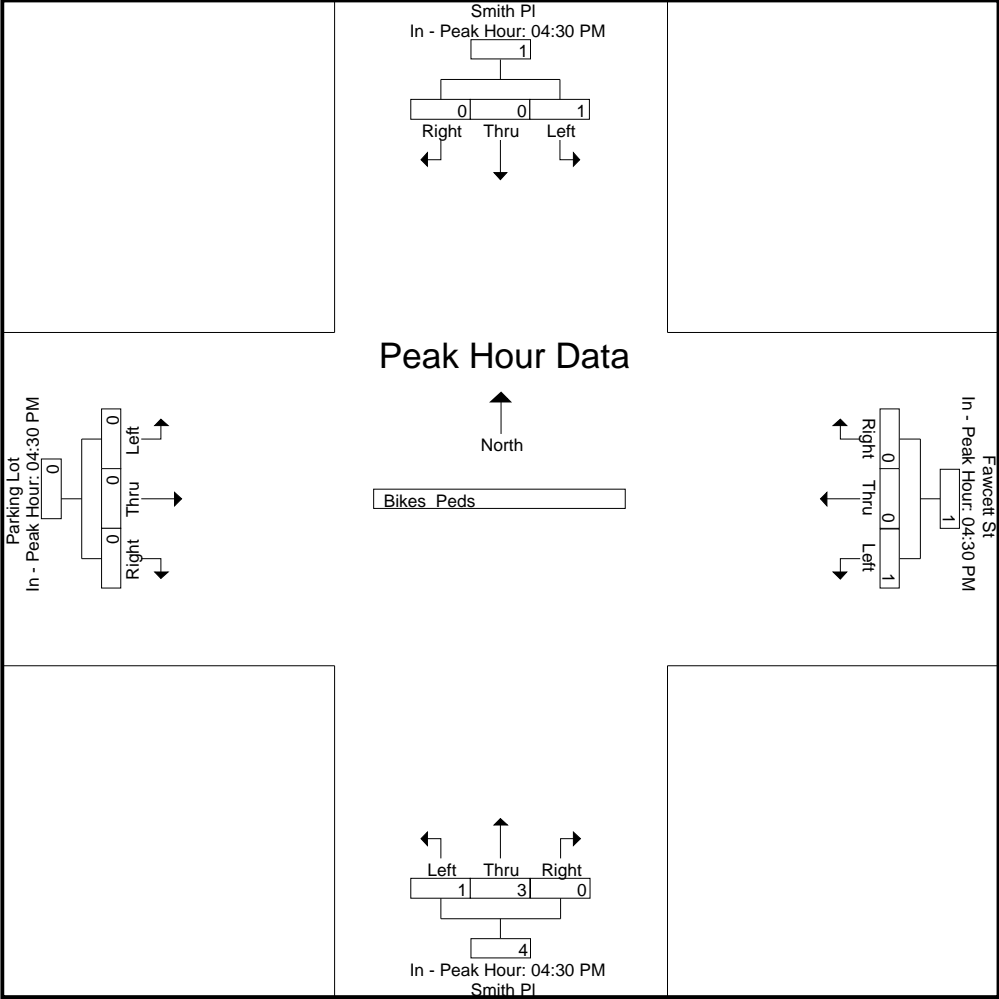
Peak Hour for Each Approach Begins at:

	04:30 PM				04:30 PM				04:30 PM				04:30 PM			
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	1	0	0	1	1	0	0	1	0	1	0	1	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0
Total Volume	1	0	0	1	1	0	0	1	1	3	0	4	0	0	0	0

Accurate Counts

978-664-2565

% App. Total	100	0	0		100	0	0		25	75	0		0	0	0
PHF	.250	.000	.000	.250	.250	.000	.000	.250	.250	.750	.000	.500	.000	.000	.000



12-Hour Bicycle and Pedestrian Count Data



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Bikes Street

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
07:00 AM	0	0	0	3	3
07:15 AM	0	0	0	2	2
07:30 AM	1	0	0	7	8
07:45 AM	0	2	2	6	10
Total	1	2	2	18	23
08:00 AM	0	2	0	8	10
08:15 AM	0	3	1	8	12
08:30 AM	1	1	0	9	11
08:45 AM	0	3	0	5	8
Total	1	9	1	30	41
09:00 AM	0	3	0	7	10
09:15 AM	0	0	0	3	3
09:30 AM	0	1	0	4	5
09:45 AM	0	1	1	2	4
Total	0	5	1	16	22
10:00 AM	0	0	0	4	4
10:15 AM	1	0	1	1	3
10:30 AM	0	0	0	3	3
10:45 AM	0	1	0	1	2
Total	1	1	1	9	12
11:00 AM	0	0	0	0	0
11:15 AM	0	1	1	1	3
11:30 AM	0	0	0	1	1

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Bikes Street

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
11:45 AM	1	1	0	0	2
Total	1	2	1	2	6
12:00 PM	0	0	0	4	4
12:15 PM	0	3	0	2	5
12:30 PM	0	4	0	0	4
12:45 PM	0	0	0	2	2
Total	0	7	0	8	15
01:00 PM	0	0	0	0	0
01:15 PM	0	0	0	0	0
01:30 PM	0	0	0	0	0
01:45 PM	0	1	0	0	1
Total	0	1	0	0	1
02:00 PM	0	3	1	0	4
02:15 PM	0	0	0	3	3
02:30 PM	0	2	0	1	3
02:45 PM	0	3	0	1	4
Total	0	8	1	5	14
03:00 PM	0	2	0	1	3
03:15 PM	0	3	0	1	4
03:30 PM	0	2	0	1	3
03:45 PM	0	0	0	1	1
Total	0	7	0	4	11
04:00 PM	0	4	0	2	6
04:15 PM	0	4	0	4	8

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Bikes Street

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
04:30 PM	0	2	1	2	5
04:45 PM	0	3	0	3	6
Total	0	13	1	11	25
05:00 PM	0	4	0	3	7
05:15 PM	0	4	0	2	6
05:30 PM	0	6	1	5	12
05:45 PM	0	16	0	3	19
Total	0	30	1	13	44
06:00 PM	0	7	0	0	7
06:15 PM	0	7	0	7	14
06:30 PM	0	6	0	1	7
06:45 PM	0	1	1	1	3
Total	0	21	1	9	31
Grand Total	4	106	10	125	245
Apprch %	3.6	96.4	7.4	92.6	
Total %	1.6	43.3	4.1	51	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 4

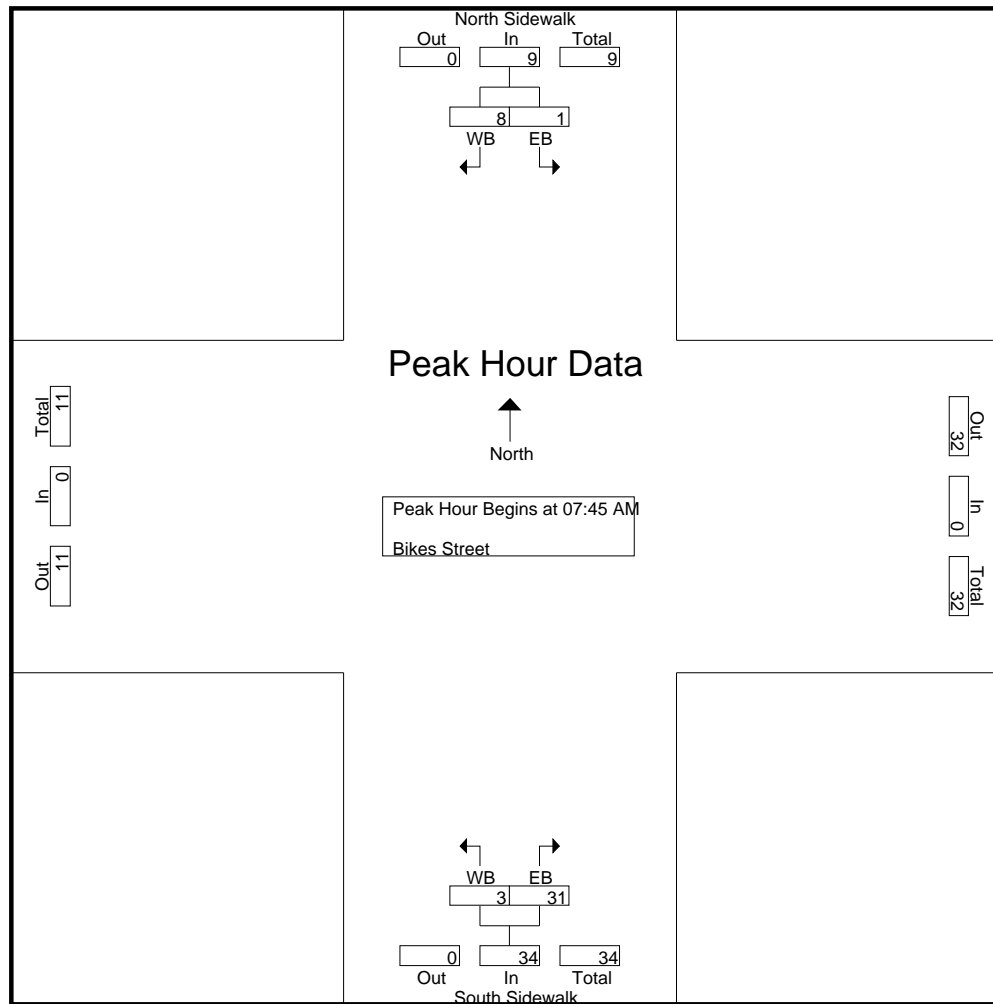
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 07:45 AM									
07:45 AM	0	2	2	0	2	6	8	0	10
08:00 AM	0	2	2	0	0	8	8	0	10
08:15 AM	0	3	3	0	1	8	9	0	12
08:30 AM	1	1	2	0	0	9	9	0	11
Total Volume	1	8	9	0	3	31	34	0	43
% App. Total	11.1	88.9			8.8	91.2			
PHF	.250	.667	.750	.000	.375	.861	.944	.000	.896

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 5



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

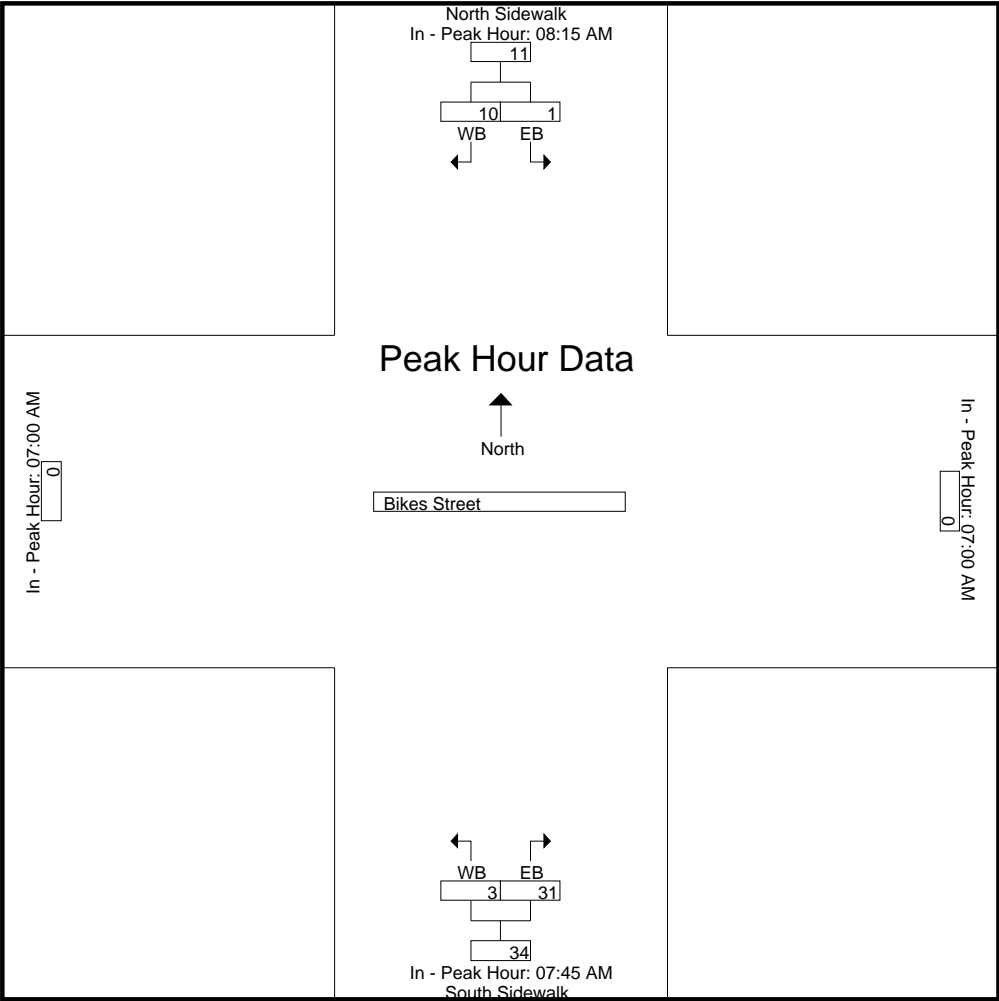
	08:15 AM			07:00 AM			07:45 AM			07:00 AM		
+0 mins.	0	3	3	0	0	2	6	8	0	0	0	
+15 mins.	1	1	2	0	0	0	8	8	0	0	0	
+30 mins.	0	3	3	0	0	1	8	9	0	0	0	
+45 mins.	0	3	3	0	0	0	9	9	0	0	0	
Total Volume	1	10	11	0	0	3	31	34	0	0	0	
% App. Total	9.1	90.9				8.8	91.2					
PHF	.250	.833	.917	.000	.000	.375	.861	.944	.000	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 7

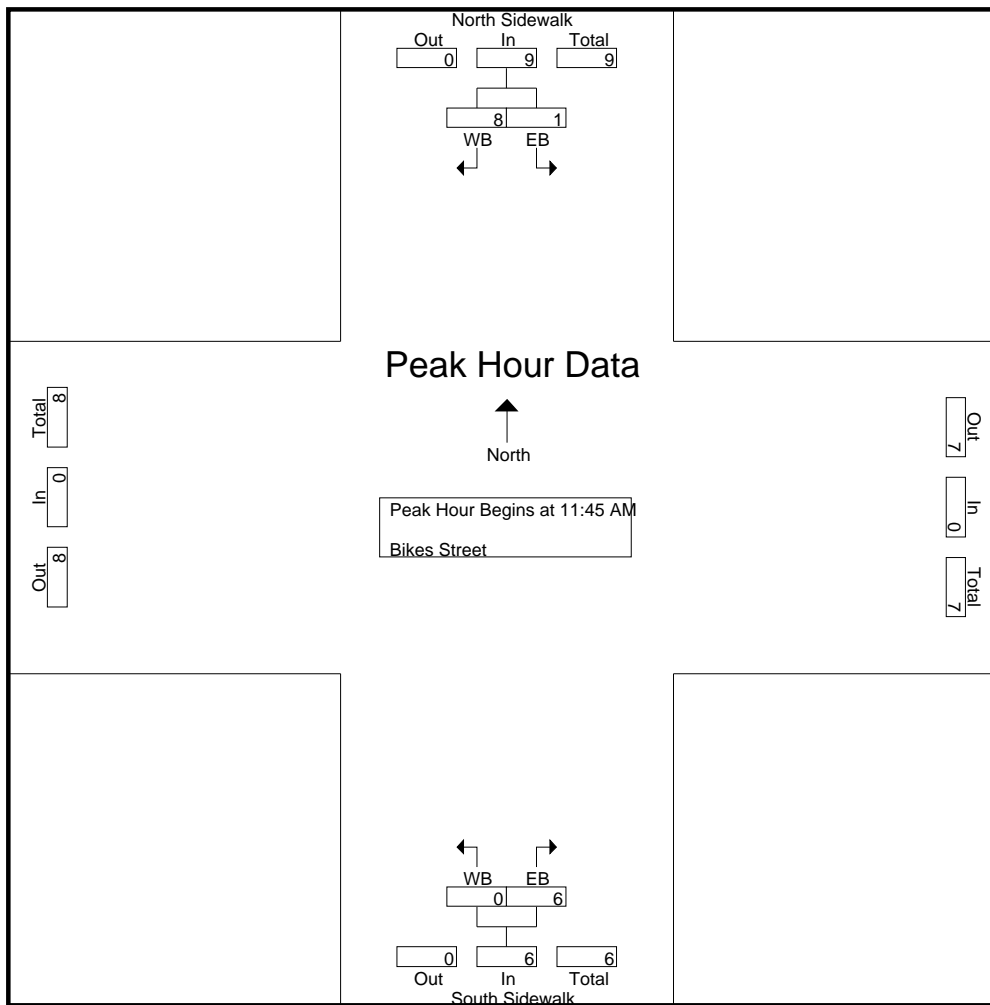
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 11:45 AM									
11:45 AM	1	1	2	0	0	0	0	0	2
12:00 PM	0	0	0	0	0	4	4	0	4
12:15 PM	0	3	3	0	0	2	2	0	5
12:30 PM	0	4	4	0	0	0	0	0	4
Total Volume	1	8	9	0	0	6	6	0	15
% App. Total	11.1	88.9			0	100			
PHF	.250	.500	.563	.000	.000	.375	.375	.000	.750

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 8



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

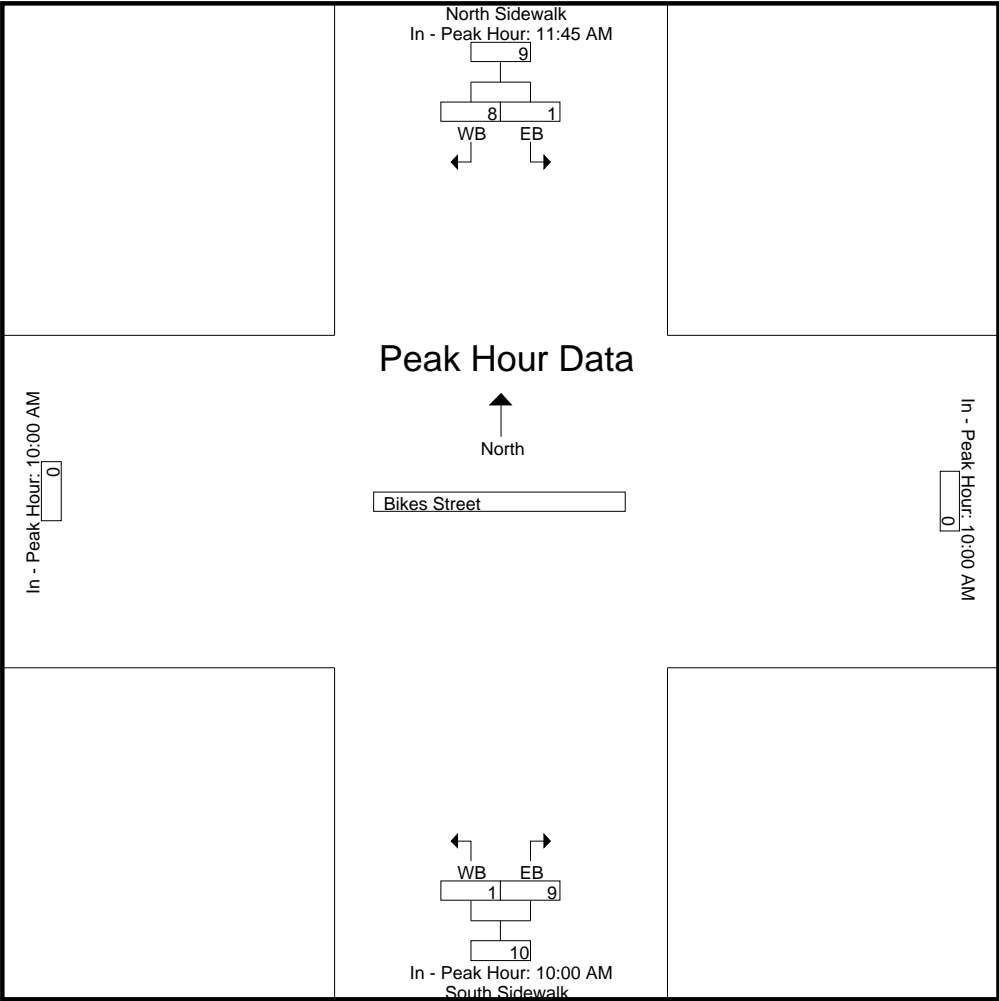
	11:45 AM			10:00 AM			10:00 AM		
+0 mins.	1	1	2	0	0	4	4	0	
+15 mins.	0	0	0	0	1	1	2	0	
+30 mins.	0	3	3	0	0	3	3	0	
+45 mins.	0	4	4	0	0	1	1	0	
Total Volume	1	8	9	0	1	9	10	0	
% App. Total	11.1	88.9			10	90			
PHF	.250	.500	.563	.000	.250	.563	.625	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

File Name : 80840010

Site Code : 80840010

Start Date : 4/2/2019

Page No : 10

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

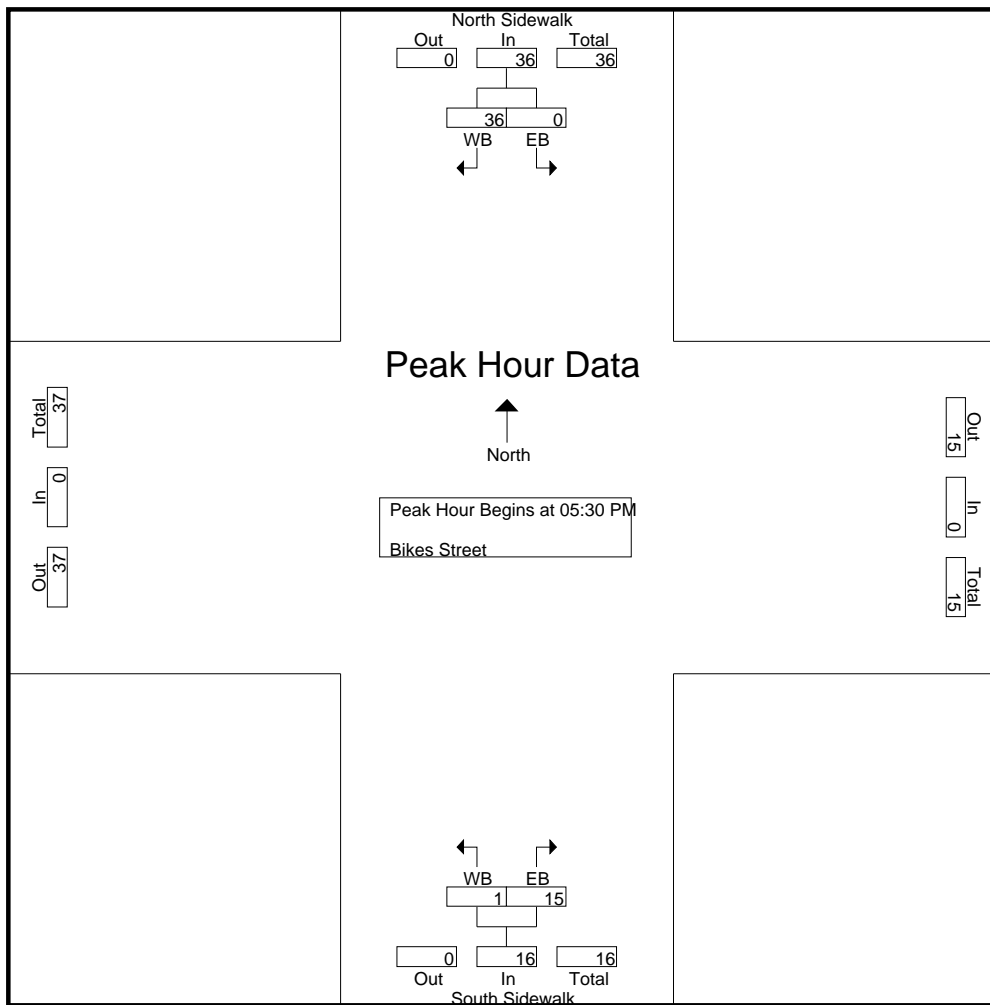
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 05:30 PM									
05:30 PM	0	6	6	0	1	5	6	0	12
05:45 PM	0	16	16	0	0	3	3	0	19
06:00 PM	0	7	7	0	0	0	0	0	7
06:15 PM	0	7	7	0	0	7	7	0	14
Total Volume	0	36	36	0	1	15	16	0	52
% App. Total	0	100			6.2	93.8			
PHF	.000	.563	.563	.000	.250	.536	.571	.000	.684

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

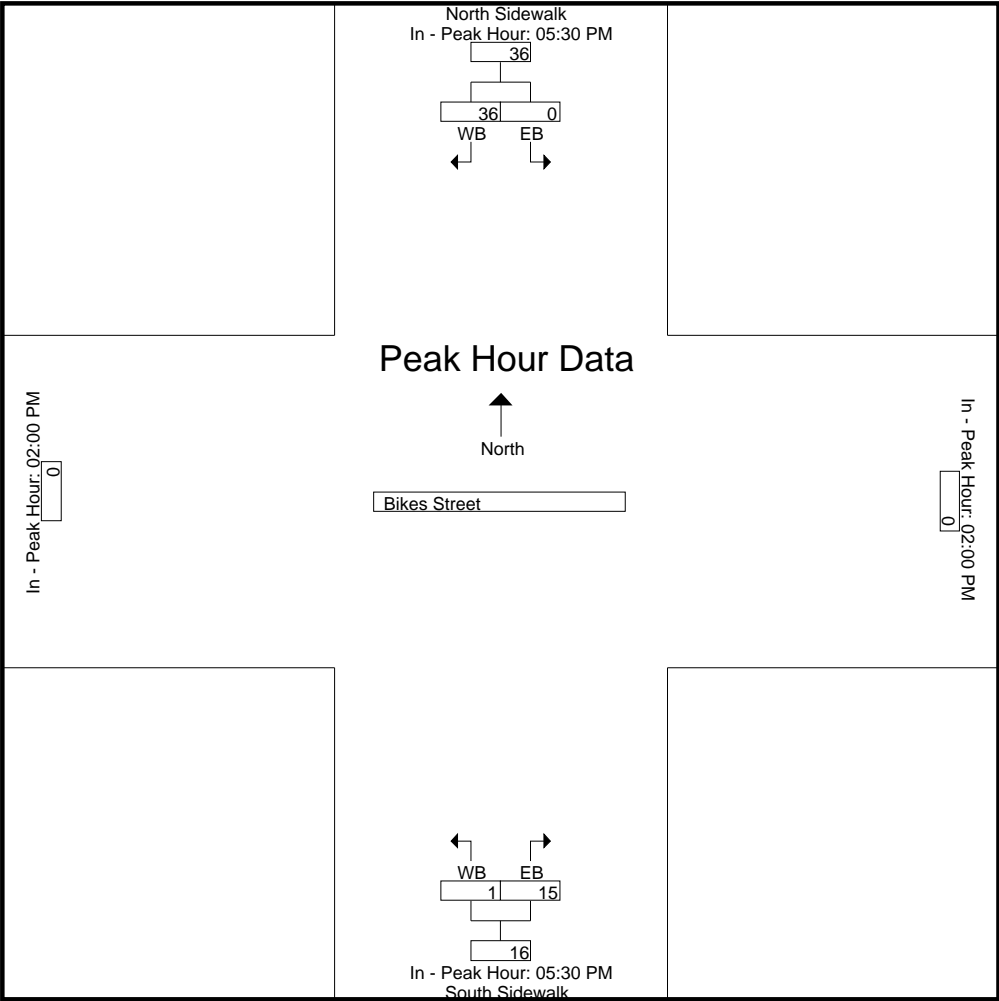
	05:30 PM			02:00 PM			05:30 PM			02:00 PM		
+0 mins.	0	6	6	0	0	0	1	5	6	0	0	
+15 mins.	0	16	16	0	0	0	0	3	3	0	0	
+30 mins.	0	7	7	0	0	0	0	0	0	0	0	
+45 mins.	0	7	7	0	0	0	0	7	7	0	0	
Total Volume	0	36	36	0	0	1	15	16	16	0	0	
% App. Total	0	100				6.2	93.8					
PHF	.000	.563	.563	.000	.000	.250	.536	.571	.571	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Bikes Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
07:00 AM	0	0	0	0	0
07:15 AM	0	0	0	1	1
07:30 AM	0	0	1	1	2
07:45 AM	0	0	0	0	0
Total	0	0	1	2	3
08:00 AM	0	0	2	0	2
08:15 AM	0	0	0	0	0
08:30 AM	2	0	0	0	2
08:45 AM	0	0	0	0	0
Total	2	0	2	0	4
09:00 AM	0	0	0	1	1
09:15 AM	0	0	0	2	2
09:30 AM	0	0	0	0	0
09:45 AM	0	0	0	0	0
Total	0	0	0	3	3
10:00 AM	0	0	0	0	0
10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0
10:45 AM	0	0	0	0	0
Total	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Bikes Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
11:45 AM	0	0	0	0	0
Total	0	0	0	0	0
12:00 PM	0	0	0	0	0
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	0	0	0	0
Total	0	0	0	0	0
01:00 PM	0	0	0	0	0
01:15 PM	0	0	0	0	0
01:30 PM	0	0	0	0	0
01:45 PM	1	0	0	0	1
Total	1	0	0	0	1
02:00 PM	0	0	0	0	0
02:15 PM	0	0	0	0	0
02:30 PM	0	0	0	0	0
02:45 PM	0	0	0	0	0
Total	0	0	0	0	0
03:00 PM	0	0	0	0	0
03:15 PM	0	0	0	0	0
03:30 PM	0	0	0	0	0
03:45 PM	0	0	0	0	0
Total	0	0	0	0	0
04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Bikes Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	0
Total	0	0	0	0	0
05:00 PM	0	1	0	1	2
05:15 PM	0	1	0	1	2
05:30 PM	0	0	2	0	2
05:45 PM	1	0	0	0	1
Total	1	2	2	2	7
06:00 PM	0	0	1	0	1
06:15 PM	0	0	1	0	1
06:30 PM	0	0	0	0	0
06:45 PM	0	0	1	0	1
Total	0	0	3	0	3
Grand Total	4	2	8	7	21
Apprch %	66.7	33.3	53.3	46.7	
Total %	19	9.5	38.1	33.3	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 4

Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 07:15 AM									
07:15 AM	0	0	0	0	0	1	1	0	1
07:30 AM	0	0	0	0	1	1	2	0	2
07:45 AM	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	2	0	2	0	2
Total Volume	0	0	0	0	3	2	5	0	5
% App. Total	0	0			60	40			
PHF	.000	.000	.000	.000	.375	.500	.625	.000	.625

Accurate Counts

978-664-2565

File Name : 80840010

Site Code : 80840010

Start Date : 4/2/2019

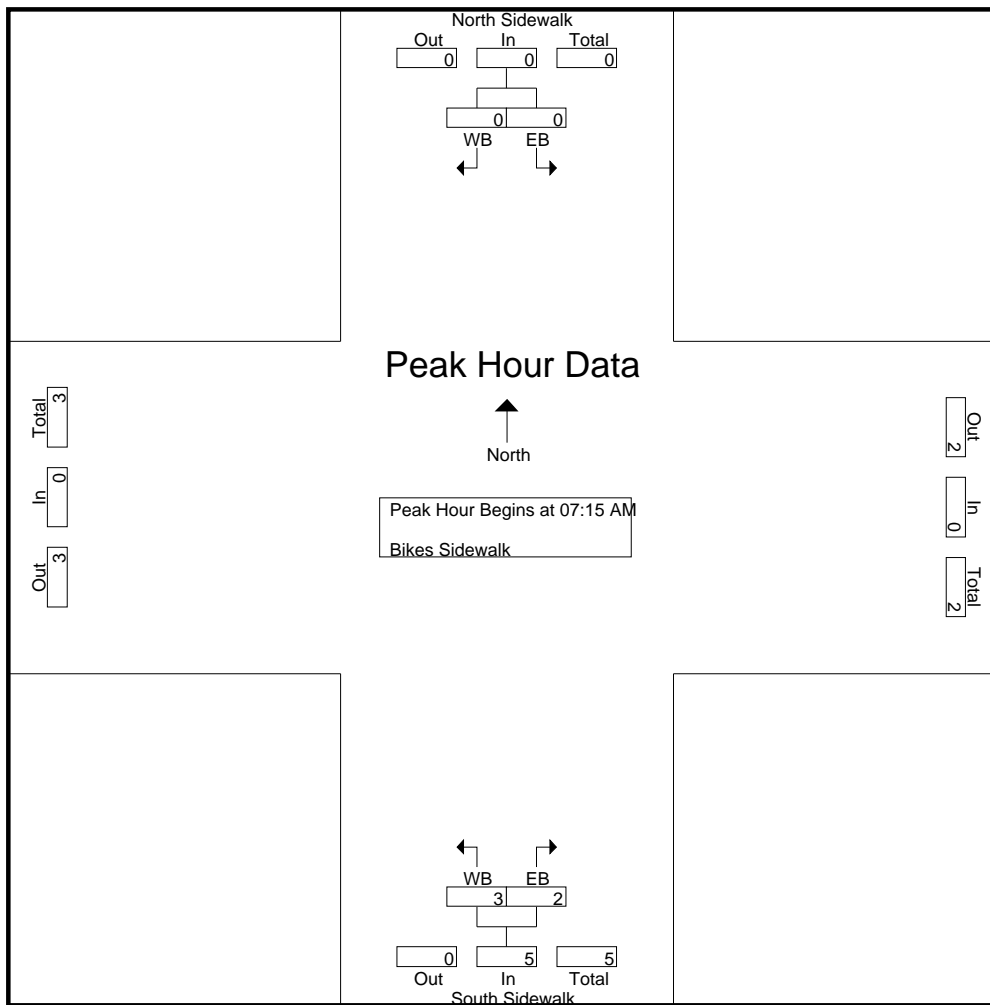
Page No : 5

N/S Street : Peds & Bikes at ATR Loc

E/W Street : Concord Ave W of Smith Pl

City/State : Cambridge, MA

Weather : Clear



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

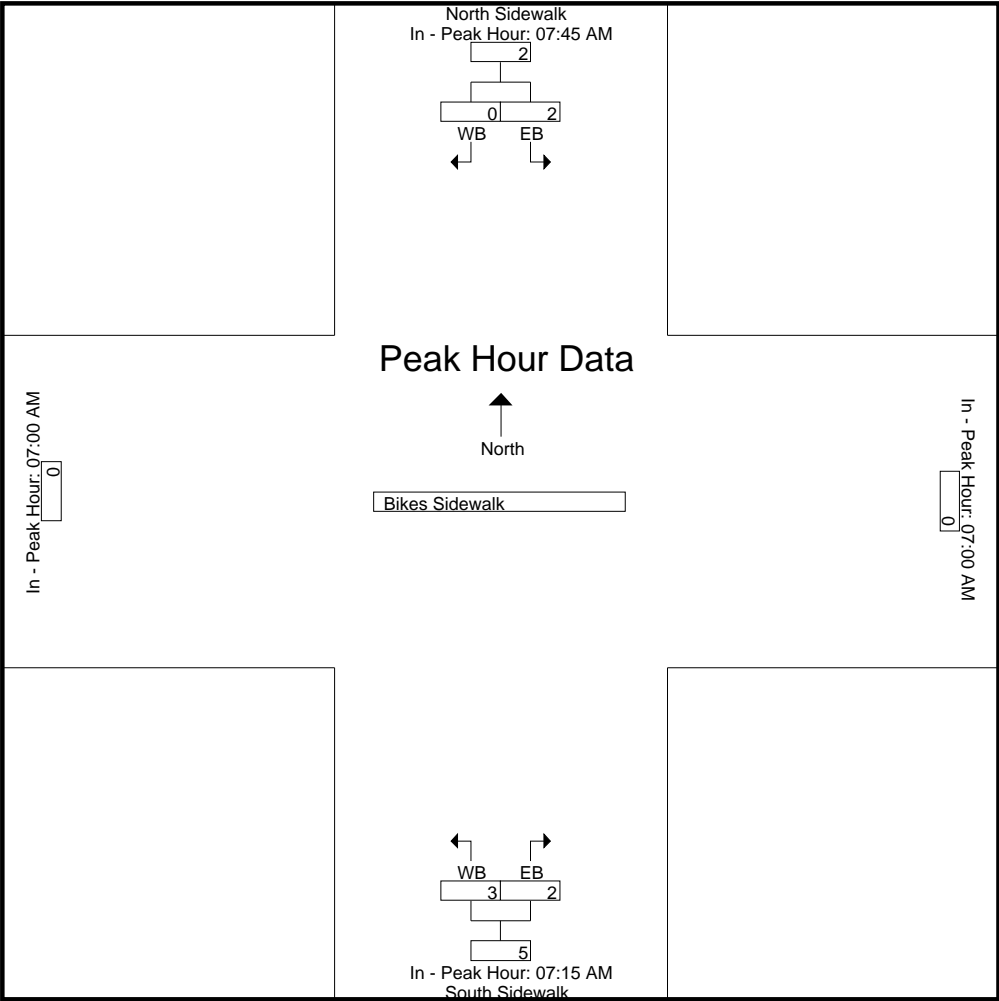
	07:45 AM			07:00 AM			07:15 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	1	1	0	0	0
+15 mins.	0	0	0	0	0	0	1	1	2	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	2	0	2	0	0	0	2	0	2	2	0	0
Total Volume	2	0	2	0	0	0	3	2	5	0	0	0
% App. Total	100	0	0	0	0	0	60	40	0	0	0	0
PHF	.250	.000	.250	.000	.000	.000	.375	.500	.625	.000	.000	.000

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 6

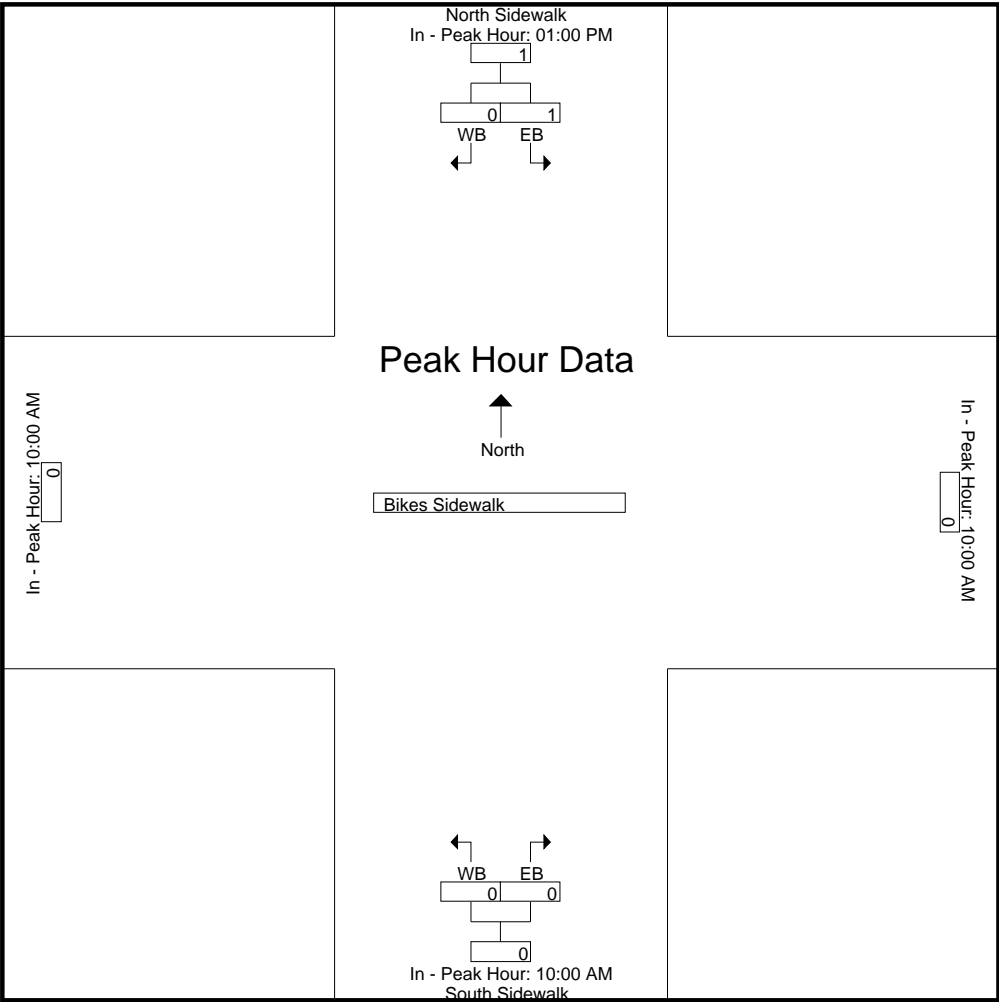


Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 10

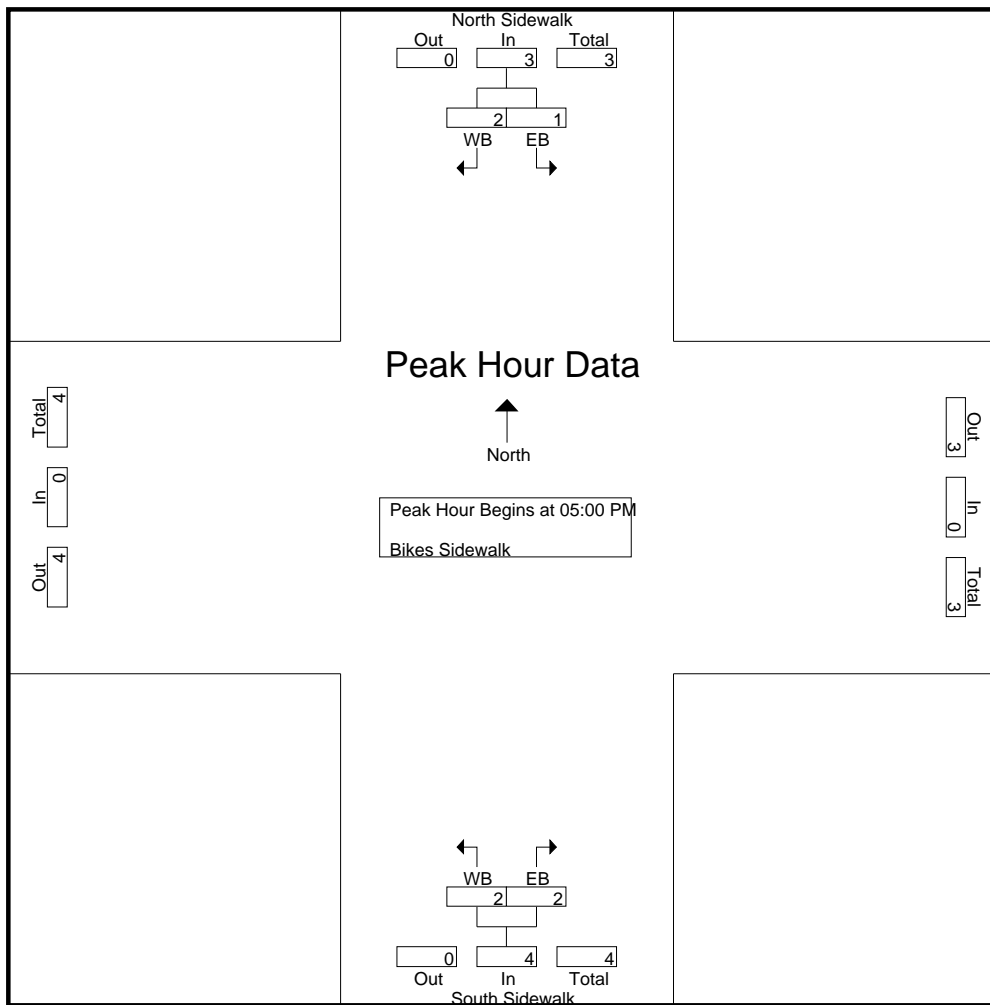
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 05:00 PM									
05:00 PM	0	1	1	0	0	1	1	0	2
05:15 PM	0	1	1	0	0	1	1	0	2
05:30 PM	0	0	0	0	2	0	2	0	2
05:45 PM	1	0	1	0	0	0	0	0	1
Total Volume	1	2	3	0	2	2	4	0	7
% App. Total	33.3	66.7			50	50			
PHF	.250	.500	.750	.000	.250	.500	.500	.000	.875

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

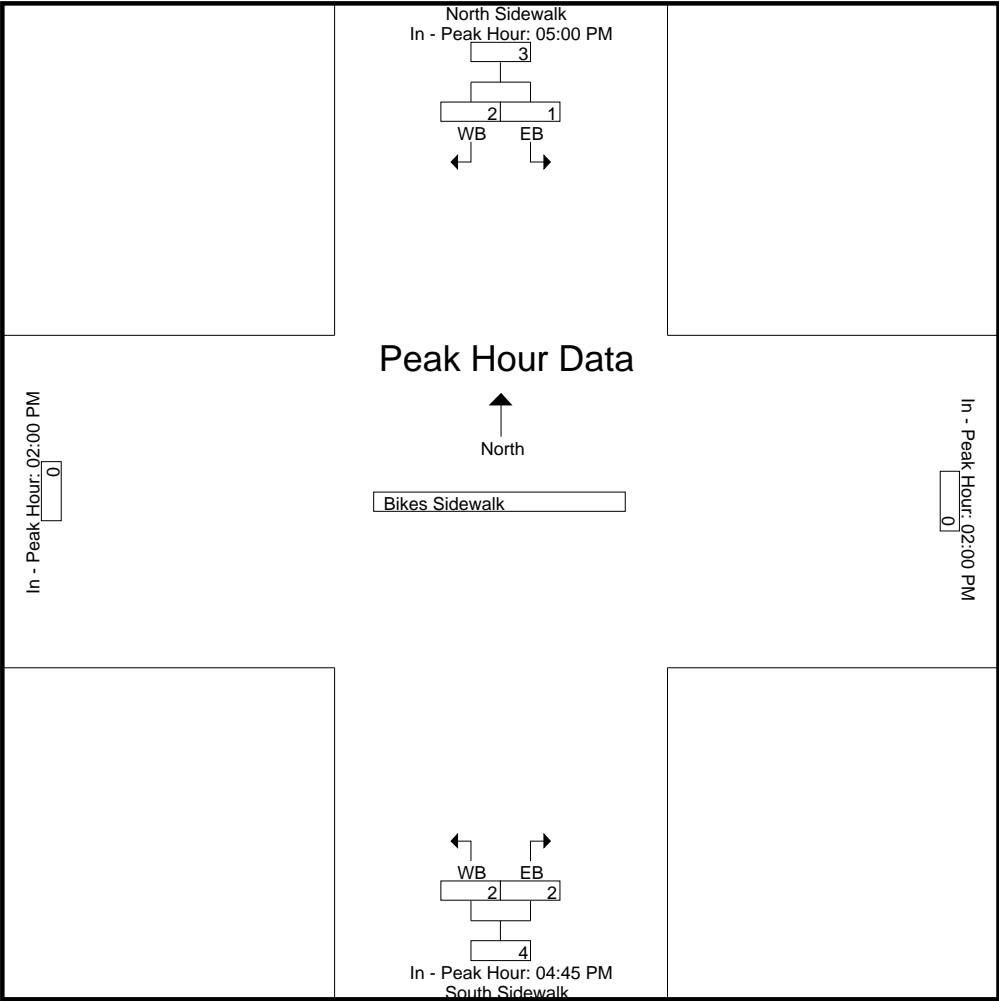
	05:00 PM			02:00 PM			04:45 PM			02:00 PM		
+0 mins.	0	1	1	0	0	0	0	0	0	0	0	
+15 mins.	0	1	1	0	0	0	1	1	1	0	0	
+30 mins.	0	0	0	0	0	0	1	1	1	0	0	
+45 mins.	1	0	1	0	0	2	0	2	2	0	0	
Total Volume	1	2	3	0	2	2	4	4	4	0	0	
% App. Total	33.3	66.7			50	50						
PHF	.250	.500	.750	.000	.250	.500	.500	.500	.500	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Peds Street

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
07:00 AM	0	0	0	0	0
07:15 AM	0	1	0	0	1
07:30 AM	0	0	0	0	0
07:45 AM	0	0	0	0	0
Total	0	1	0	0	1
08:00 AM	0	0	0	0	0
08:15 AM	0	0	0	0	0
08:30 AM	0	0	0	0	0
08:45 AM	0	0	0	0	0
Total	0	0	0	0	0
09:00 AM	0	0	0	0	0
09:15 AM	0	0	0	0	0
09:30 AM	0	0	0	0	0
09:45 AM	0	0	0	0	0
Total	0	0	0	0	0
10:00 AM	0	0	0	0	0
10:15 AM	0	0	0	0	0
10:30 AM	0	0	0	0	0
10:45 AM	0	0	0	0	0
Total	0	0	0	0	0
11:00 AM	0	0	0	0	0
11:15 AM	0	0	0	0	0
11:30 AM	0	1	0	0	1

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Peds Street

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
11:45 AM	0	0	0	0	0
Total	0	1	0	0	1
12:00 PM	0	0	0	0	0
12:15 PM	0	0	0	0	0
12:30 PM	0	0	0	0	0
12:45 PM	0	0	0	0	0
Total	0	0	0	0	0
01:00 PM	0	0	0	0	0
01:15 PM	0	0	0	0	0
01:30 PM	0	0	0	0	0
01:45 PM	0	0	0	0	0
Total	0	0	0	0	0
02:00 PM	0	0	0	0	0
02:15 PM	0	0	0	0	0
02:30 PM	0	0	0	0	0
02:45 PM	0	0	0	0	0
Total	0	0	0	0	0
03:00 PM	0	0	0	0	0
03:15 PM	0	0	0	0	0
03:30 PM	0	0	0	0	0
03:45 PM	0	0	0	0	0
Total	0	0	0	0	0
04:00 PM	0	0	0	0	0
04:15 PM	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Peds Street

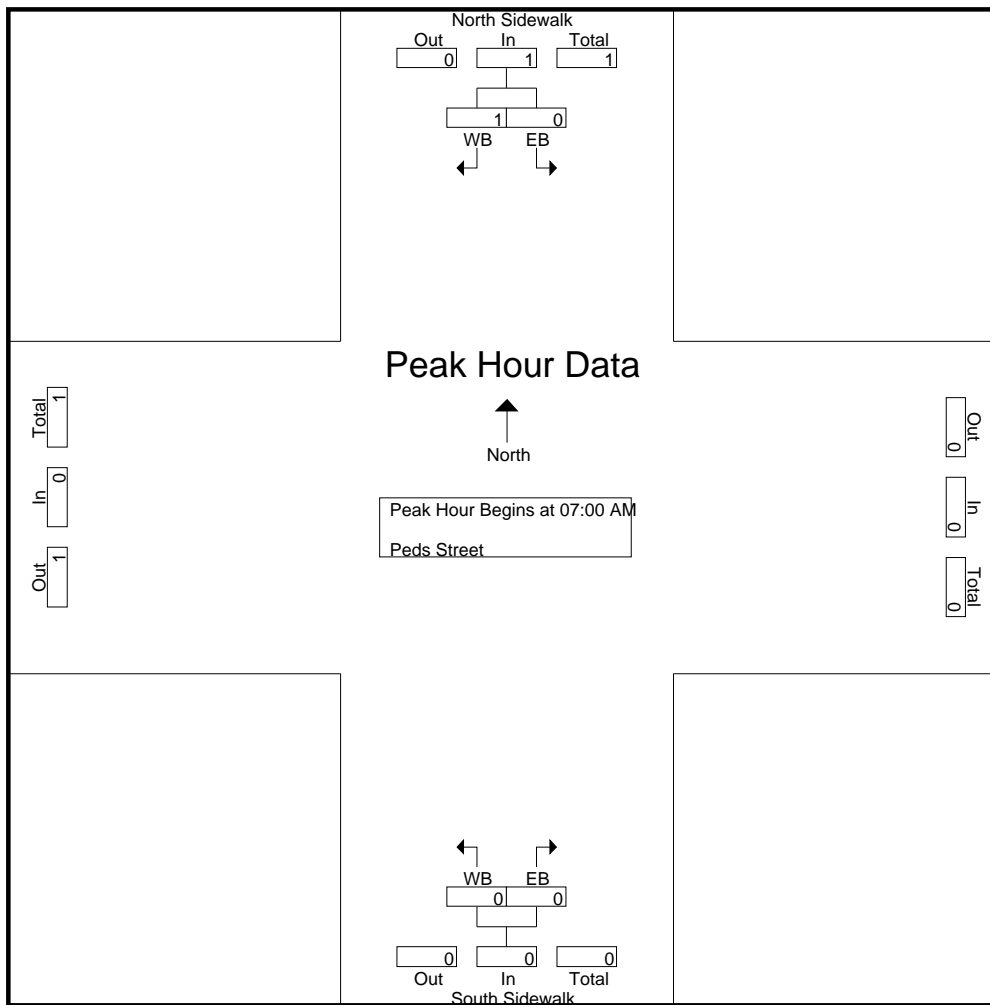
Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
04:30 PM	0	0	0	0	0
04:45 PM	0	0	0	0	0
Total	0	0	0	0	0
05:00 PM	0	0	0	0	0
05:15 PM	0	1	1	0	2
05:30 PM	0	0	0	0	0
05:45 PM	1	0	0	0	1
Total	1	1	1	0	3
06:00 PM	0	0	1	0	1
06:15 PM	0	0	0	0	0
06:30 PM	0	0	0	0	0
06:45 PM	0	0	0	0	0
Total	0	0	1	0	1
Grand Total	1	3	2	0	6
Apprch %	25	75	100	0	
Total %	16.7	50	33.3	0	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 5



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

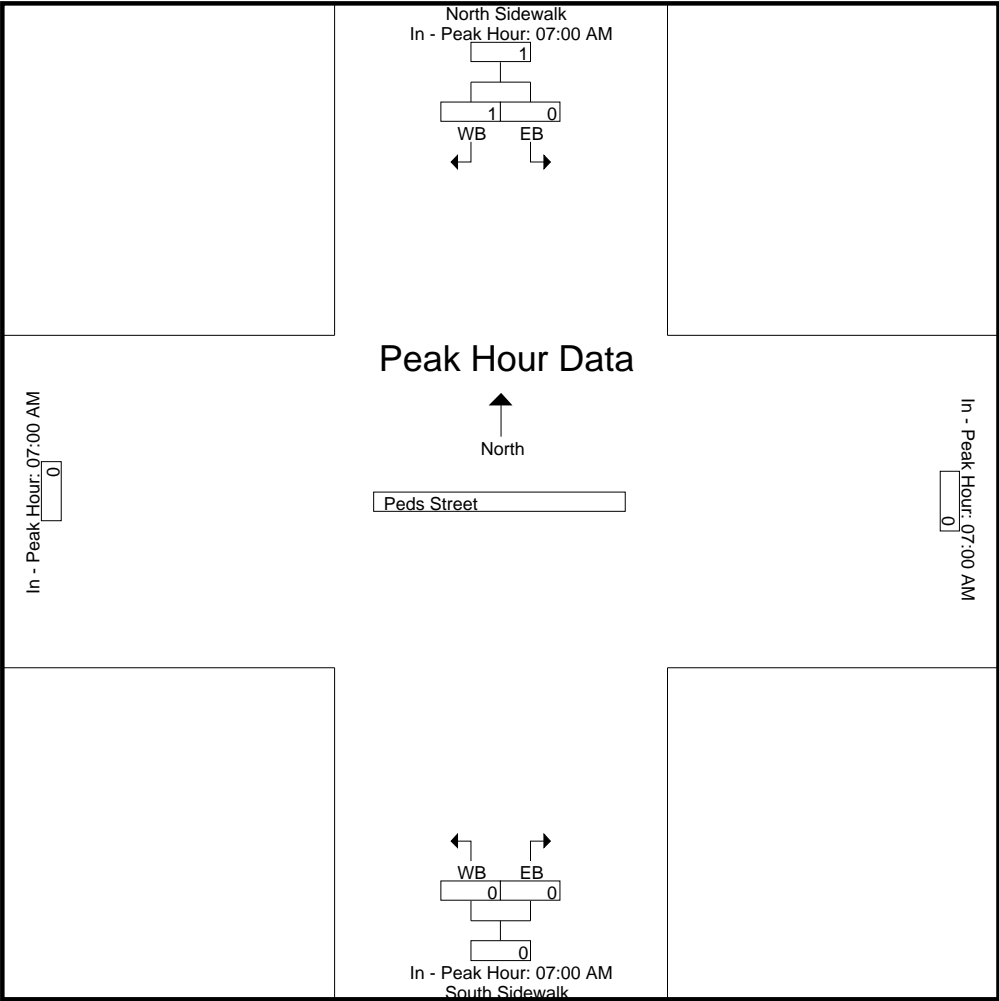
	07:00 AM			07:00 AM			07:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	
+15 mins.	0	1	1	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	0	
Total Volume	0	1	1	0	0	0	0	0	
% App. Total	0	100		0	0				
PHF	.000	.250	.250	.000	.000	.000	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 6

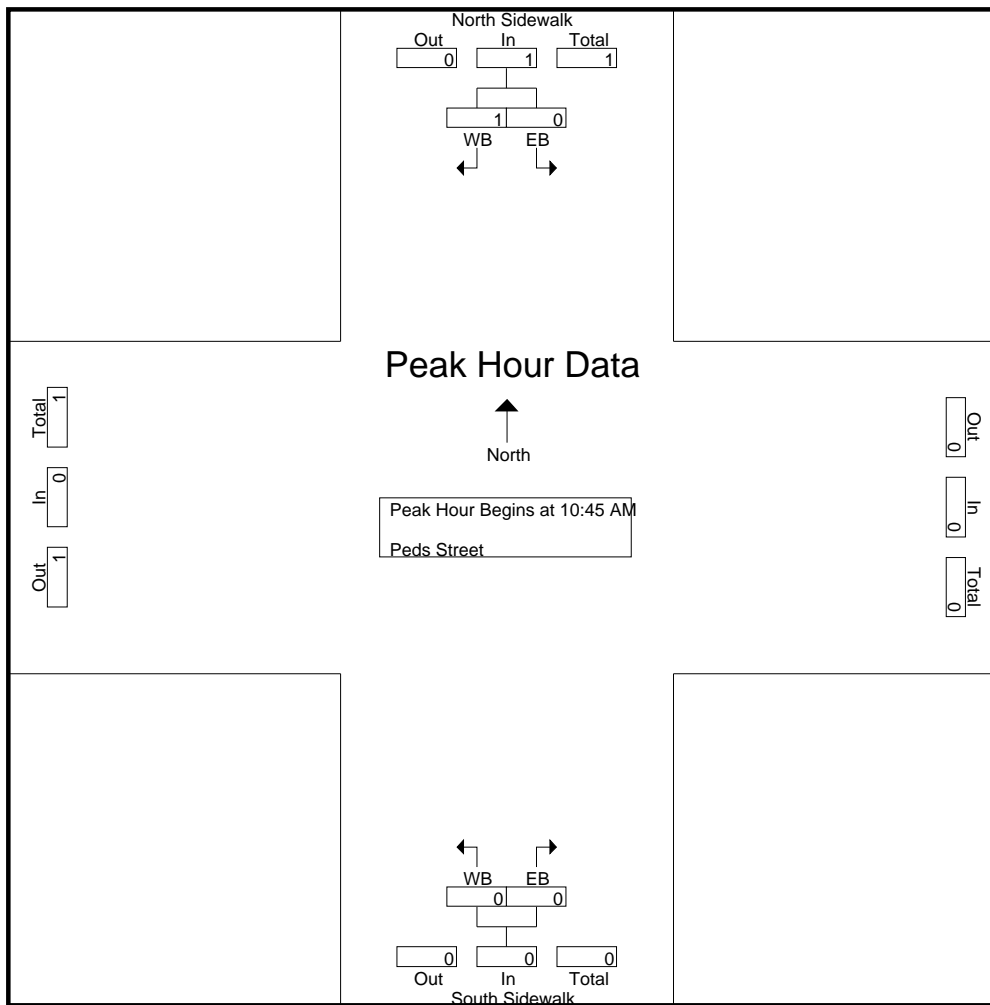


Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 8



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

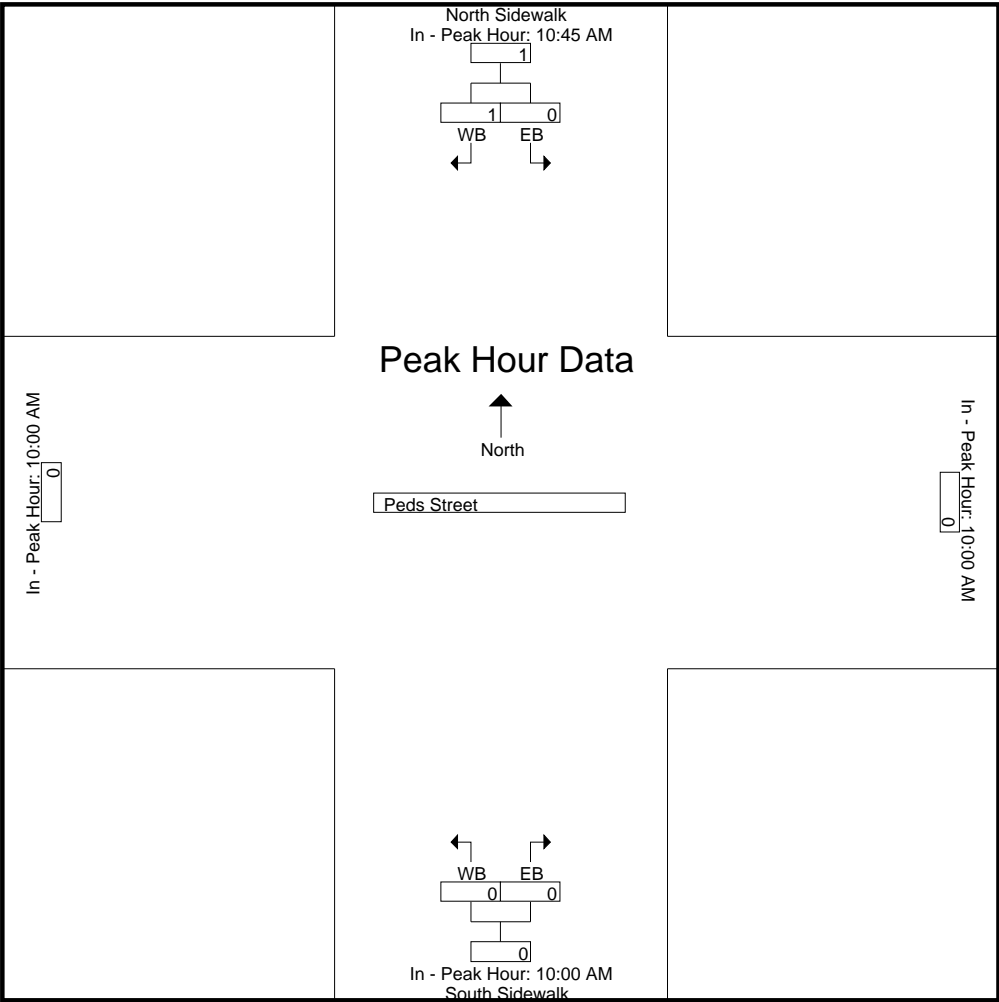
	10:45 AM			10:00 AM			10:00 AM		
+0 mins.	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	0	0	0	0	
+30 mins.	0	0	0	0	0	0	0	0	
+45 mins.	0	1	1	0	0	0	0	0	
Total Volume	0	1	1	0	0	0	0	0	
% App. Total	0	100		0	0				
PHF	.000	.250	.250	.000	.000	.000	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 10

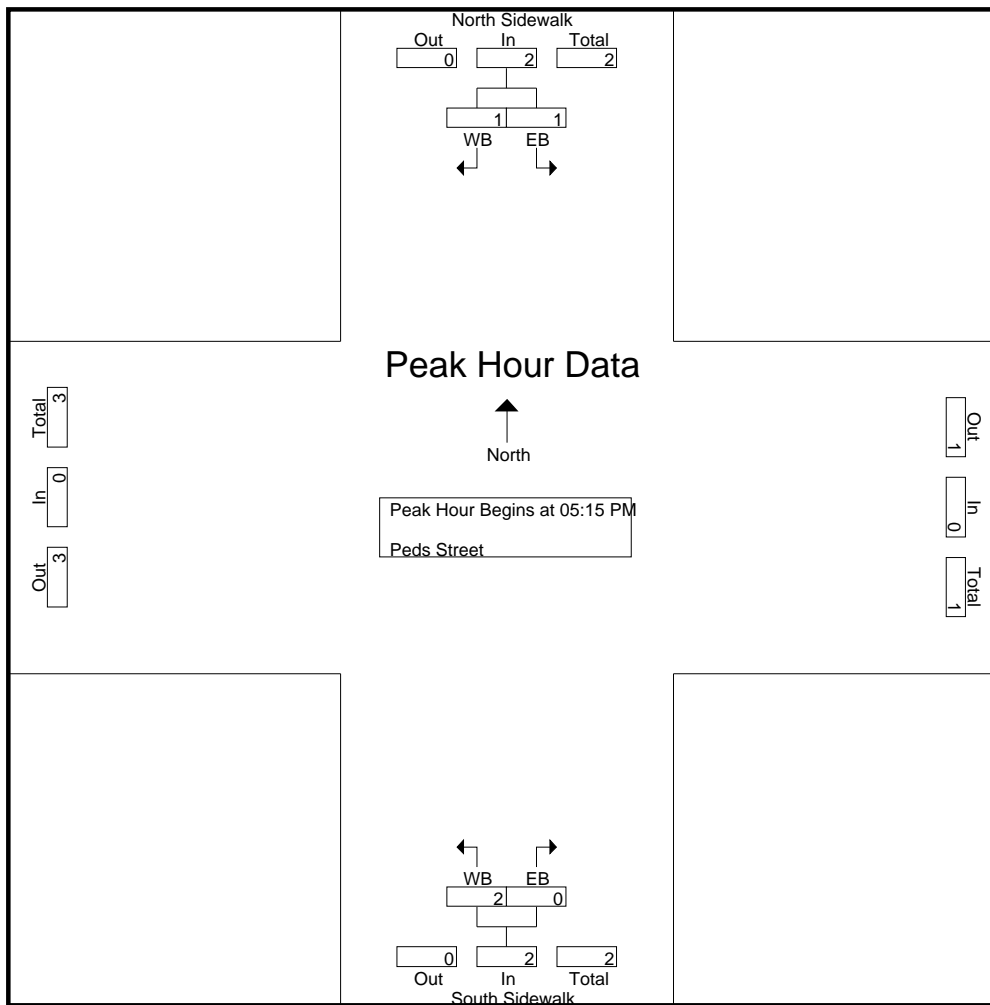
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 05:15 PM									
05:15 PM	0	1	1	0	1	0	1	0	2
05:30 PM	0	0	0	0	0	0	0	0	0
05:45 PM	1	0	1	0	0	0	0	0	1
06:00 PM	0	0	0	0	1	0	1	0	1
Total Volume	1	1	2	0	2	0	2	0	4
% App. Total	50	50			100	0			
PHF	.250	.250	.500	.000	.500	.000	.500	.000	.500

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

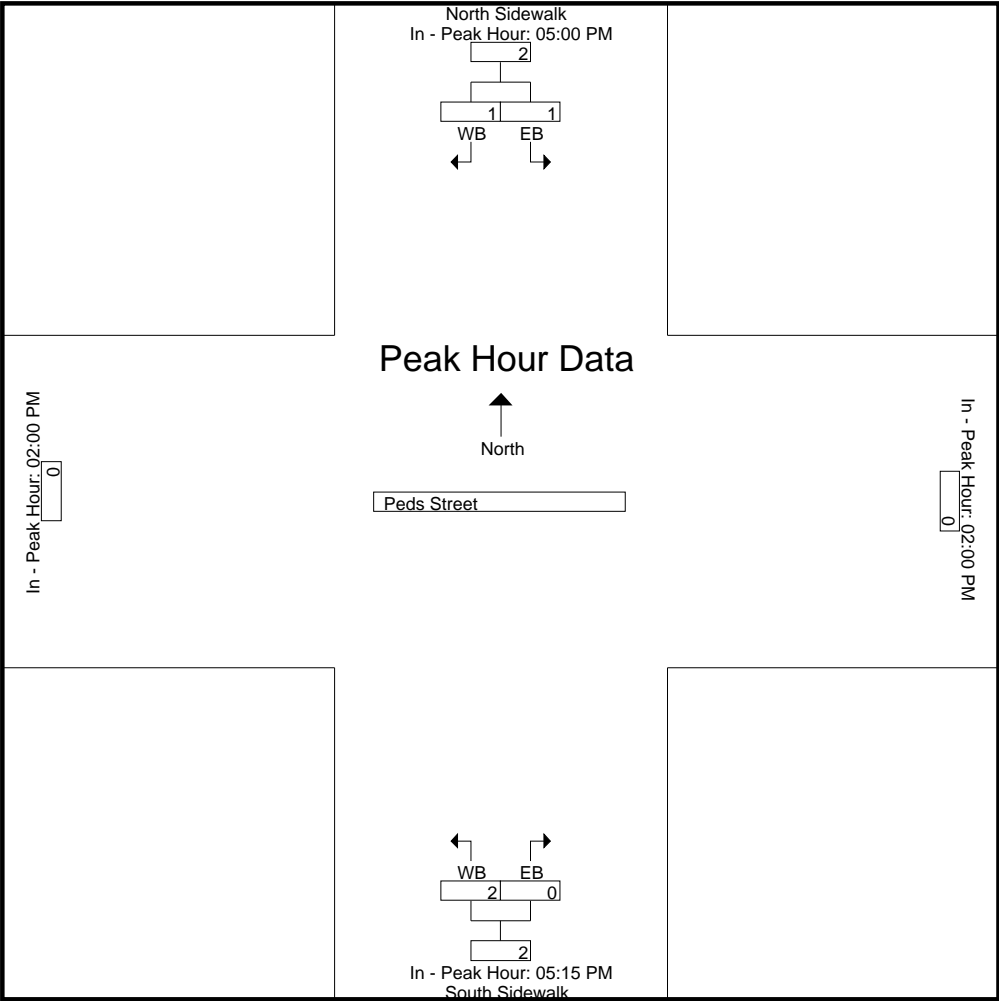
	05:00 PM			02:00 PM			05:15 PM			02:00 PM		
+0 mins.	0	0	0	0	0	0	1	0	1	0	0	0
+15 mins.	0	1	1	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	1	0	1	0	0	0	1	0	1	1	0	0
Total Volume	1	1	2	0	0	0	2	0	2	2	0	0
% App. Total	50	50					100	0				
PHF	.250	.250	.500	.000	.000	.000	.500	.000	.500	.500	.000	.000

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Peds Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
07:00 AM	1	3	2	1	7
07:15 AM	0	1	0	3	4
07:30 AM	0	2	0	3	5
07:45 AM	1	4	3	1	9
Total	2	10	5	8	25
08:00 AM	0	1	4	1	6
08:15 AM	1	3	1	1	6
08:30 AM	5	1	0	1	7
08:45 AM	1	4	1	4	10
Total	7	9	6	7	29
09:00 AM	2	5	0	1	8
09:15 AM	4	3	1	1	9
09:30 AM	3	4	2	0	9
09:45 AM	1	2	2	1	6
Total	10	14	5	3	32
10:00 AM	2	2	3	4	11
10:15 AM	0	2	4	2	8
10:30 AM	0	5	0	0	5
10:45 AM	0	1	3	1	5
Total	2	10	10	7	29
11:00 AM	6	0	1	2	9
11:15 AM	4	2	1	2	9
11:30 AM	2	3	1	1	7

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Peds Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
11:45 AM	3	1	1	0	5
Total	15	6	4	5	30
12:00 PM	6	4	0	4	14
12:15 PM	6	5	0	1	12
12:30 PM	10	9	2	4	25
12:45 PM	3	8	0	0	11
Total	25	26	2	9	62
01:00 PM	2	7	2	2	13
01:15 PM	8	4	2	0	14
01:30 PM	3	3	0	2	8
01:45 PM	4	3	1	2	10
Total	17	17	5	6	45
02:00 PM	2	2	0	2	6
02:15 PM	7	6	2	2	17
02:30 PM	1	0	0	1	2
02:45 PM	1	7	2	2	12
Total	11	15	4	7	37
03:00 PM	2	3	0	2	7
03:15 PM	0	2	0	5	7
03:30 PM	3	2	1	2	8
03:45 PM	4	1	1	0	6
Total	9	8	2	9	28
04:00 PM	3	1	2	1	7
04:15 PM	5	3	2	1	11

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Peds Sidewalk

Start Time	North Sidewalk From North		South Sidewalk From South		Int. Total
	EB	WB	WB	EB	
04:30 PM	2	6	4	1	13
04:45 PM	10	1	1	1	13
Total	20	11	9	4	44
05:00 PM	2	4	3	2	11
05:15 PM	3	4	1	1	9
05:30 PM	3	2	3	1	9
05:45 PM	5	4	0	1	10
Total	13	14	7	5	39
06:00 PM	4	5	0	0	9
06:15 PM	4	2	4	1	11
06:30 PM	3	1	0	2	6
06:45 PM	1	2	1	0	4
Total	12	10	5	3	30
Grand Total	143	150	64	73	430
Apprch %	48.8	51.2	46.7	53.3	
Total %	33.3	34.9	14.9	17	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 4

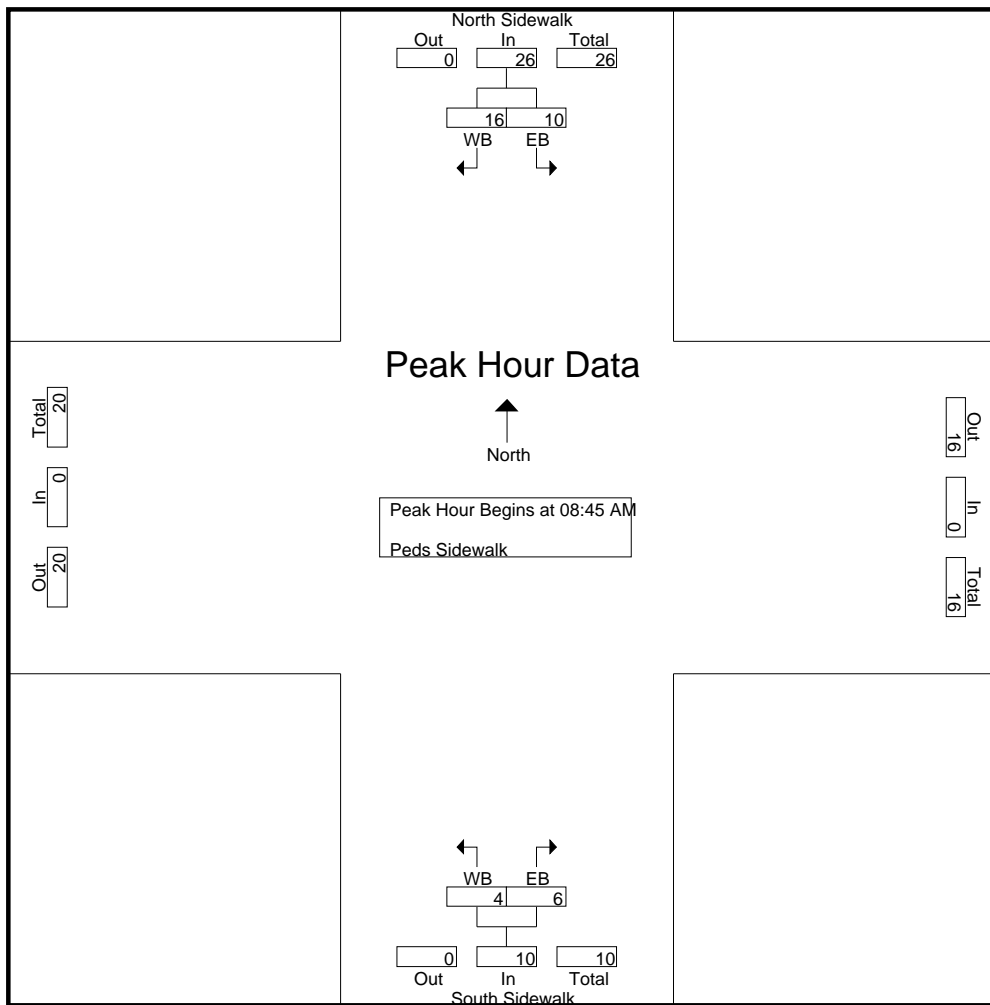
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 08:45 AM									
08:45 AM	1	4	5	0	1	4	5	0	10
09:00 AM	2	5	7	0	0	1	1	0	8
09:15 AM	4	3	7	0	1	1	2	0	9
09:30 AM	3	4	7	0	2	0	2	0	9
Total Volume	10	16	26	0	4	6	10	0	36
% App. Total	38.5	61.5			40	60			
PHF	.625	.800	.929	.000	.500	.375	.500	.000	.900

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 5



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

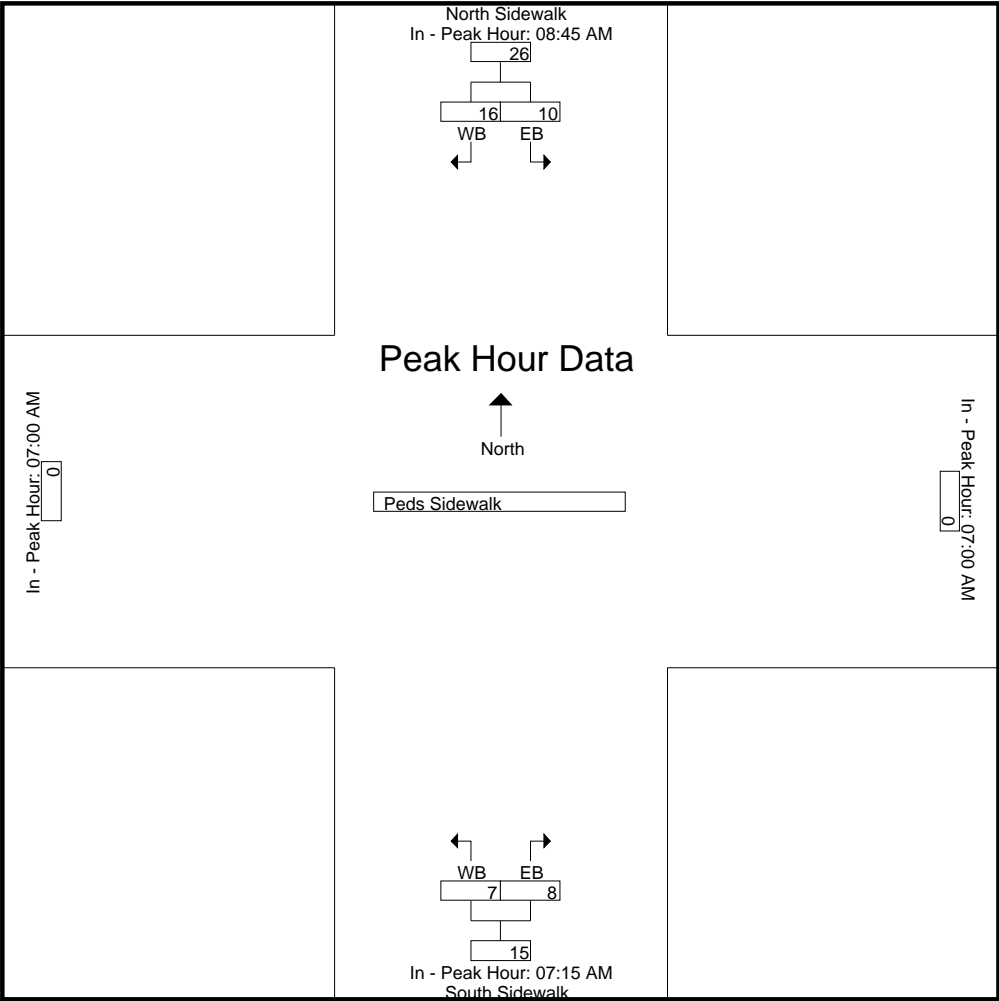
	08:45 AM			07:00 AM		07:15 AM		07:00 AM	
+0 mins.	1	4	5	0	0	3	3	0	0
+15 mins.	2	5	7	0	0	3	3	0	0
+30 mins.	4	3	7	0	3	1	4	0	0
+45 mins.	3	4	7	0	4	1	5	0	0
Total Volume	10	16	26	0	7	8	15	0	0
% App. Total	38.5	61.5			46.7	53.3			
PHF	.625	.800	.929	.000	.438	.667	.750	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 7

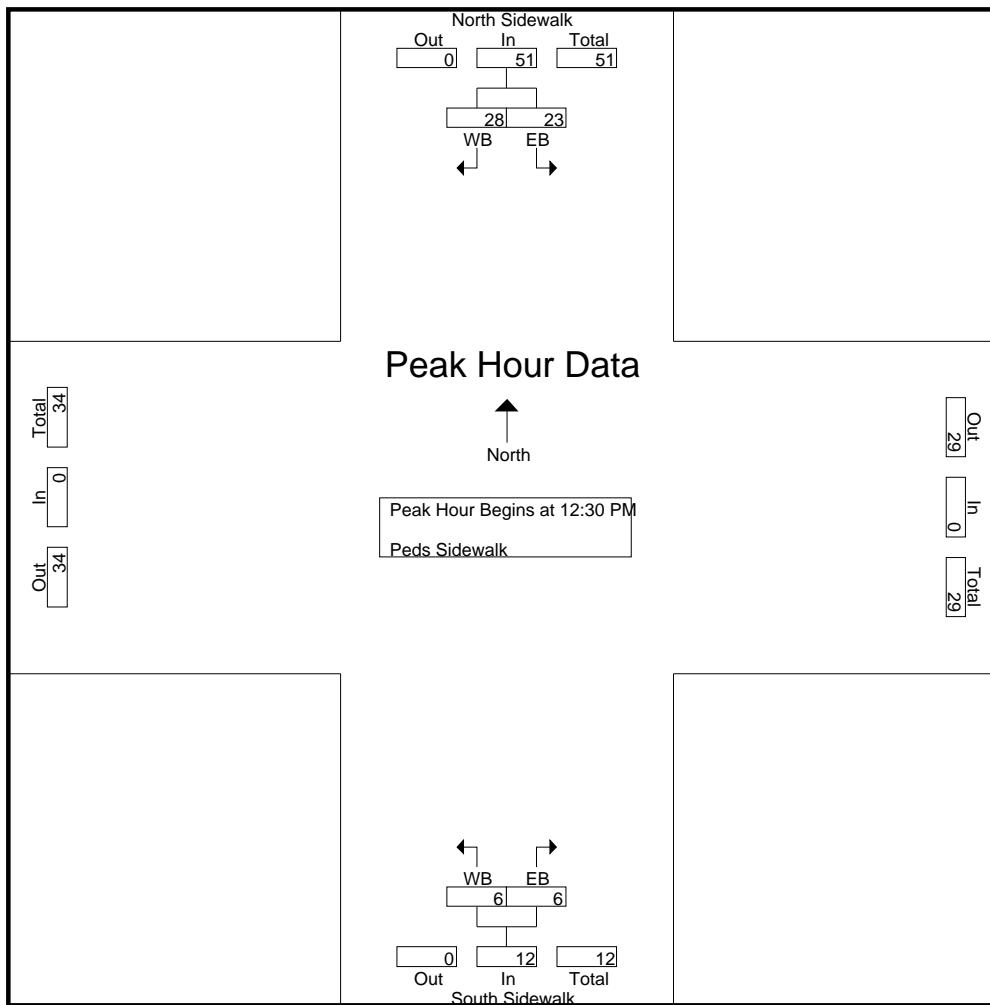
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 12:30 PM									
12:30 PM	10	9	19	0	2	4	6	0	25
12:45 PM	3	8	11	0	0	0	0	0	11
01:00 PM	2	7	9	0	2	2	4	0	13
01:15 PM	8	4	12	0	2	0	2	0	14
Total Volume	23	28	51	0	6	6	12	0	63
% App. Total	45.1	54.9			50	50			
PHF	.575	.778	.671	.000	.750	.375	.500	.000	.630

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 8



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

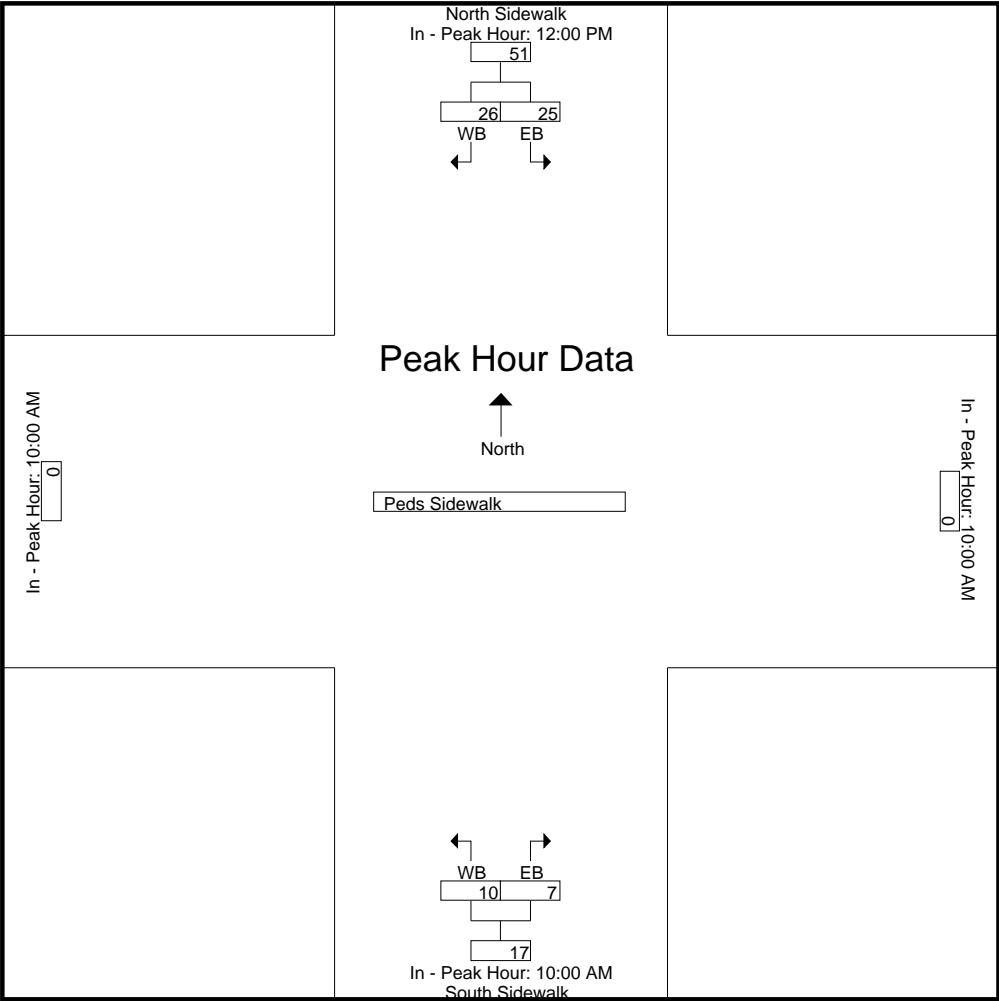
	12:00 PM			10:00 AM		10:00 AM		10:00 AM	
+0 mins.	6	4	10	0	3	4	7	0	
+15 mins.	6	5	11	0	4	2	6	0	
+30 mins.	10	9	19	0	0	0	0	0	
+45 mins.	3	8	11	0	3	1	4	0	
Total Volume	25	26	51	0	10	7	17	0	
% App. Total	49	51			58.8	41.2			
PHF	.625	.722	.671	.000	.625	.438	.607	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

File Name : 80840010

Site Code : 80840010

Start Date : 4/2/2019

Page No : 10

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

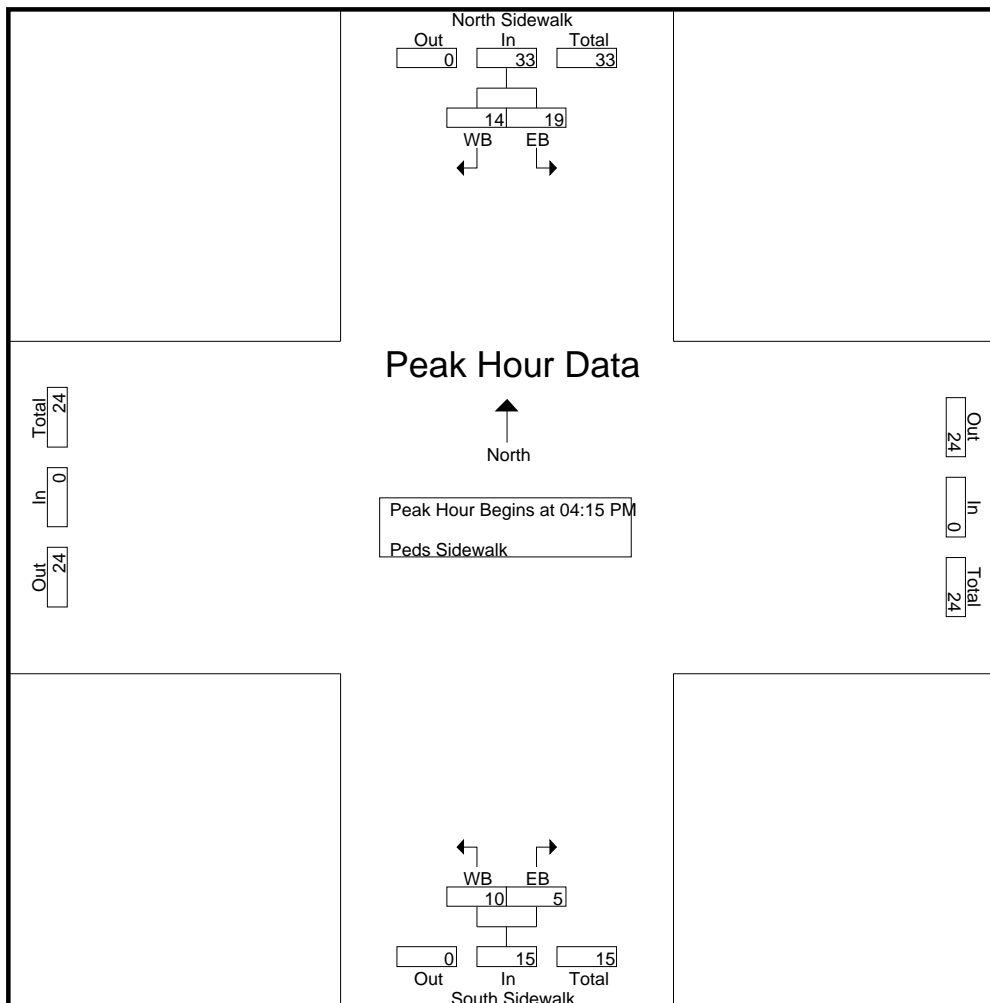
Start Time	North Sidewalk From North			From East	South Sidewalk From South			From West	Int. Total
	EB	WB	App. Total	App. Total	WB	EB	App. Total	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1									
Peak Hour for Entire Intersection Begins at 04:15 PM									
04:15 PM	5	3	8	0	2	1	3	0	11
04:30 PM	2	6	8	0	4	1	5	0	13
04:45 PM	10	1	11	0	1	1	2	0	13
05:00 PM	2	4	6	0	3	2	5	0	11
Total Volume	19	14	33	0	10	5	15	0	48
% App. Total	57.6	42.4			66.7	33.3			
PHF	.475	.583	.750	.000	.625	.625	.750	.000	.923

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Concord Ave W of Smith Pl
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840010
 Site Code : 80840010
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

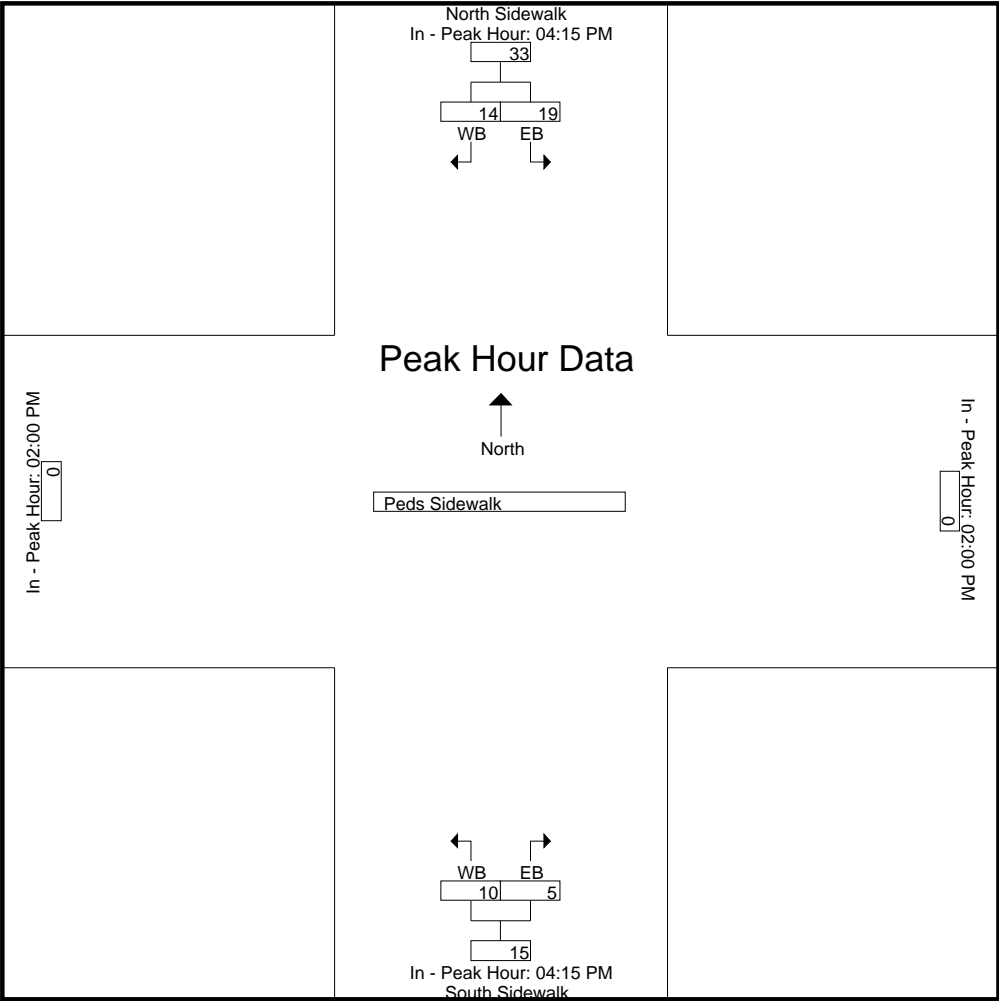
	04:15 PM			02:00 PM			04:15 PM			02:00 PM		
+0 mins.	5	3	8	0	2	1	3	0	0	0	0	
+15 mins.	2	6	8	0	4	1	5	0	0	0	0	
+30 mins.	10	1	11	0	1	1	2	0	0	0	0	
+45 mins.	2	4	6	0	3	2	5	0	0	0	0	
Total Volume	19	14	33	0	10	5	15	0	0	0	0	
% App. Total	57.6	42.4			66.7	33.3						
PHF	.475	.583	.750	.000	.625	.625	.750	.000	.000	.000	.000	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Concord Ave W of Smith Pl
City/State : Cambridge, MA
Weather : Clear

File Name : 80840010
Site Code : 80840010
Start Date : 4/2/2019
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Bikes

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
07:00 AM	0	0	0	0	0	0	0
07:15 AM	0	0	0	2	0	0	2
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	2
08:00 AM	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
09:00 AM	0	0	0	0	0	0	0
09:15 AM	0	0	0	0	0	0	0
09:30 AM	0	0	0	0	0	1	1
09:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	1
10:00 AM	0	0	0	0	0	0	0
10:15 AM	0	0	0	0	0	0	0
10:30 AM	0	0	0	0	0	0	0
10:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0	0
11:15 AM	0	0	0	0	0	0	0
11:30 AM	0	0	0	0	0	0	0

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Bikes

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
11:45 AM	0	0	0	1	0	0	1
Total	0	0	0	1	0	0	1
12:00 PM	0	0	0	1	0	0	1
12:15 PM	0	0	0	0	0	1	1
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	2
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	0	0	1	0	0	1
01:30 PM	0	0	0	0	0	1	1
01:45 PM	0	0	0	0	0	0	0
Total	0	0	0	1	0	1	2
02:00 PM	0	0	0	0	0	0	0
02:15 PM	0	0	0	1	0	0	1
02:30 PM	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	1
03:00 PM	0	0	0	0	0	1	1
03:15 PM	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	2	0	2
03:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	2	1	3
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	1	0	1

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Bikes

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
04:30 PM	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	1
05:00 PM	0	0	0	1	0	1	2
05:15 PM	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	2	2
Total	0	0	0	1	0	3	4
06:00 PM	0	0	0	0	0	0	0
06:15 PM	0	0	0	0	0	0	0
06:30 PM	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
Grand Total	0	0	0	7	3	7	17
Apprch %	0	0	0	100	30	70	
Total %	0	0	0	41.2	17.6	41.2	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 4

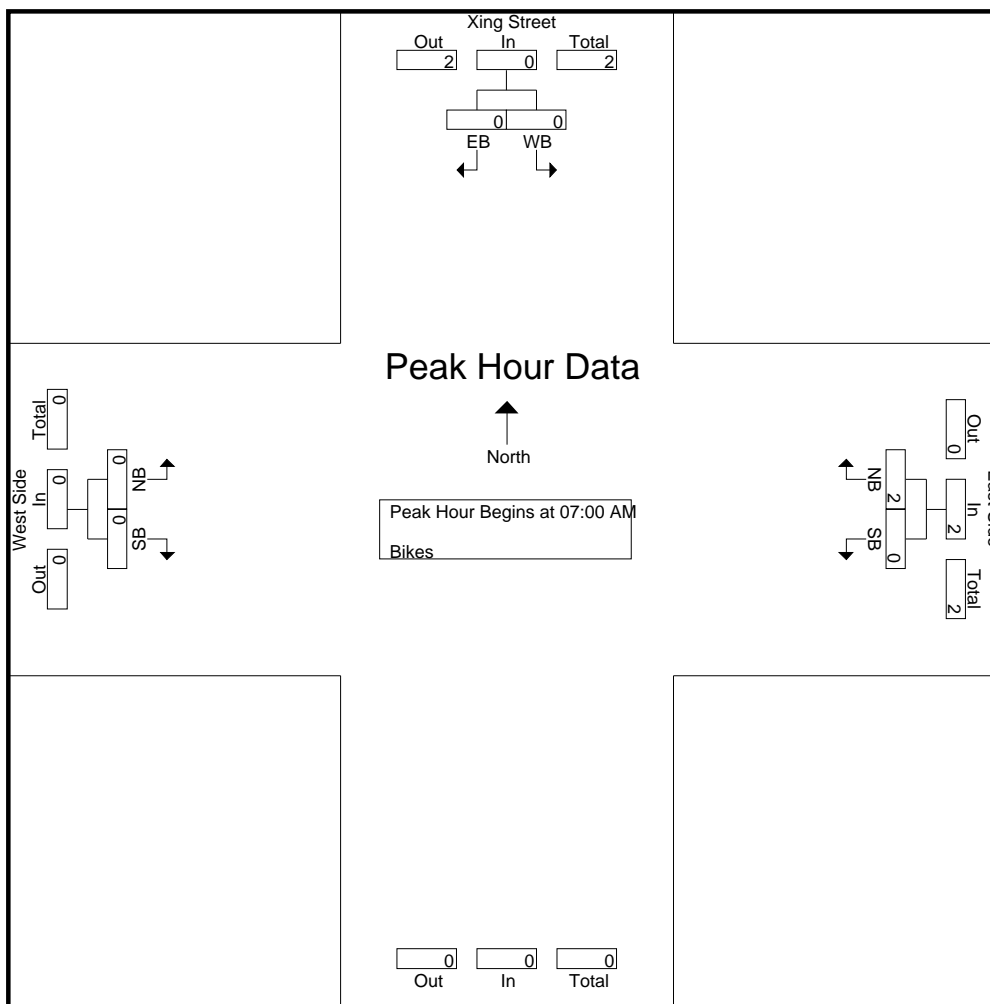
Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 07:00 AM											
07:00 AM	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	2	2	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	2	2	0	0	0	0	2
% App. Total	0	0		0	100			0	0		
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 5



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

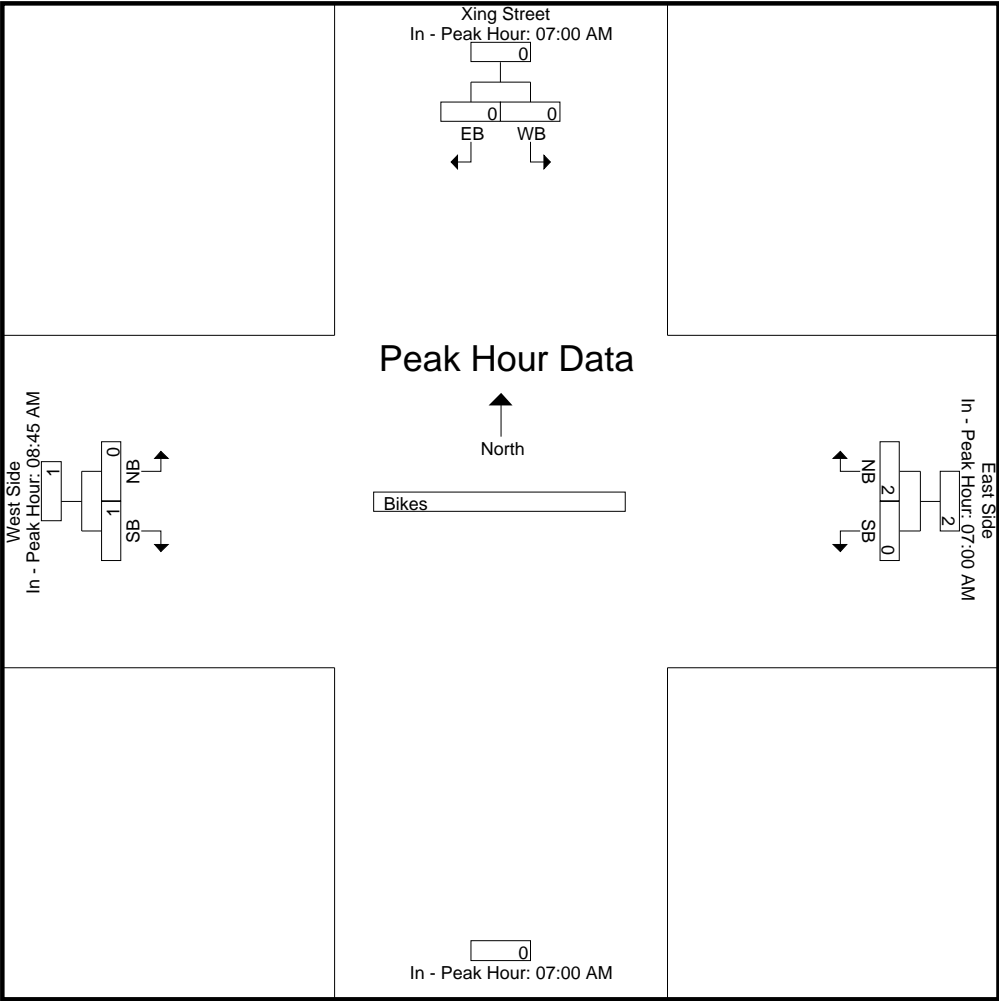
	07:00 AM			07:00 AM			07:00 AM			08:45 AM		
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	2	2	0	0	0	0	0	0
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+45 mins.	0	0	0	0	0	0	0	0	1	1	1	1
Total Volume	0	0	0	0	2	2	0	0	1	1	1	1
% App. Total	0	0	0	0	100	100	0	0	100	100	100	100
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.250	.250	.250	.250

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 7

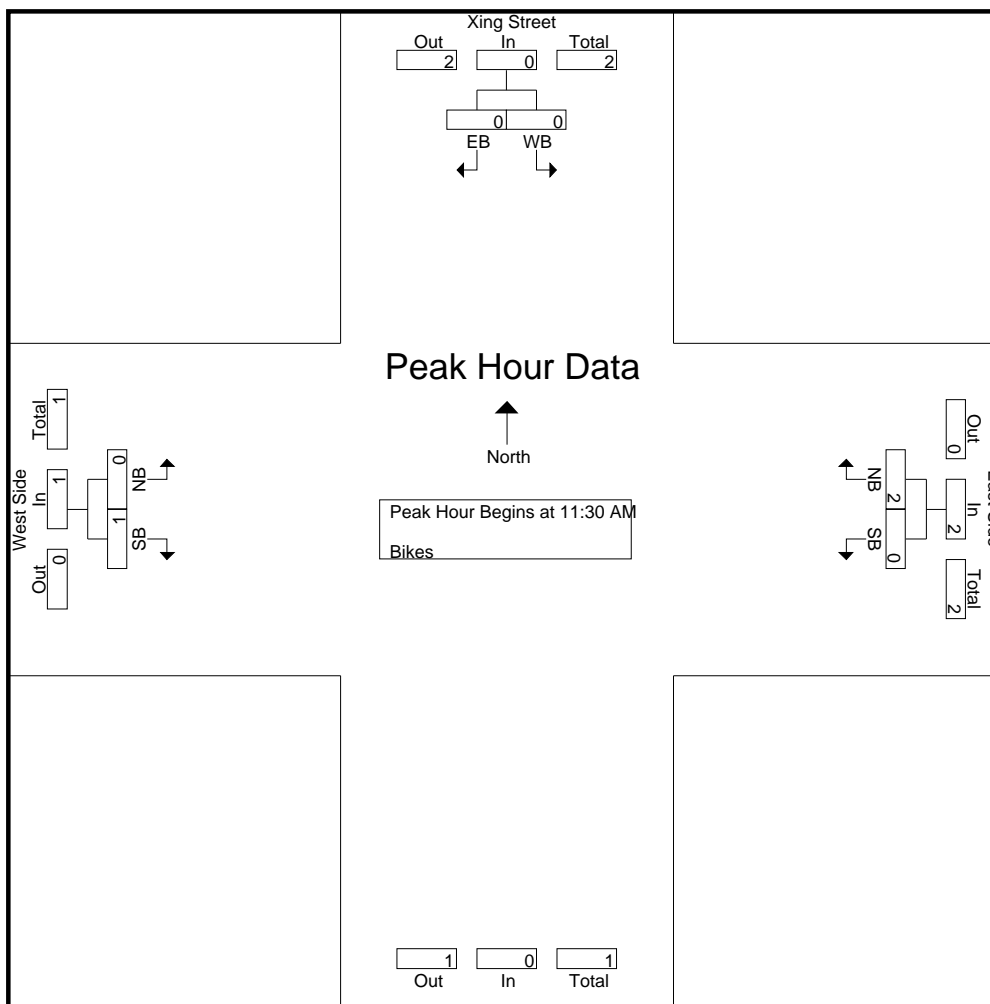
Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 11:30 AM											
11:30 AM	0	0	0	0	0	0	0	0	0	0	0
11:45 AM	0	0	0	0	1	1	0	0	0	0	1
12:00 PM	0	0	0	0	1	1	0	0	0	0	1
12:15 PM	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	2	2	0	0	1	1	3
% App. Total	0	0		0	100			0	100		
PHF	.000	.000	.000	.000	.500	.500	.000	.000	.250	.250	.750

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 8



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

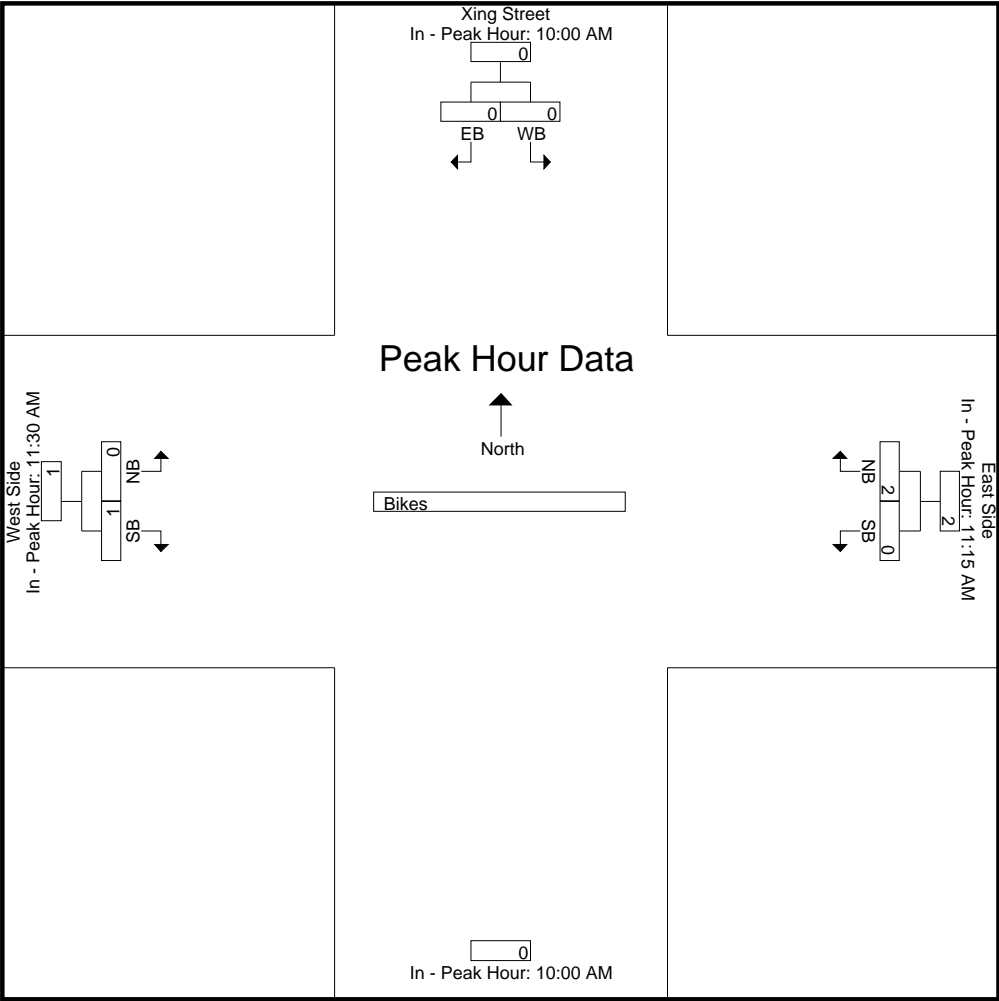
	10:00 AM			11:15 AM			10:00 AM			11:30 AM		
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+15 mins.	0	0	0	0	0	0	0	0	0	0	0	0
+30 mins.	0	0	0	0	1	1	0	0	0	0	0	0
+45 mins.	0	0	0	0	1	1	0	0	1	1	1	1
Total Volume	0	0	0	0	2	2	0	0	1	1	1	1
% App. Total	0	0	0	0	100	100	0	0	100	100	100	100
PHF	.000	.000	.000	.000	.500	.500	.000	.000	.250	.250	.250	.250

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 10

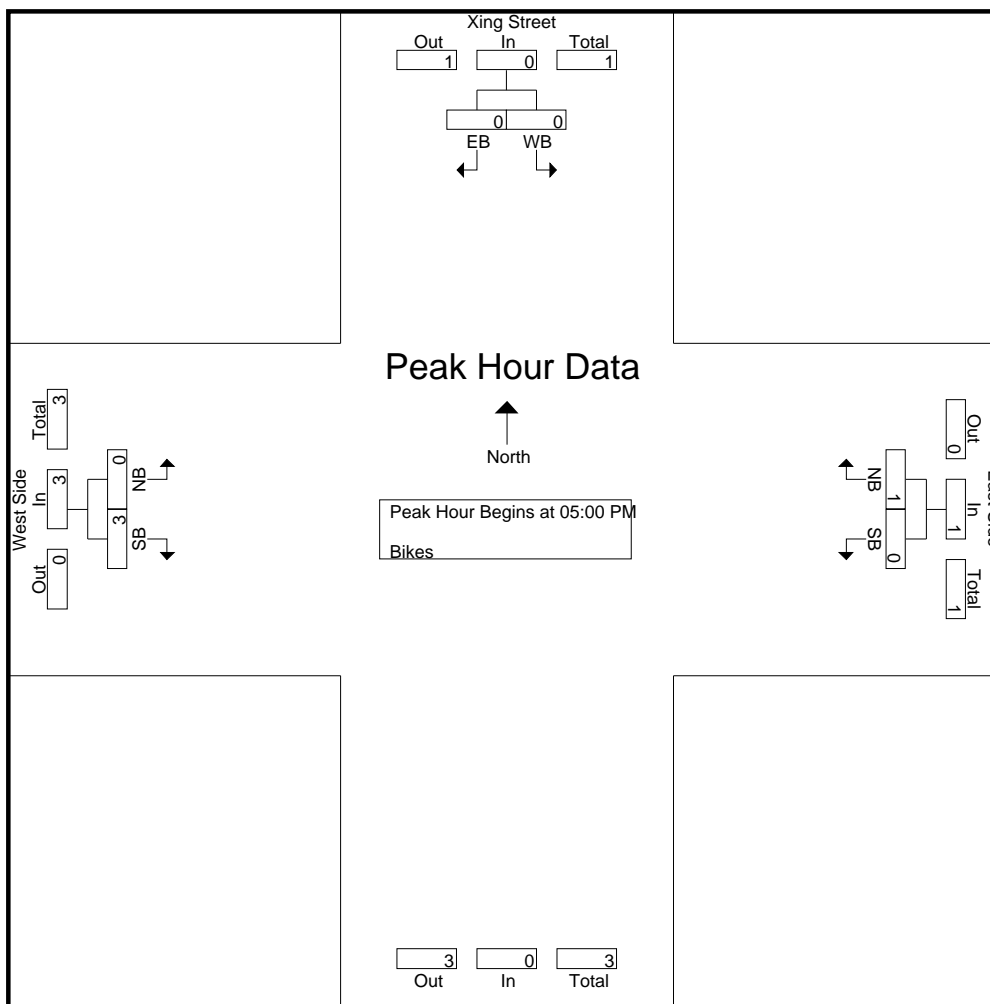
Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:00 PM											
05:00 PM	0	0	0	0	1	1	0	0	1	1	2
05:15 PM	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	2	2	2
Total Volume	0	0	0	0	1	1	0	0	3	3	4
% App. Total	0	0		0	100			0	100		
PHF	.000	.000	.000	.000	.250	.250	.000	.000	.375	.375	.500

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

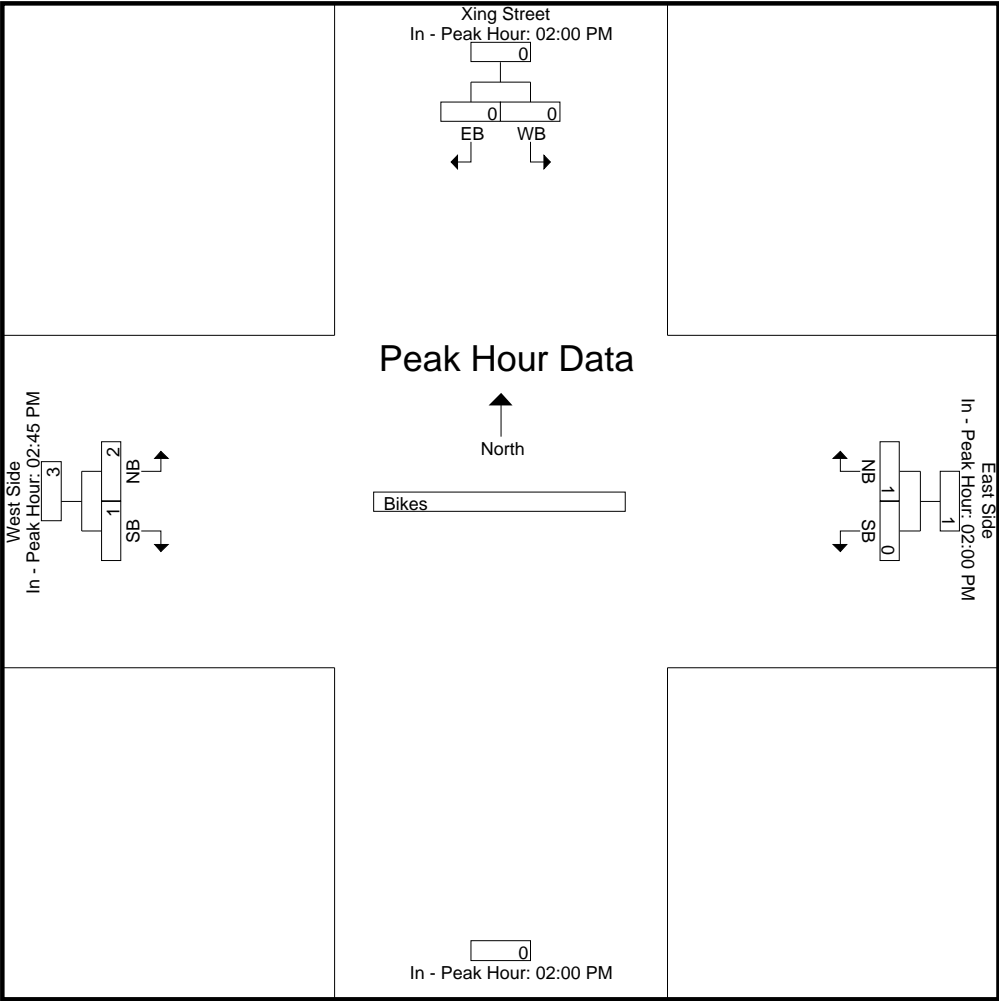
	02:00 PM			02:00 PM			02:00 PM			02:45 PM		
+0 mins.	0	0	0	0	0	0	0	0	0	0	0	
+15 mins.	0	0	0	0	1	1	0	0	1	1	1	
+30 mins.	0	0	0	0	0	0	0	0	0	0	0	
+45 mins.	0	0	0	0	0	0	0	2	0	2	2	
Total Volume	0	0	0	0	1	1	0	2	1	3	3	
% App. Total	0	0	0	0	100	100	0	66.7	33.3	100	100	
PHF	.000	.000	.000	.000	.250	.250	.000	.250	.250	.375	.375	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 12



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 1

Groups Printed- Peds

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
07:00 AM	0	1	0	1	2	1	5
07:15 AM	0	0	0	0	0	0	0
07:30 AM	2	0	0	1	0	2	5
07:45 AM	2	0	0	3	0	0	5
Total	4	1	0	5	2	3	15
08:00 AM	0	2	0	0	1	0	3
08:15 AM	1	1	0	0	0	0	2
08:30 AM	0	0	0	1	0	0	1
08:45 AM	0	1	0	0	1	0	2
Total	1	4	0	1	2	0	8
09:00 AM	0	1	4	4	0	0	9
09:15 AM	0	0	0	3	0	0	3
09:30 AM	0	0	4	0	0	0	4
09:45 AM	0	0	0	0	0	0	0
Total	0	1	8	7	0	0	16
10:00 AM	1	1	0	5	0	0	7
10:15 AM	0	0	0	0	0	0	0
10:30 AM	1	0	1	0	0	0	2
10:45 AM	0	0	0	2	0	0	2
Total	2	1	1	7	0	0	11
11:00 AM	0	1	0	0	1	2	4
11:15 AM	1	0	0	0	1	1	3
11:30 AM	0	1	1	0	0	0	2

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 2

Groups Printed- Peds

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
11:45 AM	0	0	1	0	1	0	2
Total	1	2	2	0	3	3	11
12:00 PM	0	0	1	2	0	0	3
12:15 PM	0	0	1	3	0	0	4
12:30 PM	0	0	3	1	0	1	5
12:45 PM	1	1	2	2	0	1	7
Total	1	1	7	8	0	2	19
01:00 PM	1	0	0	1	0	2	4
01:15 PM	0	1	0	1	0	1	3
01:30 PM	1	0	0	0	1	0	2
01:45 PM	0	0	1	1	0	0	2
Total	2	1	1	3	1	3	11
02:00 PM	1	0	0	0	0	0	1
02:15 PM	1	0	1	2	0	0	4
02:30 PM	0	0	0	0	0	0	0
02:45 PM	2	1	0	1	0	0	4
Total	4	1	1	3	0	0	9
03:00 PM	0	0	0	2	1	0	3
03:15 PM	0	0	1	1	0	2	4
03:30 PM	0	1	1	0	1	2	5
03:45 PM	1	1	0	0	0	3	5
Total	1	2	2	3	2	7	17
04:00 PM	0	0	1	0	0	0	1
04:15 PM	0	0	0	0	5	1	6

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 3

Groups Printed- Peds

Start Time	Xing Street From North		East Side From East		West Side From West		Int. Total
	WB	EB	SB	NB	NB	SB	
04:30 PM	1	1	1	1	0	1	5
04:45 PM	1	0	2	0	1	0	4
Total	2	1	4	1	6	2	16
05:00 PM	0	0	1	0	1	2	4
05:15 PM	0	0	1	2	0	0	3
05:30 PM	0	0	3	2	0	0	5
05:45 PM	0	0	1	0	2	2	5
Total	0	0	6	4	3	4	17
06:00 PM	0	0	0	2	2	1	5
06:15 PM	2	0	1	3	2	0	8
06:30 PM	1	1	0	3	2	0	7
06:45 PM	0	0	1	0	0	0	1
Total	3	1	2	8	6	1	21
Grand Total	21	16	34	50	25	25	171
Apprch %	56.8	43.2	40.5	59.5	50	50	
Total %	12.3	9.4	19.9	29.2	14.6	14.6	

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 4

Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 08:45 AM											
08:45 AM	0	1	1	0	0	0	0	1	0	1	2
09:00 AM	0	1	1	4	4	8	0	0	0	0	9
09:15 AM	0	0	0	0	3	3	0	0	0	0	3
09:30 AM	0	0	0	4	0	4	0	0	0	0	4
Total Volume	0	2	2	8	7	15	0	1	0	1	18
% App. Total	0	100		53.3	46.7			100	0		
PHF	.000	.500	.500	.500	.438	.469	.000	.250	.000	.250	.500

Accurate Counts

978-664-2565

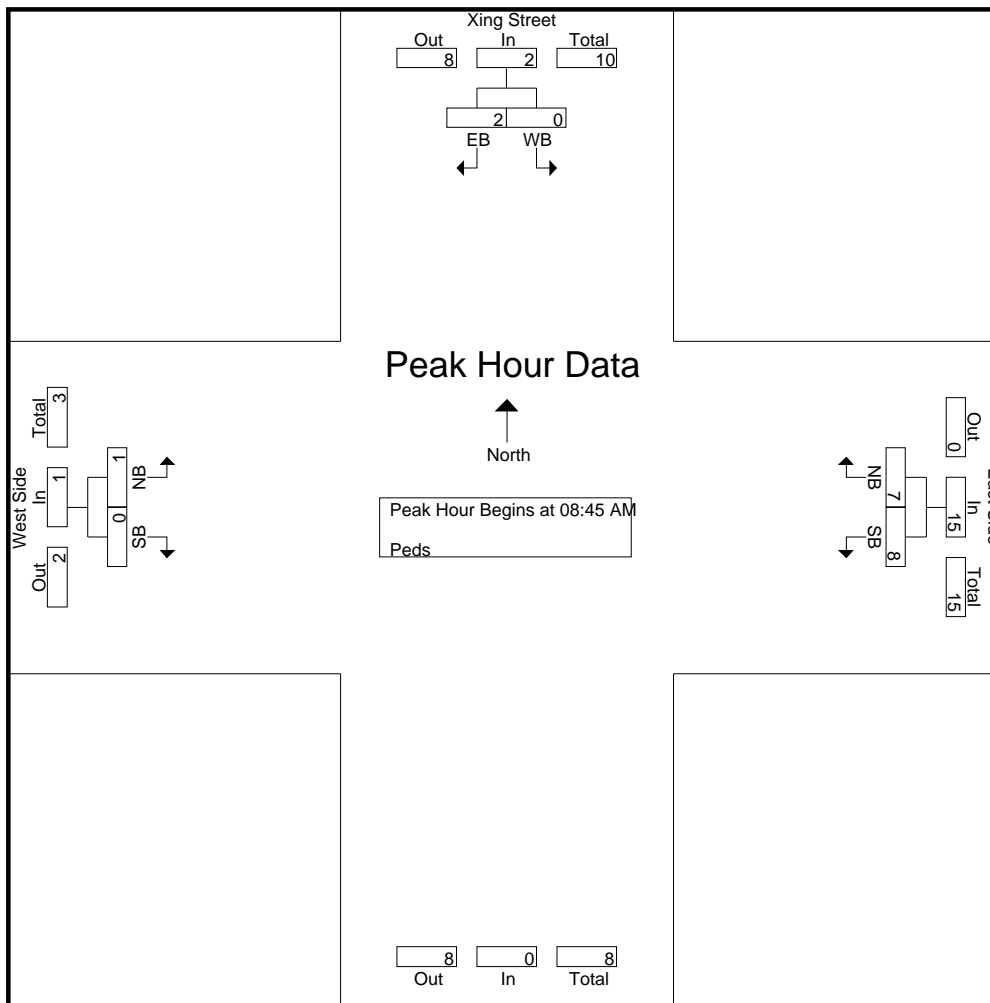
File Name : 80840011

Site Code : 80840011

Start Date : 4/2/2019

Page No : 5

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 07:00 AM to 09:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

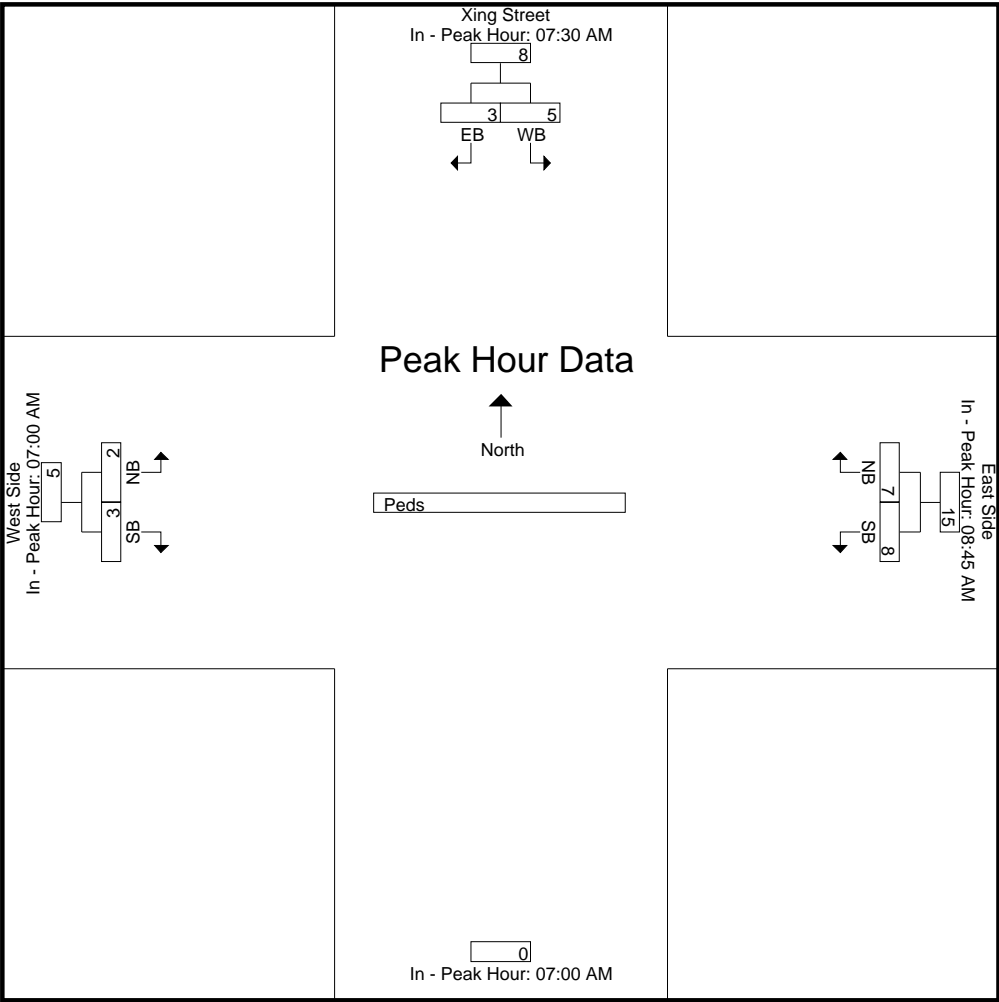
	07:30 AM			08:45 AM			07:00 AM			
+0 mins.	2	0	2	0	0	0	0	2	1	3
+15 mins.	2	0	2	4	4	8	0	0	0	0
+30 mins.	0	2	2	0	3	3	0	0	2	2
+45 mins.	1	1	2	4	0	4	0	0	0	0
Total Volume	5	3	8	8	7	15	0	2	3	5
% App. Total	62.5	37.5		53.3	46.7			40	60	
PHF	.625	.375	1.000	.500	.438	.469	.000	.250	.375	.417

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 6



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 7

Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 12:15 PM											
12:15 PM	0	0	0	1	3	4	0	0	0	0	4
12:30 PM	0	0	0	3	1	4	0	0	1	1	5
12:45 PM	1	1	2	2	2	4	0	0	1	1	7
01:00 PM	1	0	1	0	1	1	0	0	2	2	4
Total Volume	2	1	3	6	7	13	0	0	4	4	20
% App. Total	66.7	33.3		46.2	53.8			0	100		
PHF	.500	.250	.375	.500	.583	.813	.000	.000	.500	.500	.714

Accurate Counts

978-664-2565

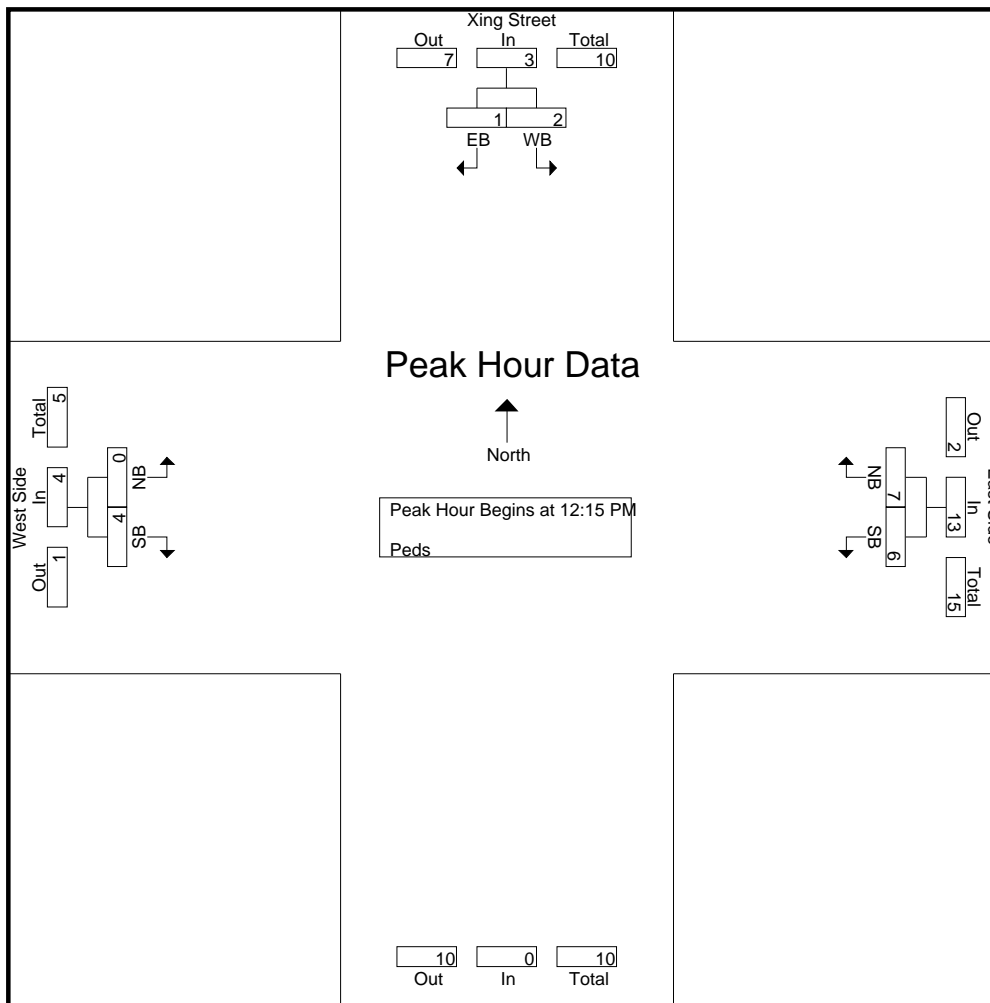
File Name : 80840011

Site Code : 80840011

Start Date : 4/2/2019

Page No : 8

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear



Peak Hour Analysis From 10:00 AM to 01:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

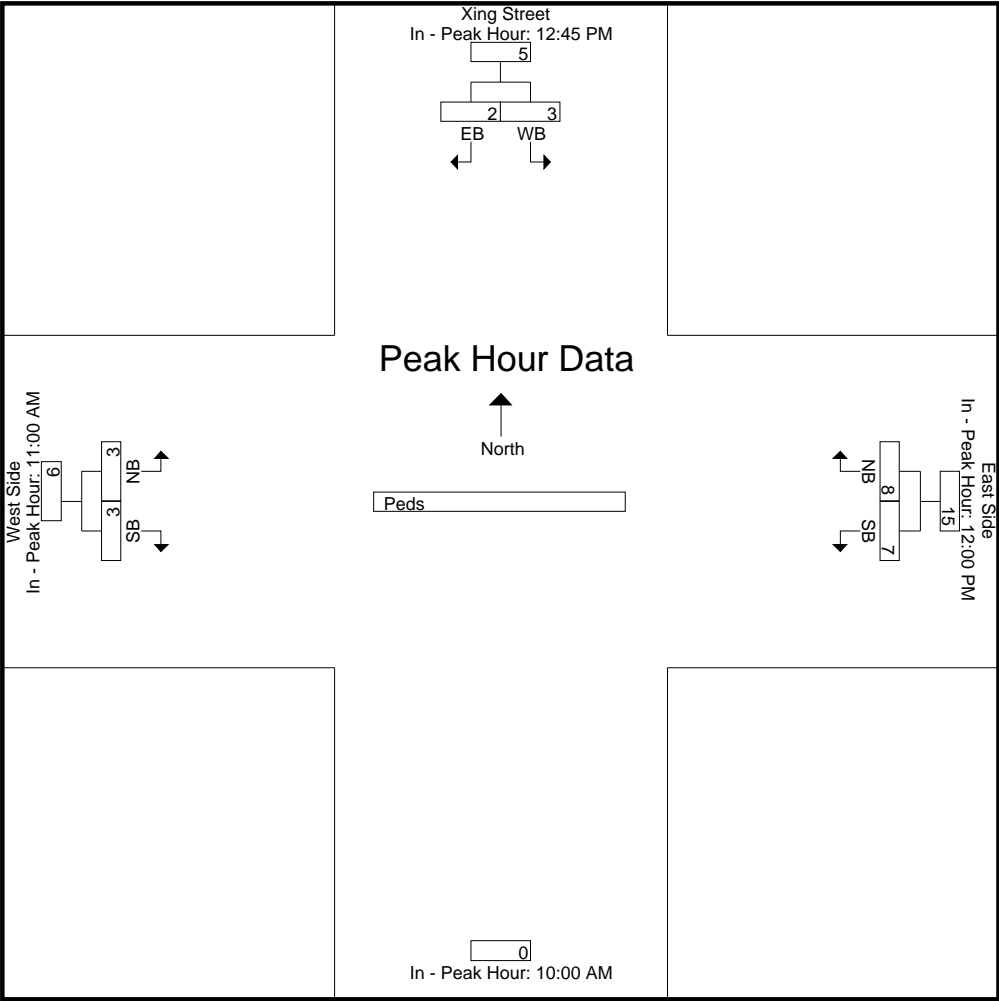
	12:45 PM			12:00 PM			10:00 AM	11:00 AM		
+0 mins.	1	1	2	1	2	3	0	1	2	3
+15 mins.	1	0	1	1	3	4	0	1	1	2
+30 mins.	0	1	1	3	1	4	0	0	0	0
+45 mins.	1	0	1	2	2	4	0	1	0	1
Total Volume	3	2	5	7	8	15	0	3	3	6
% App. Total	60	40		46.7	53.3			50	50	
PHF	.750	.500	.625	.583	.667	.938	.000	.750	.375	.500

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 9



Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 10

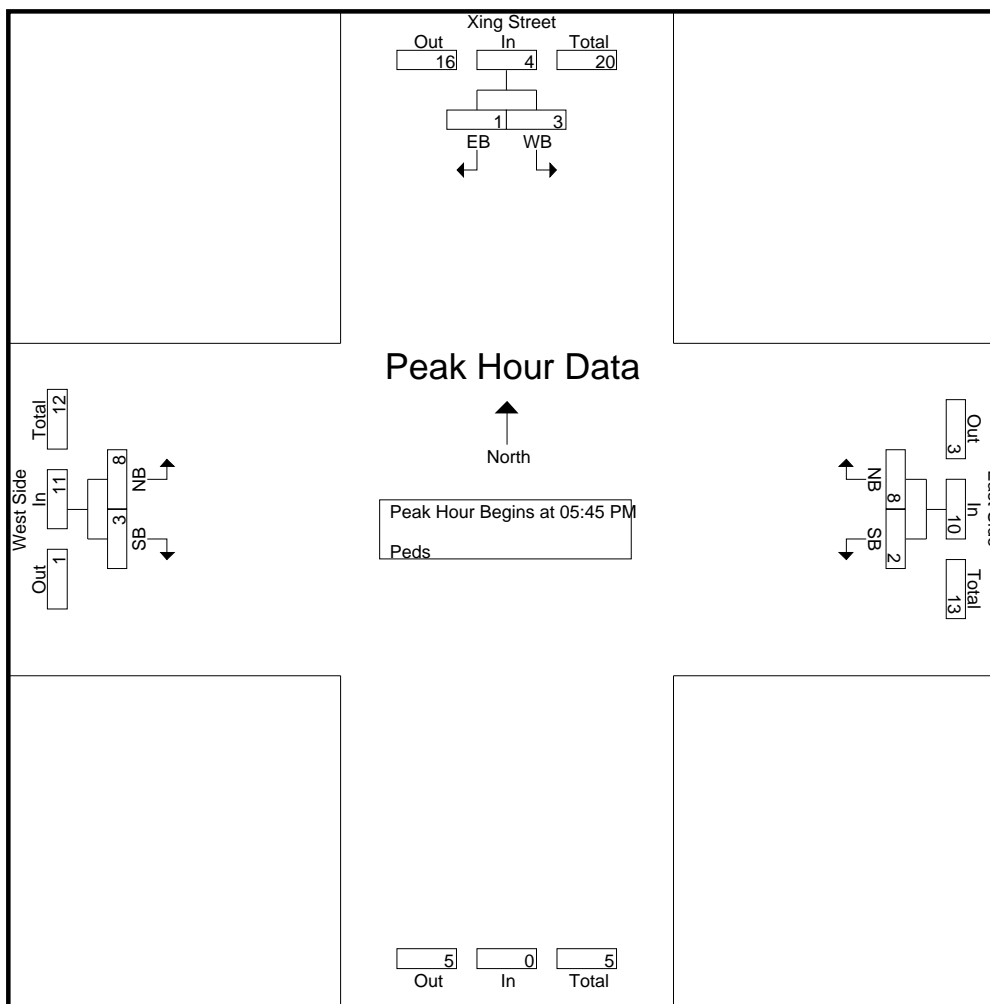
Start Time	Xing Street From North			East Side From East			From South	West Side From West			Int. Total
	WB	EB	App. Total	SB	NB	App. Total	App. Total	NB	SB	App. Total	
Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1											
Peak Hour for Entire Intersection Begins at 05:45 PM											
05:45 PM	0	0	0	1	0	1	0	2	2	4	5
06:00 PM	0	0	0	0	2	2	0	2	1	3	5
06:15 PM	2	0	2	1	3	4	0	2	0	2	8
06:30 PM	1	1	2	0	3	3	0	2	0	2	7
Total Volume	3	1	4	2	8	10	0	8	3	11	25
% App. Total	75	25		20	80			72.7	27.3		
PHF	.375	.250	.500	.500	.667	.625	.000	1.00	.375	.688	.781

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
 E/W Street : Smith Place N of Concord Av
 City/State : Cambridge, MA
 Weather : Clear

File Name : 80840011
 Site Code : 80840011
 Start Date : 4/2/2019
 Page No : 11



Peak Hour Analysis From 02:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

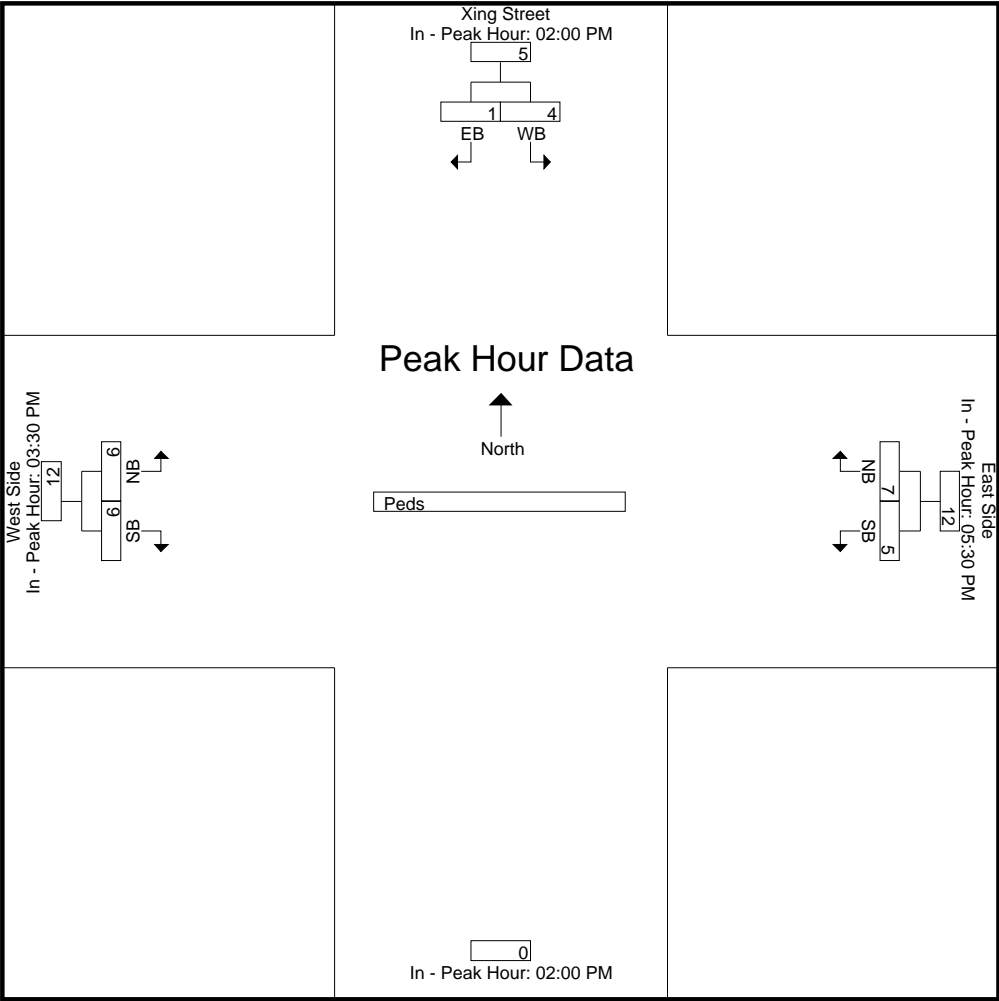
	02:00 PM			05:30 PM			02:00 PM			03:30 PM		
+0 mins.	1	0	1	3	2	5	0	1	2	3		
+15 mins.	1	0	1	1	0	1	0	0	3	3		
+30 mins.	0	0	0	0	2	2	0	0	0	0		
+45 mins.	2	1	3	1	3	4	0	5	1	6		
Total Volume	4	1	5	5	7	12	0	6	6	12		
% App. Total	80	20		41.7	58.3			50	50			
PHF	.500	.250	.417	.417	.583	.600	.000	.300	.500	.500		

Accurate Counts

978-664-2565

N/S Street : Peds & Bikes at ATR Loc
E/W Street : Smith Place N of Concord Av
City/State : Cambridge, MA
Weather : Clear

File Name : 80840011
Site Code : 80840011
Start Date : 4/2/2019
Page No : 12



Vehicle Queue Count Data



Time	Concord Avenue	
	eB LT/TH	eB TH/RT
	2	1
7:30 AM	4	9
7:33	7	9
7:35	7	5
7:37	6	9
7:39	6	5
7:41	5	6
7:43	6	4
7:46	6	6
7:49	7	9
7:51	6	3
7:53	8	9
7:55	6	8
7:57	3	6
7:59	5	7
8:01	7	5
8:04	6	10
8:06	9	7
8:09	6	6
8:13	7	9
8:15	9	8
8:17	1	3
8:20	2	4
8:22	7	6
8:25	2	8
8:27	5	6
8:29	6	6
8:31	2	4
8:33	3	6
8:36	7	6
8:38	0	6
8:41	2	4
8:43	3	5
8:45	5	7
8:47	2	2
8:50	6	6
8:52	2	3
8:54	2	2
8:57	4	6
8:59	3	6
9:04	3	3
9:06	1	4
9:07	0	1
9:09	0	5
9:13	2	3
9:17	0	8
9:20	0	2
9:23	0	4
9:26	0	6
9:29	1	1
Average 8-9	4.32	5.64
Max	9	10

Time	Concord Avenue		
	wB L	wB T	wB R
	3	2	1
7:31 AM	7	3	1
7:33	5	3	0
7:36	4	0	3
7:38	6	1	4
7:40	5	2	3
7:42	3	4	3
7:45	0	4	5
7:47	0	4	6
7:49	4	0	8
7:51	8	0	6
7:54	6	0	1
7:56	4	9	0
7:58	5	2	4
8:00	7	3	2
8:02	4	2	0
8:04	3	2	4
8:04	3	4	2
8:09	4	2	3
8:12	4	6	4
8:14	6	4	2
8:16	7	3	1
8:18	9	4	2
8:20	6	2	1
8:23	7	1	1
8:25	4	6	1
8:27	3	3	1
8:30	2	5	4
8:32	4	3	2
8:34	1	6	1
8:36	6	6	5
8:38	6	2	1
8:40	6	1	4
8:43	6	4	3
8:46	7	4	6
8:48	6	6	0
8:50	6	2	4
8:52	6	4	4
8:54	6	5	3
8:57	6	4	3
8:59	7	8	3
9:01	3	3	2
9:04	3	5	2
9:07	4	6	2
9:11	3	4	1
9:14	0	9	1
9:18	0	6	1
9:20	0	0	4
9:22	3	6	3
9:23	2	5	0
9:24	0	6	1
9:26	6	3	3
9:27	2	6	3
9:30	3	1	4
Average 8-9	5.26	3.78	2.48
Max	9	8	6

Time	Blanchard Road	
	NB LT/TH	NB RT
	1	2
7:31 AM	13	0
7:33	10	3
7:35	9	0
7:37	15	1
7:39	15	0
7:42	13	3
7:45	14	0
7:46	16	0
7:49	17	0
7:51	12	0
7:53	16	0
7:56	11	4
7:58	12	0
8:02	4	3
8:04	3	0
8:09	11	0
8:11	6	0
8:13	7	2
8:18	10	0
8:20	15	0
8:22	10	0
8:24	11	1
8:27	5	2
8:29	8	0
8:34	2	1
8:36	9	0
8:38	3	0
8:40	8	1
8:43	7	2
8:45	12	0
8:47	8	0
8:52	4	0
8:54	11	0
8:56	8	1
8:59	8	0
9:01	4	0
9:03	15	0
9:05	10	1
9:08	9	2
9:10	3	0
9:14	2	0
9:18	3	0
9:26	9	0
9:28	2	0
Average 8-9	7.73	0.59
Max	15	3

Time	Blanchard Road
	SB LT/TH/RT
	1
7:31 AM	10
7:33	10
7:35	10
7:37	10
7:39	8
7:42	9
7:44	8
7:46	10
7:48	10
7:51	9
7:53	7
7:55	8
7:57	7
7:59	6
8:02	6
8:04	8
8:06	9
8:09	8
8:11	7
8:13	10
8:15	9
8:17	6
8:20	8
8:22	7
8:24	6
8:26	7
8:28	8
8:30	9
8:31	9
8:33	9
8:35	10
8:38	8
8:40	10
8:42	8
8:44	11
8:47	5
8:49	9
8:51	8
8:53	9
8:55	8
8:58	8
9:00	12
9:02	10
9:04	10
9:06	9
9:08	8
9:10	9
9:12	10
9:14	7
9:16	10
9:18	10
9:20	10
9:22	8
9:24	11
9:25	13
9:27	11
9:29	8
Average 8-9	8.15
Max	11

Time	Griswold Street
	SB LT/TH/RT
	1
7:31 AM	0
7:35	1
7:37	1
7:40	1
7:43	0
7:47	0
7:50	0
7:52	0
7:54	1
7:56	0
8:00	1
8:02	0
8:04	0
8:06	0
8:08	1
8:10	1
8:14	1
8:16	0
8:18	1
8:20	0
8:23	1
8:26	0
8:29	1
8:31	0
8:33	0
8:35	0
8:38	0
8:40	0
8:42	0
8:44	0
8:47	0
8:50	0
8:52	0
8:56	1
8:58	1
9:00	0
9:02	0
9:04	0
9:06	0
9:08	0
9:10	0
9:12	1
9:14	1
9:17	1
9:20	0
9:22	1
9:25	0
9:27	0
9:29	0
Average 8-9	0.4
Max	1

Time	Concord Avenue	
	eB LT/TH	eB TH/RT
4:31 PM	3	4
4:35	5	3
4:39	5	6
4:42	4	4
4:47	3	2
4:51	6	1
4:54	6	2
4:56	0	7
4:59	4	5
5:02	3	2
5:08	4	7
5:10	6	2
5:12	8	3
5:16	3	5
5:21	6	4
5:23	6	4
5:27	4	3
5:30	1	4
5:32	7	1
5:34	6	1
5:37	6	4
5:39	9	2
5:41	2	4
5:43	2	0
5:45	4	1
5:48	2	2
5:50	4	3
5:52	8	3
5:54	5	2
5:57	4	1
5:59	5	2
6:01	5	2
6:03	0	1
6:07	2	4
6:09	0	5
6:10	2	1
6:12	2	1
6:14	1	0
6:16	1	0
6:18	1	0
6:20	4	0
6:22	3	1
6:24	4	0
6:26	6	0
6:28	4	2
6:30	1	5
Average 4:45/5:45	4.6	3.15
Max	9	7

Time	Concord Avenue		
	wB L	wB T	wB R
4:31 PM	3	4	3
4:33	4	6	3
4:37	4	4	3
4:39	3	4	6
4:41	6	8	4
4:43	5	8	3
4:46	8	4	2
4:49	6	4	2
4:51	4	3	1
4:54	3	1	4
4:56	5	3	2
4:59	3	2	4
5:01	3	6	2
5:04	3	8	4
5:08	5	6	2
5:09	6	8	4
5:11	5	4	2
5:15	6	7	4
5:18	2	4	2
5:20	2	1	4
5:23	1	5	6
5:25	4	1	8
5:29	6	8	6
5:30	4	10	5
5:32	6	9	4
5:34	8	8	5
5:36	4	6	4
5:39	8	11	6
5:41	6	10	5
5:43	6	6	4
5:48	6	12	5
5:53	8	12	8
5:54	7	9	5
5:57	9	3	1
5:59	4	2	3
6:00	4	2	4
6:01	6	3	9
6:03	5	7	4
6:06	3	4	0
6:08	5	7	6
6:10	7	9	5
6:12	7	5	4
6:15	9	4	3
6:17	8	3	4
6:19	6	4	4
6:21	7	3	1
6:24	4	7	2
6:26	6	9	4
6:28	9	5	3
6:30	5	5	3
Average 4:45/5:45	4.75	5.63	3.83
Max	8	11	8

Time	Blanchard Road	
	NB LT/TH	NB RT
4:31 PM	15	0
4:32	14	0
4:34	10	0
4:36	13	2
4:38	16	0
4:40	10	0
4:42	17	0
4:44	15	0
4:46	16	0
4:48	15	0
4:51	17	0
4:53	14	0
4:55	15	0
4:57	16	0
5:00	17	0
5:02	17	0
5:04	15	0
5:06	16	2
5:09	18	0
5:11	14	0
5:13	15	0
5:16	13	0
5:18	14	1
5:20	13	0
5:22	4	0
5:24	4	1
5:27	9	0
5:29	7	1
5:31	0	0
5:33	7	2
5:35	9	0
5:38	11	3
5:40	8	2
5:43	10	0
5:45	3	1
5:47	15	0
5:49	15	0
5:52	14	1
5:54	6	1
5:56	12	0
5:58	8	0
6:02	16	0
6:04	15	0
6:06	12	0
6:08	10	0
6:10	9	0
6:12	6	0
6:14	4	0
6:17	4	0
6:19	5	0
6:22	8	0
6:24	4	0
6:27	6	0
Average 4:45/5:45	12.08	0.46
Max	18	3

Time	Blanchard Road
	SB LT/TH/RT
4:31 PM	7
4:33	10
4:35	9
4:37	7
4:39	9
4:04	10
4:44	9
4:46	12
4:48	9
4:51	10
4:53	8
4:55	7
4:58	4
5:00	10
5:02	9
5:04	11
5:07	7
5:09	12
5:11	10
5:13	6
5:16	8
5:19	7
5:21	5
5:23	5
5:25	10
5:30	9
5:31	8
5:34	2
5:36	8
5:38	9
5:41	8
5:43	7
5:45	10
5:47	5
5:49	8
5:51	8
5:53	6
5:58	10
6:00	5
6:02	4
6:04	3
6:06	10
6:08	10
6:09	8
6:11	6
6:13	6
6:15	4
6:18	6
6:20	10
6:21	4
6:23	7
6:25	4
6:27	2
6:29	4
Average 4:45/5:45	7.96
Max	12

Time	Griswold Street
	SB LT/TH/RT
4:30 PM	1
4:32	0
4:34	0
4:36	0
4:38	1
4:40	1
4:42	0
4:44	0
4:46	0
4:48	0
4:50	0
4:52	0
4:55	0
4:57	0
4:59	0
5:01	0
5:02	1
5:04	0
5:06	0
5:08	0
5:11	1
5:13	0
5:15	1
5:17	0
5:19	0
5:20	1
5:22	0
5:24	0
5:26	0
5:28	0
5:30	1
5:32	0
5:34	0
5:36	0
5:40	0
5:42	0
5:44	1
5:46	0
5:48	0
5:50	1
5:51	1
5:53	0
5:58	1
6:01	0
6:03	0
6:07	0
6:10	0
6:13	0
6:15	0
6:17	2
6:19	0
6:21	0
6:23	1
6:25	0
6:27	0
6:30	0
Average 4:45/5:45	0.21
Max	1

Time	Concord Avenue	
	EB LT/TH	EB TH/RT
	2	1
7:30	9	5
7:32	9	5
7:35	7	4
7:38	10	6
7:41	10	8
7:44	7	5
7:46	9	7
7:48	10	6
7:50	7	4
7:52	6	5
7:54	8	5
7:56	9	5
7:59	7	3
8:02	13	10
8:04	8	3
8:06	11	4
8:08	8	3
8:10	8	9
8:13	9	5
0:00	7	2
8:17	4	1
8:20	4	2
8:22	9	7
8:24	8	2
8:26	8	5
8:29	5	6
8:31	3	7
8:33	6	3
8:36	8	5
8:38	6	0
8:40	8	2
8:43	5	2
8:45	6	4
8:51	3	1
8:53	2	2
8:56	6	4
8:58	3	3
9:01	5	1
9:03	3	3
9:05	5	3
9:07	1	0
9:09	7	0
9:11	4	4
9:13	3	3
9:15	3	2
9:17	8	1
9:18	5	2
9:21	2	0
9:22	4	2
9:24	3	0
9:26	6	0
9:28	5	2
9:30	2	2
Avergae 8-9	6.58	3.83
Max	13	10

Time	Concord Avenue	
	WB LT/TH/RT	1
	7:31	2
7:33	2	
7:35	1	
7:38	2	
7:40	1	
7:41	2	
7:42	2	
7:44	2	
7:46	2	
7:47	3	
7:49	1	
7:51	1	
7:52	2	
7:54	3	
7:55	0	
7:57	0	
7:58	1	
8:00	0	
8:01	1	
8:02	2	
8:03	4	
8:04	2	
8:06	1	
8:07	1	
8:08	1	
8:10	2	
8:12	0	
8:14	0	
8:14	0	
8:16	4	
8:17	1	
8:18	2	
8:19	2	
8:21	2	
8:23	3	
8:25	1	
8:26	0	
8:28	2	
8:30	1	
8:34	2	
8:36	2	
8:38	2	
8:39	0	
8:40	4	
8:42	2	
8:43	6	
8:45	2	
8:48	1	
8:50	2	
8:52	2	
8:53	2	
8:55	3	
8:56	1	
8:57	0	
8:58	1	
8:59	1	
9:01	0	
9:03	2	
9:05	1	
9:07	1	
9:09	0	
9:12	2	
9:13	3	
9:15	1	
9:16	3	
9:17	3	
9:20	1	
9:21	1	
9:24	1	
9:26	2	
9:27	1	
9:28	1	
9:29	1	
Avergae 8-9	1.67	
Max	6	

Time	Moulton Street	
	NB LT/TH/RT	1
	7:30 AM	0
7:34	0	
7:39	0	
7:42	0	
7:44	0	
7:48	0	
7:52	0	
7:56	0	
7:58	0	
8:00	0	
8:02	1	
8:04	0	
8:06	0	
8:08	1	
8:10	0	
8:12	0	
8:14	0	
8:16	1	
8:18	0	
8:20	0	
8:22	0	
8:25	1	
8:23	0	
8:25	1	
8:28	0	
8:30	0	
8:32	0	
8:34	0	
8:36	0	
8:38	0	
8:40	0	
8:43	0	
8:46	0	
8:49	0	
8:51	0	
8:53	0	
8:56	1	
8:58	0	
9:02	0	
9:04	0	
9:06	0	
9:08	1	
9:10	0	
9:12	0	
9:14	0	
9:17	0	
9:20	0	
9:22	0	
9:24	1	
9:26	1	
9:27	1	
9:29	0	
9:30	0	
Avergae 8-9	0.21	
Max	1	

Time	Moulton Street	
	SB LT/TH/RT	1
	7:30	1
7:32	1	
7:38	3	
7:39	2	
7:40	4	
7:41	1	
7:42	1	
7:43	1	
7:47	1	
7:48	1	
7:51	1	
7:53	1	
7:55	1	
7:57	0	
7:59	1	
8:00	1	
8:01	1	
8:03	1	
8:05	1	
8:06	1	
8:07	1	
8:09	3	
8:11	0	
8:14	1	
8:15	2	
8:17	1	
8:18	1	
8:20	0	
8:22	0	
8:26	1	
8:29	1	
8:30	1	
8:31	1	
8:33	1	
8:35	1	
8:37	1	
8:38	1	
8:40	6	
8:43	1	
8:45	1	
8:47	0	
8:50	0	
8:52	3	
8:53	1	
8:54	3	
8:56	2	
8:57	1	
8:59	1	
9:01	0	
9:03	2	
9:05	0	
9:06	1	
9:08	1	
9:11	1	
9:13	1	
9:16	0	
9:17	2	
9:20	2	
9:22	1	
9:24	1	
9:26	0	
9:29	1	
9:30	0	
Avergae 8-9	1.24	
Max	6	

Time	Concord Avenue	
	EB LT/TH	EB TH/RT
	2	1
4:31	3	4
4:33	1	8
4:35	7	6
4:37	3	5
4:40	7	3
4:42	4	4
4:46	6	4
4:47	4	2
4:49	2	8
4:51	6	1
4:53	8	4
4:55	1	10
4:58	5	5
4:59	8	4
5:02	3	5
5:04	2	4
5:07	5	7
5:09	9	7
5:11	8	1
5:13	4	5
5:16	3	5
5:18	4	3
5:20	6	3
5:22	8	3
5:25	9	3
5:27	6	4
5:29	4	0
5:31	8	1
5:34	5	2
5:36	6	3
5:38	6	2
5:40	2	6
5:43	3	0
5:45	4	1
5:47	2	2
5:49	4	3
5:51	6	2
5:54	6	3
5:56	4	0
5:58	3	1
6:00	4	2
6:02	0	0
6:04	3	0
6:06	5	4
6:08	2	1
6:10	2	0
6:12	2	0
6:14	1	0
6:16	1	0
6:18	1	0
6:20	4	0
6:22	2	1
6:24	4	0
6:25	5	0
6:27	3	2
6:29	1	5
Average 4:45/5:45	5.22	3.78
Max	9	10

Time	Concord Avenue	
	WB LT/TH/RT	
	1	
4:31 PM	6	
4:33	7	
4:34	7	
4:36	8	
4:37	5	
4:39	9	
4:40	2	
4:42	5	
4:44	3	
4:46	5	
4:48	9	
4:50	2	
4:52	7	
4:53	6	
4:54	3	
4:55	7	
4:47	4	
4:59	8	
5:00	2	
5:01	3	
5:02	2	
5:04	8	
5:06	9	
5:07	5	
5:08	2	
5:09	2	
5:10	2	
5:11	4	
5:12	4	
5:13	1	
5:15	1	
5:17	4	
5:18	1	
5:19	2	
5:20	10	
5:22	12	
5:24	10	
5:26	6	
5:26	3	
5:27	3	
5:29	4	
5:31	7	
5:32	4	
5:33	6	
5:35	2	
5:37	4	
5:38	5	
5:39	6	
5:41	6	
5:42	5	
5:43	8	
5:44	2	
5:45	1	
5:47	3	
5:49	9	
5:51	7	
5:53	5	
5:54	6	
5:55	8	
5:58	6	
6:00	6	
6:01	4	
6:03	7	
6:05	4	
6:06	9	
6:07	8	
6:08	5	
6:09	2	
6:10	4	
6:11	6	
6:13	11	
6:15	2	
6:16	2	
6:17	5	
6:18	8	
6:19	2	
6:20	1	
6:21	8	
6:24	8	
6:26	3	
6:28	6	
Average 4:45/5:45	4.79	
Max	12	

Time	Moulton Street	
	NB LT/TH/RT	
	1	
4:34 PM	2	
4:36	0	
4:38	2	
4:41	2	
4:44	2	
4:47	0	
4:50	0	
4:53	1	
4:57	0	
5:02	0	
5:04	1	
5:06	2	
5:08	0	
5:09	1	
5:10	1	
5:15	1	
5:17	0	
5:19	0	
5:21	0	
5:23	0	
5:25	3	
5:29	1	
5:31	0	
5:34	1	
5:36	0	
5:38	0	
5:40	0	
5:42	0	
5:44	1	
5:46	0	
5:48	0	
5:50	0	
5:52	0	
5:54	1	
5:56	1	
5:57	2	
5:59	0	
6:01	0	
6:03	0	
6:06	0	
6:08	0	
6:10	0	
6:12	0	
6:13	1	
6:15	1	
6:17	0	
6:19	1	
6:21	2	
6:23	0	
6:25	1	
6:27	0	
6:30	0	
Average 4:45/5:45	0.54	
Max	3	

Time	Moulton Street	
	SB LT/TH/RT	
	1	
4:31 PM	1	
4:33	2	
4:35	2	
4:36	5	
4:41	4	
4:44	2	
4:47	1	
4:50	4	
4:52	2	
4:53	1	
4:55	3	
4:57	0	
4:59	2	
5:03	2	
5:05	3	
5:07	3	
5:08	4	
5:09	2	
5:12	3	
5:15	1	
5:18	1	
5:20	0	
5:22	2	
5:27	1	
5:32	4	
5:33	1	
5:35	2	
5:42	3	
5:46	1	
5:48	1	
5:51	3	
5:54	0	
5:57	3	
6:01	2	
6:03	1	
6:05	0	
6:07	3	
6:08	3	
6:12	2	
6:13	2	
6:14	2	
6:14	2	
6:15	2	
6:18	1	
6:21	2	
6:23	2	
6:26	4	
6:27	0	
6:28	0	
6:30	0	
Average 4:45/5:45	2.05	
Max	4	

PUBLIC AND PRIVATE TRANSIT DATA



MOBILE SHUTTLE TRACKER

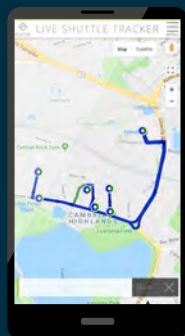
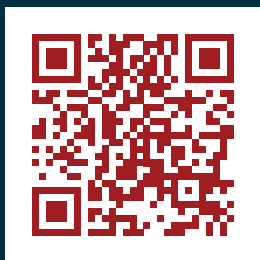


Download the App



Ride Systems
Ride Systems

- > Download the free mobile app, available in Google Play and the App Store.
- > Select 'Alewife Connect' for the Transit Agency.
- > See the route and your nearest stop.
- > Access the schedule on your phone.



Track the Shuttle Online
AlewifeConnect.com

Alewife Station Shuttle Schedule



AlewifeTMA

AlewifeTMA.org



QUESTIONS & FEEDBACK

Director@AlewifeTMA.org

Alewife TMA managed by
TransAction Associates
TransActionAssoc.com

Shuttles operated by
TransAction Corporate Shuttles
tcshuttles.com | 781.895.1100

Updated as of June 23, 2020

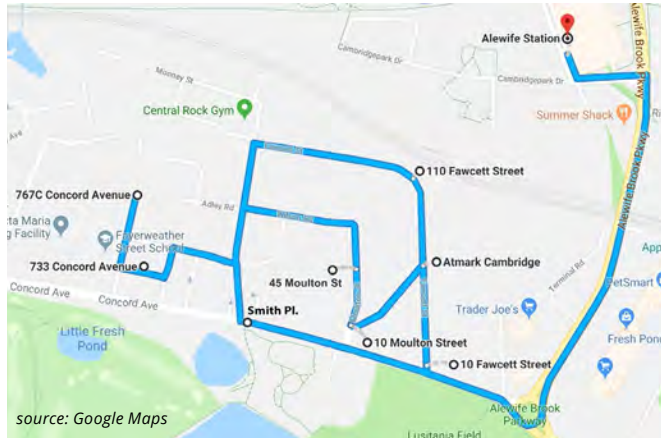
Shuttle Stops:

Alewife Station	45 Moulton St	733 Concord Ave
110 Fawcett St	75 Moulton St	MBTA Bus Stop at Smith Pl
110 Fawcett St	10 Wilson Rd	
10 Moulton St	767C Concord Ave	80 Fawcett St

AlewifeTMA

AlewifeTMA.org   

Shuttle Route



Rider Guide

Finch passengers connect to the shuttle at the MBTA bus stops at Smith Pl.

AM pickup: on the opposite side of Concord Ave from Finch (heading in the direction of Alewife Station).

PM stop: same side of the road as Burger King.

Morning Commute: Shuttle Pickups & Stops

In the morning, the Shuttle typically travels directly from Finch (MBTA Bus Stop at Smith Pl) and Atmark Apartments (80 Fawcett St) to Alewife Station.

Call 781-895-1100 to request an AM pickup from another stop location to go to Alewife Station.

Afternoon Commute: 110 Fawcett is Upon Request Only, Call 781-895-1100.

Shuttle is not able to wait for late riders. Please be outside 5 minutes before listed time.

All scheduled times are approximate due to traffic and weather conditions in the area.

Morning Commute

PICKUP ONLY MBTA Smith Pl	PICKUP ONLY 80 Fawcett St	Alewife Station
6:43	6:45	7:00
7:09	7:10	7:30
7:39	7:40	8:00
8:09	8:10	8:30
8:39	8:40	9:00
9:09	9:10	9:30
9:39	9:40	10:00
10:09	10:10	10:20*

Passengers boarding at Alewife Station, please tell the driver which of the below stops is your final destination.

- 10 Fawcett St
- 75 Moulton St
- MBTA Bus Stop at Smith Pl
- 110 Fawcett St
- 10 Wilson Rd
- 80 Fawcett St
- 10 Moulton St
- 767C Concord Ave
- 45 Moulton St
- 733 Concord Ave



Afternoon Commute

DROPOFF ONLY 80 Fawcett St	MBTA Smith Pl	767C Concord Ave	733 Concord Ave	10 Wilson Rd	75 Moulton St	45 Moulton St	10 Moulton St	PICKUP ONLY 80 Fawcett St	10 Fawcett St	Alewife Station
--	--	3:00	3:00	3:01	3:01	3:02	3:04	3:08	3:09	3:30
3:40	3:41	3:42	3:42	3:43	3:43	3:44	3:46	3:50	3:51	4:02
4:12	4:13	4:14	4:14	4:15	4:15	4:16	4:18	4:22	4:23	4:34
4:44	4:45	4:46	4:46	4:47	4:47	4:48	4:50	4:54	4:55	5:06
5:16	5:17	5:18	5:18	5:19	5:19	5:20	5:22	5:26	5:27	5:38
5:48	5:49	5:50	5:50	5:51	5:51	5:52	5:54	5:58	5:59	6:10
6:20	6:21	6:22	6:22	6:23	6:23	6:24	6:26	6:30	6:31	6:42
7:02	7:03	7:04	7:04	7:05	7:05	7:06	7:08	7:12	7:13	7:24

No shuttle service on weekends and the following Holidays:

- New Year's Day
- President's Day
- Memorial Day
- 4th of July
- Labor Day
- Thanksgiving (and the day after)
- Christmas Day

Shuttle is accessible for all persons

Managed by:
AlewifeTMA

AlewifeTMA.org

Operated by:
TransAction
Corporate Shuttles

TCSshuttles.com | 781.895.1100

Hour	Month Ridership	Month % by hour	Daily Ridership	Month % by hour
7 AM to 8 AM	304	18%	14	19%
8 AM to 9 AM	535	32%	24	32%
9 AM to 10 AM	242	15%	11	15%
10 AM to 11 AM	93	6%	4	5%
3 PM to 4 PM	84	5%	4	5%
4 PM to 5 PM	165	10%	8	11%
5 PM to 6 PM	155	9%	7	9%
6 PM to 7 PM	74	4%	3	4%
Total	1652		75	

		767 Con/Fay	733 Concord	75 Moulton	45 Moulton	10 Moulton	110 Fawcett	10 Fawcett	Atmark
Month Ridership by stop	% hour distribution	46	99	54	59	46	1	142	1205
Daily Ridership by stop		2	5	2	3	2	1	6	55
Hour									
7 AM to 8 AM	0.19	1	1	1	1	1	0	1	10
8 AM to 9 AM	0.32	1	2	1	1	1	1	2	18
9 AM to 10 AM	0.15	0	1	0	1	0	0	1	8
10 AM to 11 AM	0.06	0	0	0	0	0	0	0	3
3 PM to 4 PM	0.05	0	0	0	0	0	0	0	3
4 PM to 5 PM	0.1	0	1	0	0	0	0	1	6
5 PM to 6 PM	0.09	0	0	0	0	0	0	1	5
6 PM to 7 PM	0.04	0	0	0	0	0	0	0	2
Total	1	2	5	2	3	2	1	6	55

in

out

The capacity of the bus is 18 and we operated 22 days in January.

The data shows the number of shuttle boardings per-stop and time-frame for the month of Jan 2020

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 62	WKDY	IB	683.2	688.5		25
Route 62	WKDY	OB	629.3	648.3		23
			1,312.5	1,336.8	1,324.6	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 67	WKDY	IB	344.7	462.8		23
Route 67	WKDY	OB	316.8	216.9		23
			661.5	679.7	670.6	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 74	WKDY	IB	340.4	341.2		23
Route 74	WKDY	OB	389.8	388.8		24
			730.2	730.0	730.1	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 76	WKDY	IB	459.7	535.1		23
Route 76	WKDY	OB	535.9	499.5		22
			995.6	1,034.6	1,015.1	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 78	WKDY	IB	625.3	623.9		33
Route 78	WKDY	OB	664.1	670.4		33
			1,289.4	1,294.3	1,291.9	

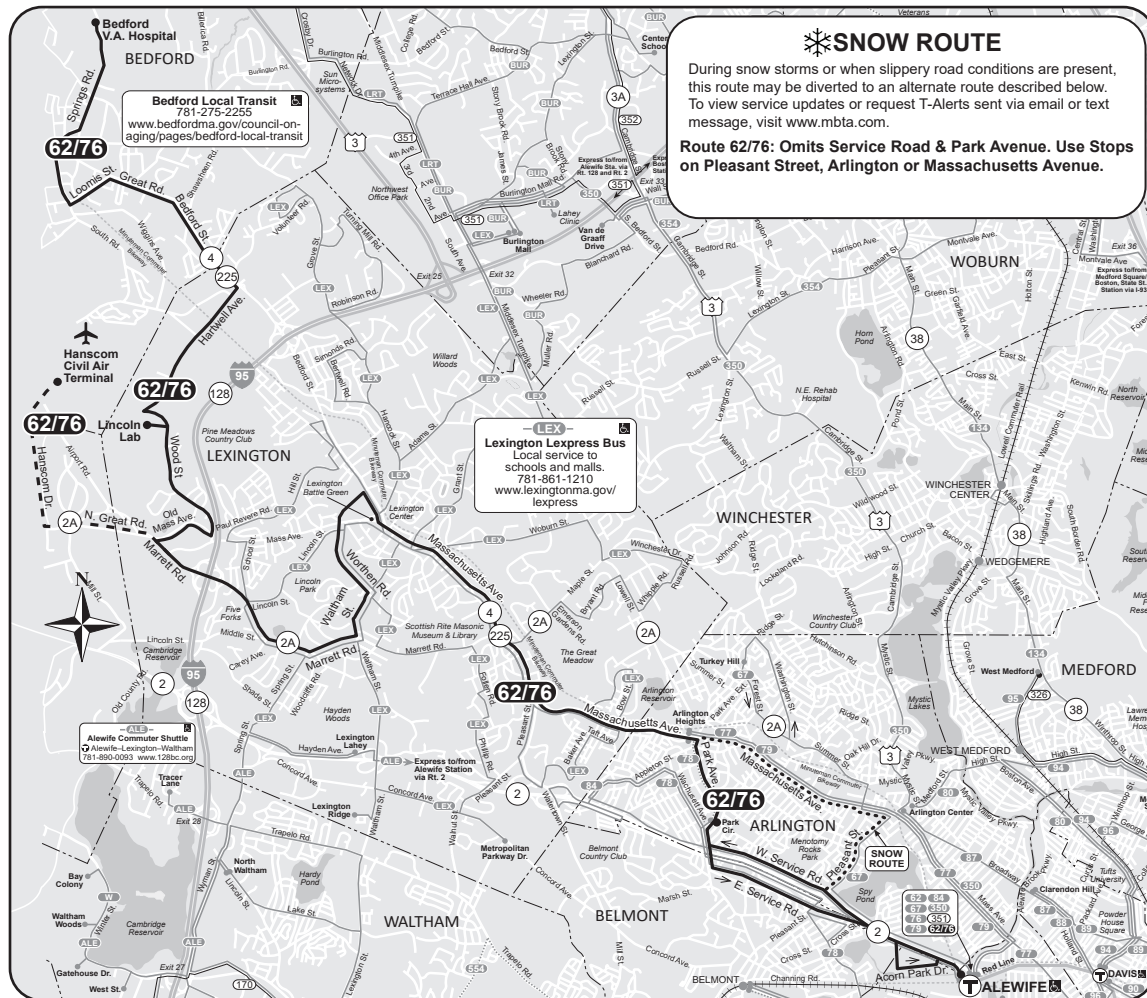
Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 79	WKDY	IB	561.8	562.1		31
Route 79	WKDY	OB	588.6	595.7		29
			1,150.4	1,157.8	1,154.1	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 84	WKDY	IB	215.6	226.0		11
Route 84	WKDY	OB	165.8	165.6		11
			381.4	391.6	386.5	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 350	WKDY	IB	768.5	767.3		29
Route 350	WKDY	OB	782.0	813.3		28
			1,550.5	1,580.6	1,565.5	

Route	Day of the Week	Direction	Total Ons	Total Offs	Total	Total Trips
Route 351	WKDY	IB	81.9	86.3		4
Route 351	WKDY	OB	96.9	100.7		4
			178.8	187.0	182.9	

Route 62/76 Bedford VA Hospital - Lincoln Lab - Alewife Station



Service/Schedule Change

62/76

Effective August 30, 2020

**62/76 Bedford VA Hospital-
Lincoln Lab-Alewife Sta.**

Serving

- Bedford Center
- Hanscom Civil Air Terminal
- Lexington Center
- Arlington Heights
- Five Forks
- Lexington Battle Green
- Red Line



T Massachusetts Bay Transportation Authority *massDOT*
Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

62/76

Weekday

Inbound				Outbound			
Leave VA Hospital	Arrive Civil Air Terminal	Lv/Arrive Lexington Center	Arrive Alewife Station	Leave Alewife Station	Arrive Lexington Center	Arrive Civil Air Terminal	Arrive VA Hospital
6:00A	.....	6:25A	6:41A	5:00A	5:16A	5:28A	5:46A
7:00	.....	7:26	7:46	6:00	6:16	6:28	6:46
7:30	.....	7:56	8:16	6:30	6:46	6:58	7:19
8:05	.....	8:31	8:51	7:00	7:22	7:36	7:57
8:35	.....	9:01	9:21	7:30	7:52	8:06	8:27
9:05	.....	9:31	9:48	8:00	8:22	8:36	8:57
10:00	.....	10:26	10:43	9:00	9:22	9:34	9:53
11:00	11:18	11:33	11:50	10:00	10:18	.....	10:41
12:00N	12:18P	12:33P	12:50P	11:00	11:18	.....	11:41
1:00	1:18	1:33	1:50	12:00N	12:18P	.....	12:41P
2:00	2:18	2:33	2:50	1:00	1:18	.....	1:41
3:00	3:18	3:33	3:50	2:00	2:18	.....	2:41
4:00	4:18	4:33	4:50	3:00	3:18	.....	3:41
5:00	5:18	5:34	5:52	4:00	4:18	.....	4:43
5:30	5:48	6:04	6:22	4:30	4:51	.....	5:16
6:00	6:18	6:34	6:52	5:00	5:21	.....	5:46
6:30	6:48	7:04	7:22	5:30	5:51	.....	6:16
7:00	.....	7:26	7:43	6:00	6:21	.....	6:41
7:30	.....	7:53	8:08	6:30	6:48	.....	7:07
8:00	.....	8:23	8:38	7:00	7:18	.....	7:37
9:00	.....	9:23	9:38	8:00	8:18	.....	8:37
10:00	.....	10:23	10:38	9:00	9:18	.....	9:37

62/76

Saturday

Inbound				Outbound			
Leave VA Hospital	Arrive Civil Air Terminal	Arrive Lexington Center	Arrive Alewife Station	Leave Alewife Station	Arrive Lexington Center	Arrive Civil Air Terminal	Arrive VA Hospital
8:00A	8:19A	8:37A	8:52A	7:00A	7:16A	7:29A	7:48A
9:10	9:29	9:47	10:02	8:00	8:18	8:31	8:52
10:20	10:39	10:57	11:12	9:10	9:28	9:41	10:02
11:30	11:49	12:07P	12:26P	10:20	10:40	10:54	11:17
12:40P	12:59P	1:16	1:34	11:30	11:50	12:04P	12:27P
1:50	2:09	2:26	2:44	12:40P	1:00P	1:14	1:36
3:00	3:19	3:36	3:53	1:50	2:07	2:21	2:44
4:00	4:19	4:35	4:54	3:00	3:19	3:33	3:56
5:00	5:19	5:34	5:50	4:00	4:18	4:30	4:52
6:00	6:17	6:32	6:47	5:00	5:18	5:30	5:52
7:00	7:17	7:31	7:47	6:00	6:18	6:30	6:50
8:00	8:18	8:31	8:47	7:00	7:18	7:30	7:50

No service on Sunday

All buses are accessible to persons with disabilities

Routes 62 & 76 operate as a combined route.

For schedules, alerts and updates, visit:

mbta.com/schedules/62

mbta.com/schedules/76

**Route 62/76
Bedford VA
Hospital-
Lincoln Lab-
Alewife Station**

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

VALID PASSES Link Pass (\$90.00/mo.); Local Bus (\$55/mo.); *Student/Youth Link Pass (\$30.00/mo.); **Senior/TAP Link Pass (\$30.00/mo.); **Senior/TAP Link Pass (\$30.00/mo.)
FREE FARES Children and older riders free when accompanied by an adult. Blind Access CharlieCard holders ride free and if using a guide dog. Riders free for those who are unable to pay for their fare. Youth CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit www.mbta.com/charliecard for details.
 Riders 65 and older and persons with disabilities are eligible for the Senior and Access CharlieCard. Visit www.mbta.com/charliecard for details.

Fall 2020 & Winter 2021 Holidays
 9/7/20; Sunday, 10/12/20 & 11/11/20; Weekday
 11/26/20, 12/25/20, & 1/1/21; Sun; 1/18/21 & 2/15/21; Sat

Route 62

Inbound			Outbound		
	Seq - StopID - Stop Name	99 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
06:24 (62.4)(B109) [60] {FA19}	On	0	05:47 (62.4)(B109) [60] {FA19}	On	1.3
	Off	44.7		Off	0
	Load	0.1		Load	1.3
06:50 (62.8)(B176) [38] {FA19}	On	0	06:10 (62.3)(B007) [57] {FA19}	On	9.9
	Off	33		Off	0
	Load	0.1		Load	9.9
06:52 (62.3)(B007) [58] {FA19}	On	0	06:40 (62.3)(B001) [36] {FA19}	On	16.9
	Off	50.6		Off	0
	Load	0		Load	16.9
07:20 (62.3)(B001) [34] {FA19}	On	0	07:10 (62.3)(B005) [67] {FA19}	On	14.4
	Off	47.9		Off	0
	Load	0.5		Load	14.4
07:30 (62.8)(B002) [7] {FA19}	On	0	07:45 (62.3)(B007) [57] {FA19}	On	19.4
	Off	51.6		Off	0
	Load	0		Load	19.4
07:50 (62.8)(B003) [31] {FA19}	On	0	08:15 (62.3)(B001) [34] {FA19}	On	21.2
	Off	45.4		Off	0
	Load	0		Load	21.7
07:55 (62.3)(B005) [66] {FA19}	On	0	09:00 (62.3)(B004) [48] {FA19}	On	17
	Off	49.9		Off	0
	Load	0.1		Load	17
08:32 (62.3)(B007) [57] {FA19}	On	0	09:55 (62.3)(B061) [7] {FA19}	On	15.4
	Off	30.1		Off	0
	Load	0.1		Load	18.6
09:05 (62.3)(B001) [35] {FA19}	On	0	10:55 (62.3)(B057) [7] {FA19}	On	12
	Off	23.1		Off	0
	Load	0.6		Load	12
09:45 (62.3)(B004) [48] {FA19}	On	0	11:55 (62.3)(B004) [44] {FA19}	On	10.9
	Off	21.5		Off	0
	Load	0		Load	10.9
10:45 (62.3)(B061) [7] {FA19}	On	0	12:55 (62.3)(B061) [9] {FA19}	On	10.1
	Off	15		Off	0
	Load	0		Load	10.9
11:45 (62.3)(B057) [7] {FA19}	On	0	13:55 (62.3)(B057) [8] {FA19}	On	13
	Off	13.6		Off	0
	Load	0		Load	13
12:45 (62.3)(B004) [45] {FA19}	On	0	15:00 (62.3)(B004) [33] {FA19}	On	22.3
	Off	15.3		Off	0
	Load	0		Load	22.3
13:45 (62.3)(B061) [9] {FA19}	On	0	15:40 (62.3)(B057) [9] {FA19}	On	21.1
	Off	17.8		Off	0
	Load	0		Load	21.1

14:45 (62.3)(B057) [9] {FA19}	On	0
	Off	16.2
	Load	0
15:50 (62.3)(B004) [30] {FA19}	On	0
	Off	24.4
	Load	0.1
16:35 (62.3)(B057) [8] {FA19}	On	0
	Off	22.3
	Load	0
17:05 (62.3)(B006) [31] {FA19}	On	0
	Off	16.7
	Load	0.3
17:47 (62.8)(B060) [23] {FA19}	On	0
	Off	4.3
	Load	0
17:55 (62.3)(B004) [22] {FA19}	On	0
	Off	13
	Load	0
18:25 (62.3)(B158) [25] {FA19}	On	0
	Off	5.5
	Load	0
18:44 (62.3)(B058) [30] {FA19}	On	0
	Off	4.3
	Load	0.1
19:15 (62.3)(B156) [12] {FA19}	On	0
	Off	7.4
	Load	0
19:55 (62.4)(B059) [30] {FA19}	On	0
	Off	3.4
	Load	0.1
20:40 (62.4)(B061) [21] {FA19}	On	0
	Off	5.9
	Load	0.6

16:10 (62.3)(B006) [30] {FA19}	On	19.5
	Off	0
	Load	19.5
16:50 (62.3)(B004) [22] {FA19}	On	47.2
	Off	0
	Load	47.3
17:15 (62.8)(B060) [24] {FA19}	On	34.4
	Off	0
	Load	36.8
17:25 (62.3)(B158) [23] {FA19}	On	40.4
	Off	0
	Load	40.4
17:47 (62.3)(B058) [31] {FA19}	On	50.3
	Off	0
	Load	50.3
17:59 (62.8)(B183) [31] {FA19}	On	35.1
	Off	0
	Load	35.1
18:20 (62.3)(B156) [12] {FA19}	On	43.3
	Off	0
	Load	46.6
19:10 (62.4)(B059) [29] {FA19}	On	29.8
	Off	0
	Load	33.2
20:05 (62.4)(B061) [19] {FA19}	On	16.4
	Off	0
	Load	16.4

Route 62

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	0	83.6	194.8	30.1
Total	0	83.6	194.8	30.1

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	24.4	22.3	34	5.5
Total	24.4	22.3	34	5.5

Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	1.3	26.8	33.8	21.2
Off	0	0	0	0
Total	1.3	26.8	33.8	21.2

	3-4PM	4-5PM	5-6PM	6-7 PM
On	43.4	66.7	160.2	43.3
Off	0	0	0	0
Total	43.4	66.7	160.2	43.3

AM	1.3	110.4	228.6	51.3
PM	67.8	89	194.2	48.8

Route 76

Inbound			Outbound		
	Seq - StopID - Stop Name	54 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
06:00	On	0	06:05	On	17.3
(76.3)(B169) [47]	Off	35.5	(76.3)(B056) [64]	Off	0
{FA19}	Load	1	{FA19}	Load	17.3
06:40	On	0	06:20	On	12.6
(76.3)(B056) [64]	Off	44.7	(76.3)(B057) [5]	Off	0
{FA19}	Load	0	{FA19}	Load	12.6
07:00	On	0	07:00	On	17.6
(76.3)(B057) [5]	Off	52.8	(76.3)(B061) [7]	Off	0
{FA19}	Load	0	{FA19}	Load	17.6
07:35	On	0	07:30	On	19.7
(76.3)(B061) [7]	Off	37.3	(76.3)(B056) [62]	Off	0
{FA19}	Load	0	{FA19}	Load	19.7
08:05	On	0	08:00	On	33
(76.3)(B056) [61]	Off	40.1	(76.3)(B057) [5]	Off	0
{FA19}	Load	0	{FA19}	Load	33
08:41	On	0	08:30	On	23.7
(76.3)(B057) [5]	Off	20	(76.3)(B061) [7]	Off	0
{FA19}	Load	0	{FA19}	Load	23.7
09:11	On	0	09:30	On	21
(76.3)(B061) [7]	Off	17.7	(76.3)(B057) [5]	Off	0
{FA19}	Load	3.1	{FA19}	Load	21
10:11	On	0	10:30	On	12.1
(76.3)(B057) [5]	Off	20.8	(76.3)(B004) [45]	Off	0
{FA19}	Load	0	{FA19}	Load	12.1
11:11	On	0	11:30	On	8
(76.3)(B004) [44]	Off	13.8	(76.3)(B061) [8]	Off	0
{FA19}	Load	0	{FA19}	Load	8
12:11	On	0	12:30	On	9.6
(76.3)(B061) [9]	Off	10.3	(76.0)(B057) [7]	Off	0
{FA19}	Load	0.8	{FA19}	Load	9.6
13:18	On	0	13:30	On	15.8
(76.0)(B057) [7]	Off	12.6	(76.0)(B004) [36]	Off	0
{FA19}	Load	0	{FA19}	Load	15.8
14:20	On	0	14:30	On	16
(76.0)(B004) [37]	Off	21.1	(76.0)(B006) [31]	Off	0
{FA19}	Load	0.1	{FA19}	Load	16
15:23	On	0	15:30	On	21.7
(76.0)(B006) [31]	Off	21.7	(76.0)(B177) [27]	Off	0.1
{FA19}	Load	0	{FA19}	Load	21.7
16:33	On	0	16:05	On	23.1
(76.0)(B177) [29]	Off	31.5	(76.0)(B058) [37]	Off	0
{FA19}	Load	0	{FA19}	Load	23.1

17:05	On	0
(76.0)(B058) [35]	Off	22.1
{FA19}	Load	0
17:40	On	0
(76.0)(B184) [2]	Off	7.5
{FA19}	Load	16.5
18:10	On	0
(76.0)(B061) [17]	Off	15.4
{FA19}	Load	0
18:36	On	0
(76.0)(B059) [29]	Off	13.3
{FA19}	Load	3.4
19:03	On	0
(76.0)(B060) [24]	Off	8.3
{FA19}	Load	0
19:35	On	0
(76.0)(B061) [17]	Off	8.6
{FA19}	Load	0
20:05	On	0
(76.4)(B057) [7]	Off	4.1
{FA19}	Load	0
21:05	On	0
(76.4)(B057) [8]	Off	6.3
{FA19}	Load	0
22:15	On	0
(76.0)(B057) [8]	Off	8.1
{FA19}	Load	0

16:35	On	22.5
(76.0)(B184) [2]	Off	0
{FA19}	Load	22.5
17:05	On	43.4
(76.0)(B061) [16]	Off	0
{FA19}	Load	43.4
17:37	On	52
(76.0)(B059) [28]	Off	0
{FA19}	Load	52
18:10	On	39.2
(76.0)(B060) [23]	Off	0
{FA19}	Load	39.2
18:45	On	38.4
(76.0)(B061) [18]	Off	0
{FA19}	Load	38.4
19:35	On	13.6
(76.4)(B057) [8]	Off	0
{FA19}	Load	13.6
20:35	On	6.4
(76.4)(B057) [8]	Off	0
{FA19}	Load	6.4
21:35	On	8.7
(76.0)(B057) [7]	Off	0
{FA19}	Load	8.7

Route 76

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	1	80.2	90.1	60.1
Total	1	80.2	90.1	60.1

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	21.7	31.5	29.6	28.7
Total	21.7	31.5	29.6	28.7

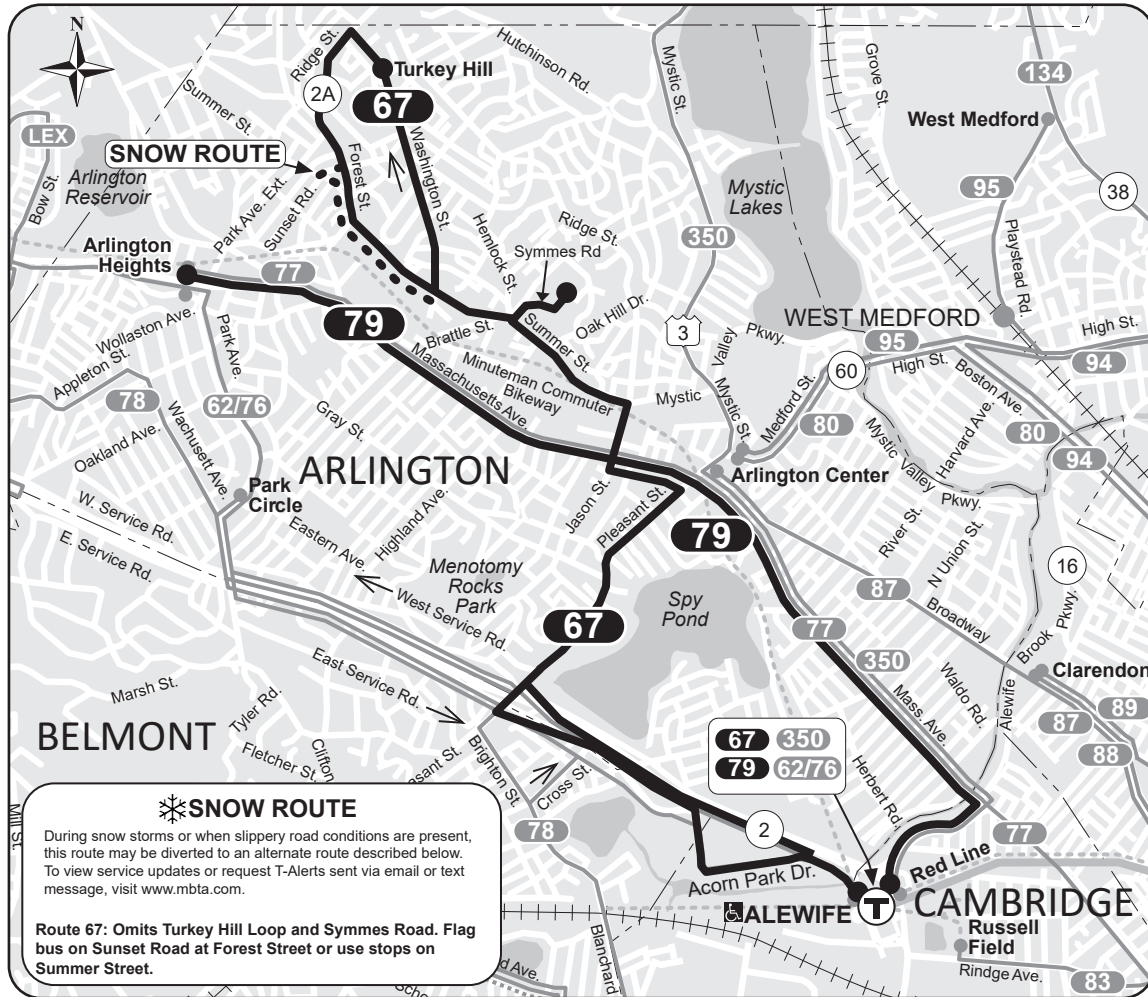
Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	29.9	37.3	56.7
Off	1	0	0	0
Total	1	29.9	37.3	56.7

	3-4PM	4-5PM	5-6PM	6-7 PM
On	21.7	45.6	95.4	77.6
Off	0.1	0	0	0
Total	21.8	45.6	95.4	77.6

AM	2	110.1	127.4	116.8
PM	43.5	77.1	125	106.3

Route 67 Turkey Hill - Alewife Station
Route 79 Arlington Heights - Alewife Station



Schedule Change

67•79

Effective August 30, 2020

67 Turkey Hill-Alewife Station
79 Arlington Heights-Alewife Station

Serving

- Arlington High School
- Arlington Town Hall
- Arlington Center
- Red Line



T Massachusetts Bay Transportation Authority *massDOT*
 Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
 (TTY) 617-222-5146 • www.mbta.com

67 Weekday					
Inbound			Outbound		
Leave Turkey Hill	Arrive Arlington Center	Arrive Alewife Station	Leave Alewife Station	Arrive Arlington Center	Arrive Turkey Hill
6:18A	6:23A	6:32A	5:53A	6:00A	6:15A
6:52	6:57	7:07	6:26	6:33	6:48
7:22	7:29	7:43	6:59	7:06	7:21
7:49	7:56	8:10	7:24	7:31	7:47
8:17	8:24	8:39	7:53	8:00	8:16
8:45	8:50	9:03	8:23	8:30	8:44
9:12	9:17	9:27	8:49	8:56	9:10
10:02	10:07	10:17	9:39	9:46	10:00
10:52	10:57	11:07	10:29	10:36	10:50
11:42	11:47	11:56	11:19	11:26	11:40
12:32P	12:37P	12:46P	12:09P	12:16P	12:30P
1:22	1:27	1:36	12:59	1:06	1:20
2:12	2:17	2:26	1:48	1:55	2:10
3:02	3:07	3:16	2:38	2:47	3:02
3:52	3:57	4:06	3:27	3:36	3:51
4:42	4:47	4:56	4:17	4:26	4:41
5:10	5:16	5:26	4:44	4:55	5:10
5:37	5:43	5:53	5:11	5:22	5:37
6:05	6:11	6:21	5:38	5:49	6:04
6:32	6:36	6:45	6:05	6:16	6:31
6:57	7:01	7:10	6:33	6:41	6:56
7:37	7:41	7:49	7:15	7:23	7:37
8:20	8:24	8:32	7:58	8:05	8:18

Service Note: Route 67
Serves Symmes Road OUTBOUND ONLY.


Route 67
Turkey Hill-Alewife Station

79 Weekday					
Inbound			Outbound		
Leave Arlington Heights	Arrive Arlington Center	Arrive Alewife Station	Leave Alewife Station	Arrive Arlington Center	Arrive Arlington Heights
6:35A	6:41A	6:55A	7:02A	7:09A	7:19A
7:00	7:06	7:20	7:30	7:38	7:52
7:30	7:39	7:59	8:10	8:16	8:26
8:00	8:06	8:24	8:35	8:41	8:51
8:30	8:36	8:54	9:30	9:36	9:46
9:00	9:05	9:20			
9:50	9:55	10:06	2:00P	2:06P	2:16P
			2:45	2:52	3:05
2:20P	2:26P	2:39P	3:10	3:17	3:28
s 3:05	3:11	3:25	3:30	3:37	3:48
s 3:15	3:21	3:34	3:50	3:57	4:09
3:20	3:26	3:39	4:10	4:22	4:34
s 3:25	3:30	3:41	4:30	4:42	4:54
3:40	3:46	3:59	4:50	5:02	5:14
4:00	4:06	4:19	5:10	5:24	5:36
4:20	4:26	4:39	5:30	5:44	5:56
4:40	4:46	4:59	5:50	6:03	6:14
5:00	5:06	5:20	6:15	6:27	6:38
5:20	5:26	5:40	6:35	6:47	6:58
5:45	5:51	6:05	7:05	7:13	7:24
6:05	6:11	6:25			
6:45	6:51	7:02			

s - Leaves from Massachusetts Avenue at Appleton Street and does NOT run during school vacation

Route 79
Arlington Heights-Alewife Station

No service on weekends.

 All buses are accessible to persons with disabilities



Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

VALID PASSES LinPass (\$90.00/mo.); Local Bus (\$55/mo.); *Student/Youth LinPass (\$30.00/mo.); **Senior/TAP LinPass (\$30/mo.); and errand bus, commuter rail and trolley.

FREE FARES Children and older riders free when accompanied by an adult. Accessible CharlieCard holder ride free and using a guide dog. Ride free. * Riders 18-24 with a CharlieCard or other CharlieCard Student CharlieCard are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the outer metro area at www.mbtac.com/youth for details. Riders 65+ and persons with disabilities.

Fall 2020 & Winter 2021 Holidays
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Route 67

Inbound			Outbound		
	Seq - StopID - Stop Name	23 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
06:18 (67.4)(B001) [37] {FA19}	On	0	05:53 (67.4)(B001) [35] {FA19}	On	1.8
	Off	28.3		Off	0
	Load	0.1		Load	1.8
06:52 (67.4)(B018) [7] {FA19}	On	0	06:26 (67.4)(B018) [7] {FA19}	On	4.6
	Off	50.3		Off	0
	Load	0		Load	4.6
07:22 (67.4)(B021) [23] {FA19}	On	0	06:59 (67.4)(B021) [21] {FA19}	On	4.2
	Off	51.9		Off	0
	Load	0		Load	4.2
07:48 (67.4)(B019) [54] {FA19}	On	0	07:24 (67.4)(B019) [54] {FA19}	On	6.3
	Off	51		Off	0
	Load	0		Load	6.3
08:17 (67.4)(B021) [23] {FA19}	On	0	07:53 (67.4)(B021) [23] {FA19}	On	3.8
	Off	35.1		Off	0
	Load	0		Load	3.8
08:46 (67.4)(B019) [54] {FA19}	On	0	08:23 (67.4)(B019) [54] {FA19}	On	1.7
	Off	25.7		Off	0
	Load	0		Load	1.7
09:10 (67.4)(B021) [23] {FA19}	On	0	08:49 (67.4)(B021) [23] {FA19}	On	3.4
	Off	19.9		Off	0
	Load	0		Load	3.4
10:00 (67.4)(B021) [22] {FA19}	On	0	09:39 (67.4)(B021) [22] {FA19}	On	2
	Off	14		Off	0
	Load	0		Load	2
10:50 (67.4)(B021) [22] {FA19}	On	0	10:29 (67.4)(B021) [22] {FA19}	On	3.3
	Off	8.8		Off	0
	Load	0		Load	3.3
11:40 (67.4)(B021) [20] {FA19}	On	0	11:19 (67.4)(B021) [20] {FA19}	On	4.2
	Off	7.2		Off	0
	Load	0		Load	4.2
12:30 (67.4)(B021) [21] {FA19}	On	0	12:09 (67.4)(B021) [21] {FA19}	On	4.2
	Off	7.3		Off	0
	Load	0		Load	4.2
13:20 (67.4)(B021) [21] {FA19}	On	0	12:59 (67.4)(B021) [21] {FA19}	On	4.1
	Off	7.2		Off	0
	Load	0		Load	4.1
14:10 (67.4)(B021) [23] {FA19}	On	0	13:48 (67.4)(B021) [23] {FA19}	On	9.2
	Off	7		Off	0
	Load	0.4		Load	9.2
15:00 (67.4)(B061) [7] {FA19}	On	0	14:38 (67.4)(B061) [7] {FA19}	On	5.3
	Off	5.3		Off	0
	Load	0		Load	5.3

15:50 (67.4)(B061) [6] {FA19}	On	0
	Off	4
	Load	0
16:40 (67.4)(B061) [7] {FA19}	On	0
	Off	4.4
	Load	0
17:08 (67.4)(B174) [16] {FA19}	On	0
	Off	7.4
	Load	0
17:35 (67.4)(B020) [20] {FA19}	On	0
	Off	7.8
	Load	0
18:03 (67.4)(B174) [15] {FA19}	On	0
	Off	5.3
	Load	0
18:31 (67.4)(B020) [14] {FA19}	On	0
	Off	3.9
	Load	0.1
18:56 (67.4)(B174) [9] {FA19}	On	0
	Off	2.4
	Load	0
19:35 (67.4)(B174) [8] {FA19}	On	0
	Off	3
	Load	0
20:18 (67.4)(B174) [10] {FA19}	On	0
	Off	2
	Load	0.2

15:27 (67.4)(B061) [7] {FA19}	On	3.1
	Off	0
	Load	3.1
16:17 (67.4)(B061) [8] {FA19}	On	11.4
	Off	0
	Load	11.4
16:44 (67.4)(B174) [16] {FA19}	On	26.8
	Off	0
	Load	26.8
17:11 (67.4)(B020) [19] {FA19}	On	25.5
	Off	0
	Load	25.5
17:38 (67.4)(B174) [16] {FA19}	On	32.8
	Off	0
	Load	32.8
18:05 (67.4)(B020) [17] {FA19}	On	28
	Off	0
	Load	28
18:33 (67.4)(B174) [14] {FA19}	On	18.7
	Off	0
	Load	18.7
19:15 (67.4)(B174) [13] {FA19}	On	12.4
	Off	0.2
	Load	12.4
19:58 (67.4)(B174) [15] {FA19}	On	7.7
	Off	0
	Load	7.7

Route 67

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	1	78.6	102.9	60.8
Total	1	78.6	102.9	60.8

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	9.3	4.4	15.2	11.6
Total	9.3	4.4	15.2	11.6

Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	1.8	8.8	10.1	5.1
Off	0	0	0	0
Total	1.8	8.8	10.1	5.1

	3-4PM	4-5PM	5-6PM	6-7 PM
On	3.1	38.2	58.3	46.7
Off	0	0	0	0
Total	3.1	38.2	58.3	46.7

AM	2.8	87.4	113	65.9
PM	12.4	42.6	73.5	58.3

Route 79

Inbound			Outbound		
	Seq - StopID - Stop Name	21 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
06:35	On	0	07:02	On	2.8
(79.0)(B09	Off	20.4	(79.0)(B09	Off	0
3) [31]	Load	0.1	3) [31]	Load	2.8
{FA19}			{FA19}		
07:00	On	0	07:30	On	5.8
(79.0)(B09	Off	34	(79.0)(B09	Off	0
4) [4]	Load	0	4) [4]	Load	5.8
{FA19}			{FA19}		
07:30	On	0	08:10	On	3.7
(79.0)(B09	Off	40.5	(79.0)(B09	Off	0
3) [30]	Load	0	3) [30]	Load	3.7
{FA19}			{FA19}		
08:00	On	0	08:35	On	4.5
(79.0)(B09	Off	28.8	(79.0)(B09	Off	0
4) [4]	Load	0	4) [4]	Load	4.5
{FA19}			{FA19}		
08:30	On	0	09:30	On	4.5
(79.0)(B09	Off	32	(79.0)(B09	Off	0
3) [31]	Load	0	4) [4]	Load	4.5
{FA19}			{FA19}		
09:00	On	0	10:15	On	4.3
(79.0)(B09	Off	18.5	(79.0)(B09	Off	0
4) [4]	Load	0	4) [4]	Load	4.3
{FA19}			{FA19}		
09:50	On	0	11:00	On	3.5
(79.0)(B09	Off	8	(79.0)(B09	Off	0
4) [4]	Load	0	4) [4]	Load	3.5
{FA19}			{FA19}		
10:35	On	0	11:45	On	4.5
(79.0)(B09	Off	7.3	(79.0)(B09	Off	0
4) [4]	Load	0	4) [4]	Load	4.5
{FA19}			{FA19}		
11:20	On	0	12:30	On	5.8
(79.0)(B09	Off	8.8	(79.0)(B09	Off	0
4) [4]	Load	0	4) [6]	Load	5.8
{FA19}			{FA19}		
12:05	On	0	13:15	On	4.3
(79.0)(B09	Off	9.7	(79.0)(B09	Off	0
4) [3]	Load	0	4) [7]	Load	4.3
{FA19}			{FA19}		
12:50	On	0	14:00	On	4.4
(79.0)(B09	Off	6.8	(79.0)(B09	Off	0
4) [6]	Load	0	4) [6]	Load	6
{FA19}			{FA19}		
13:35	On	0	14:30	On	6.1
(79.0)(B09	Off	5.5	(79.0)(B02	Off	0
4) [6]	Load	0	1) [25]	Load	6.3
{FA19}			{FA19}		
14:20	On	0	14:50	On	5.7
(79.0)(B09	Off	8.2	(79.0)(B09	Off	0
5) [20]	Load	0	5) [20]	Load	5.7
{FA19}			{FA19}		
14:35	On	0	15:10	On	11.7
(79.1)(B09	Off	6	(79.0)(B09	Off	0
4) [6]	Load	0	6) [55]	Load	11.7
{FA19}			{FA19}		

14:45	On	0
(79.1)(B09	Off	6.7
6) [52]	Load	0
{FA19}		
14:55	On	0
(79.1)(B09	Off	5.2
7) [21]	Load	0
{FA19}		
15:00	On	0
(79.0)(B02	Off	5.1
1) [25]	Load	0
{FA19}		
15:20	On	0
(79.0)(B09	Off	8.9
5) [20]	Load	0
{FA19}		
15:40	On	0
(79.0)(B09	Off	7.4
6) [53]	Load	0
{FA19}		
16:00	On	0
(79.0)(B02	Off	9
1) [24]	Load	0
{FA19}		
16:20	On	0
(79.0)(B09	Off	6.2
5) [20]	Load	0
{FA19}		
16:40	On	0
(79.0)(B09	Off	9.8
6) [53]	Load	0
{FA19}		
17:00	On	0
(79.0)(B02	Off	7.2
1) [25]	Load	0
{FA19}		
17:20	On	0
(79.0)(B09	Off	7.3
5) [21]	Load	0
{FA19}		
17:47	On	0
(79.0)(B09	Off	6.2
6) [49]	Load	0
{FA19}		
18:05	On	0
(79.0)(B02	Off	5.3
1) [25]	Load	0
{FA19}		
18:45	On	0
(79.0)(B09	Off	2.7
6) [48]	Load	0.1
{FA19}		
19:30	On	0
(79.0)(B09	Off	2.4
6) [47]	Load	0
{FA19}		
20:10	On	0
(79.0)(B09	Off	1.7
6) [48]	Load	0.1
{FA19}		
20:50	On	0
(79.0)(B09	Off	2.8
6) [50]	Load	0
{FA19}		
21:30	On	0
(79.0)(B09	Off	3
6) [50]	Load	0
{FA19}		

15:30	On	8.5
(79.0)(B02	Off	0
1) [24]	Load	8.5
{FA19}		
15:50	On	16.1
(79.0)(B09	Off	0
5) [20]	Load	16.1
{FA19}		
16:10	On	14.1
(79.0)(B09	Off	0
6) [54]	Load	14.1
{FA19}		
16:30	On	22.4
(79.0)(B02	Off	0
1) [25]	Load	22.4
{FA19}		
16:50	On	17.6
(79.0)(B09	Off	0
5) [21]	Load	17.6
{FA19}		
17:10	On	26.6
(79.0)(B09	Off	0
6) [48]	Load	26.6
{FA19}		
17:30	On	27.9
(79.0)(B02	Off	0
1) [23]	Load	29.3
{FA19}		
17:50	On	30.3
(79.0)(B09	Off	0
5) [21]	Load	30.3
{FA19}		
18:15	On	28.3
(79.0)(B09	Off	0
6) [48]	Load	28.3
{FA19}		
18:35	On	20.2
(79.0)(B02	Off	0
1) [26]	Load	21
{FA19}		
19:05	On	18.1
(79.0)(B09	Off	0
6) [47]	Load	18.1
{FA19}		
19:50	On	11.6
(79.0)(B09	Off	0
6) [47]	Load	11.6
{FA19}		
20:30	On	6.1
(79.0)(B09	Off	0
6) [50]	Load	6.3
{FA19}		
21:10	On	6.9
(79.0)(B09	Off	0
6) [49]	Load	7.1
{FA19}		
21:50	On	3.7
(79.0)(B09	Off	0
6) [49]	Load	3.7
{FA19}		

Route 79

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	1	20.4	74.5	60.8
Total	1	20.4	74.5	60.8

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	21.4	25	20.7	8
Total	21.4	25	20.7	8

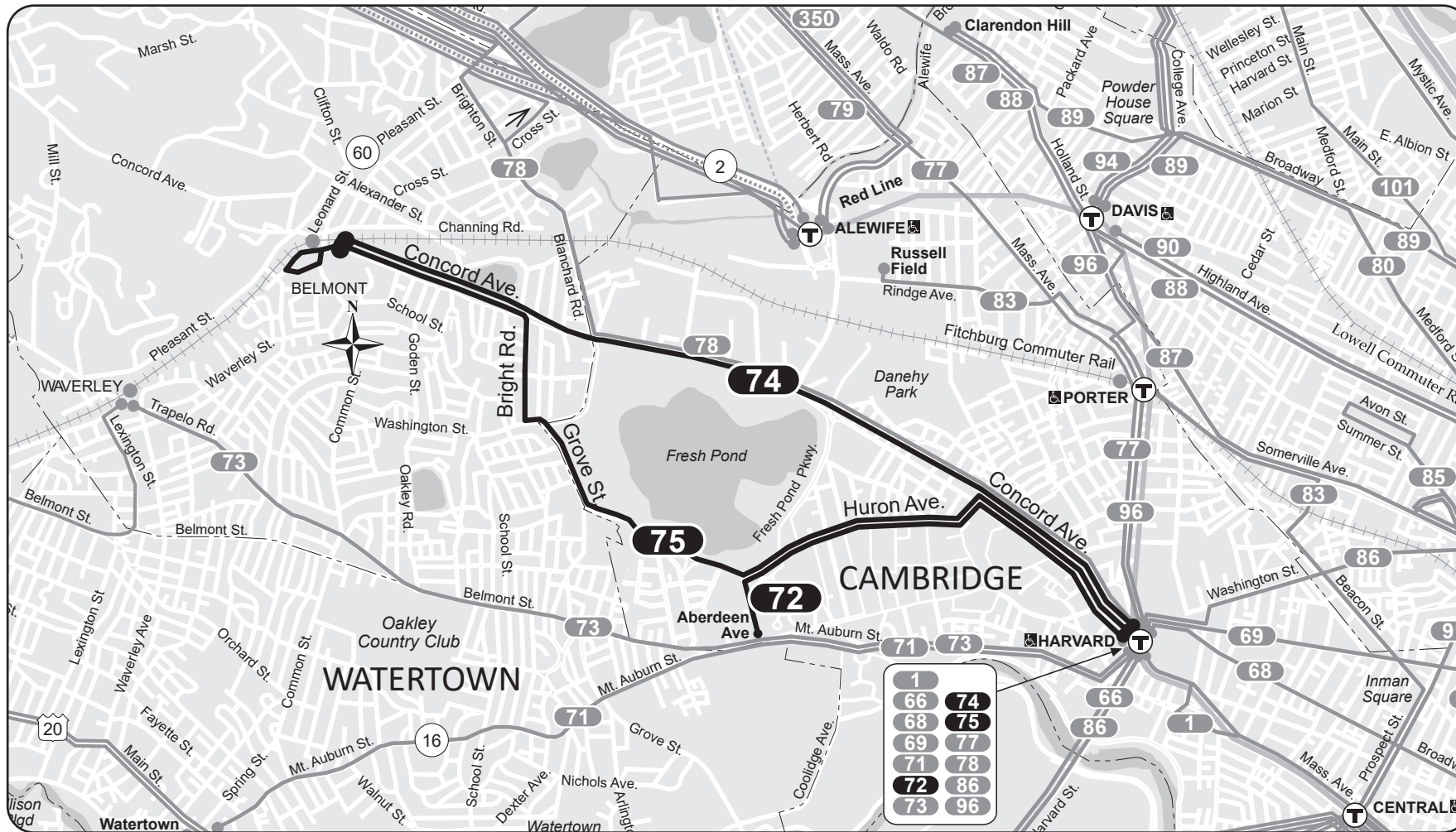
Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	8.6	8.2
Off	0	1	0	0
Total	0	1	8.6	8.2

	3-4PM	4-5PM	5-6PM	6-7 PM
On	36.3	54.1	84.8	48.5
Off	0	0	0	0
Total	36.3	54.1	84.8	48.5

AM	1	21.4	83.1	69
PM	57.7	79.1	105.5	56.5

Route 72 Aberdeen Ave - Harvard Station
Route 74 Belmont Center - Harvard Station via Concord Ave
Route 75 Belmont Center - Harvard Station via Huron Ave



72•74•75

Effective August 30, 2020

- 72** Aberdeen Ave - Harvard Station
- 74** Belmont Ctr - Harvard Sta. via Concord Ave
- 75** Belmont Ctr - Harvard Sta. via Huron Ave

Serving

- Belmont High School
- 700 Huron Avenue
- Harvard Square
- Harvard University
- Eliot Street
- Red Line
- Fitchburg Commuter Rail



 Massachusetts Bay Transportation Authority *massDOT*
Massachusetts Department of Transportation

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 (TTY) 617-222-5146 • www.mbta.com

Route 74

Inbound			Outbound		
	Seq - StopID - Stop Name	16 - 2150 - CONCORD AVE OPP SMITH PL		Seq - StopID - Stop Name	16 - 2185 - CONCORD AVE @ SMITH PL
05:20 (74.13)(B051) [30] {FA19}	On	0	05:45 (74.13)(B051) [31] {FA19}	On	0
	Off	0		Off	0.7
	Load	5.2		Load	7
05:45 (74.13)(B046) [1] {SU19}	On	0	06:09 (74.13)(B046) [1] {SU19}	On	0
	Off	0		Off	1
	Load	0		Load	6
06:30 (74.13)(B046) [1] {SU19}	On	0	06:35 (74.13)(B051) [31] {FA19}	On	0.2
	Off	0		Off	4.3
	Load	11		Load	8.5
07:33 (74.13)(B046) [1] {SU19}	On	0	07:35 (74.13)(B046) [1] <07:40> |74.0| {SP19}	On	0
	Off	0		Off	1
	Load	30		Load	11
07:51 (74.13)(B051) [31] {FA19}	On	0.1	08:10 (74.13)(B046) [1] {SU19}	On	0
	Off	0		Off	2
	Load	18.4		Load	3
08:41 (74.13)(B046) [1] {SU19}	On	0	08:46 (74.13)(B054) [1] {FA19}	On	0
	Off	0		Off	1
	Load	21		Load	9
09:51 (74.13)(B046) [1] {SU19}	On	0	09:20 (74.13)(B046) [1] {SU19}	On	0
	Off	0		Off	0
	Load	25		Load	13
11:01 (74.13)(B043) [1] <11:05> |74.0| {SP19}	On	0	10:25 (74.13)(B043) [1] |74.0| {SP19}	On	0
	Off	1		Off	0
	Load	12		Load	4
12:11 (74.13)(B043) [1] <12:15> |74.0| {SP19}	On	0	11:35 (74.13)(B043) [1] |74.0| {SP19}	On	0
	Off	0		Off	0
	Load	7		Load	8
13:21 (74.13)(B052) [1] {FA19}	On	0	12:45 (74.13)(B052) [1] {FA19}	On	0
	Off	0		Off	0
	Load	8		Load	6
14:31 (74.13)(B052) [1] {FA19}	On	0	13:55 (74.13)(B052) [1] {FA19}	On	0
	Off	0		Off	2
	Load	8		Load	11
15:38 (74.13)(B043) [1] <15:40> |74.0| {SP19}	On	3	15:05 (74.13)(B043) [1] |74.0| {SP19}	On	0
	Off	0		Off	3
	Load	18		Load	7
16:48 (74.13)(B043) [1] <16:50> |74.0| {SP19}	On	1	16:13 (74.13)(B043) [1] <16:10> |74.0| {SP19}	On	0
	Off	0		Off	0
	Load	10		Load	8
17:38 (74.13)(B050) [16] <17:40> |74.0| {WI19}	On	0.5	16:35 (74.13)(B055) [1] {FA19}	On	0
	Off	0.1		Off	1
	Load	6.8		Load	16

18:28 (74.13)(B055) [1] {FA19}	On	0
	Off	0
	Load	6
19:38 (74.13)(B055) [1] {FA19}	On	0
	Off	0
	Load	5
20:12 (74.13)(B066) [1] <20:05> |74.0| {WI20}	On	2
	Off	0
	Load	2
21:07 (74.13)(B047) [1] {SP18}	On	0
	Off	0
	Load	6
21:53 (74.13)(B047) [2] {SP18}	On	1
	Off	0
	Load	7.5
22:42 (74.13)(B053) [2] {FA19}	On	3.5
	Off	0
	Load	5
23:28 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	1.5
24:10 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	1.5
24:50 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	0

17:25 (74.13)(B043) [1] |74.0| {SP19}	On	1
	Off	0
	Load	31
18:15 (74.13)(B050) [16] |74.0| {WI19}	On	0.1
	Off	0.4
	Load	16.7
18:40 (74.13)(B043) [1] |74.0| {SP19}	On	0
	Off	0
	Load	19
19:41 (74.13)(B043) [1] <19:40> |74.0| {SP19}	On	0
	Off	0
	Load	4
20:41 (74.13)(B047) [1] {SP18}	On	0
	Off	0
	Load	7
21:30 (74.13)(B043) [1] <21:35> |74.0| {SP19}	On	0
	Off	0
	Load	4
23:05 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	4.5
23:48 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	1.5
24:30 (74.13)(B053) [2] {FA19}	On	0
	Off	0
	Load	2.5
25:10 (74.13)(B045) [1] |74.0| {SP19}	On	0
	Off	0
	Load	2

Route 74

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0.1	0
Off	0	0	0	0
Total	0	0	0.1	0

	3-4PM	4-5PM	5-6PM	6-7 PM
On	3	1	0.5	0
Off	0	0	0.1	0
Total	0.7	5.5	1	3

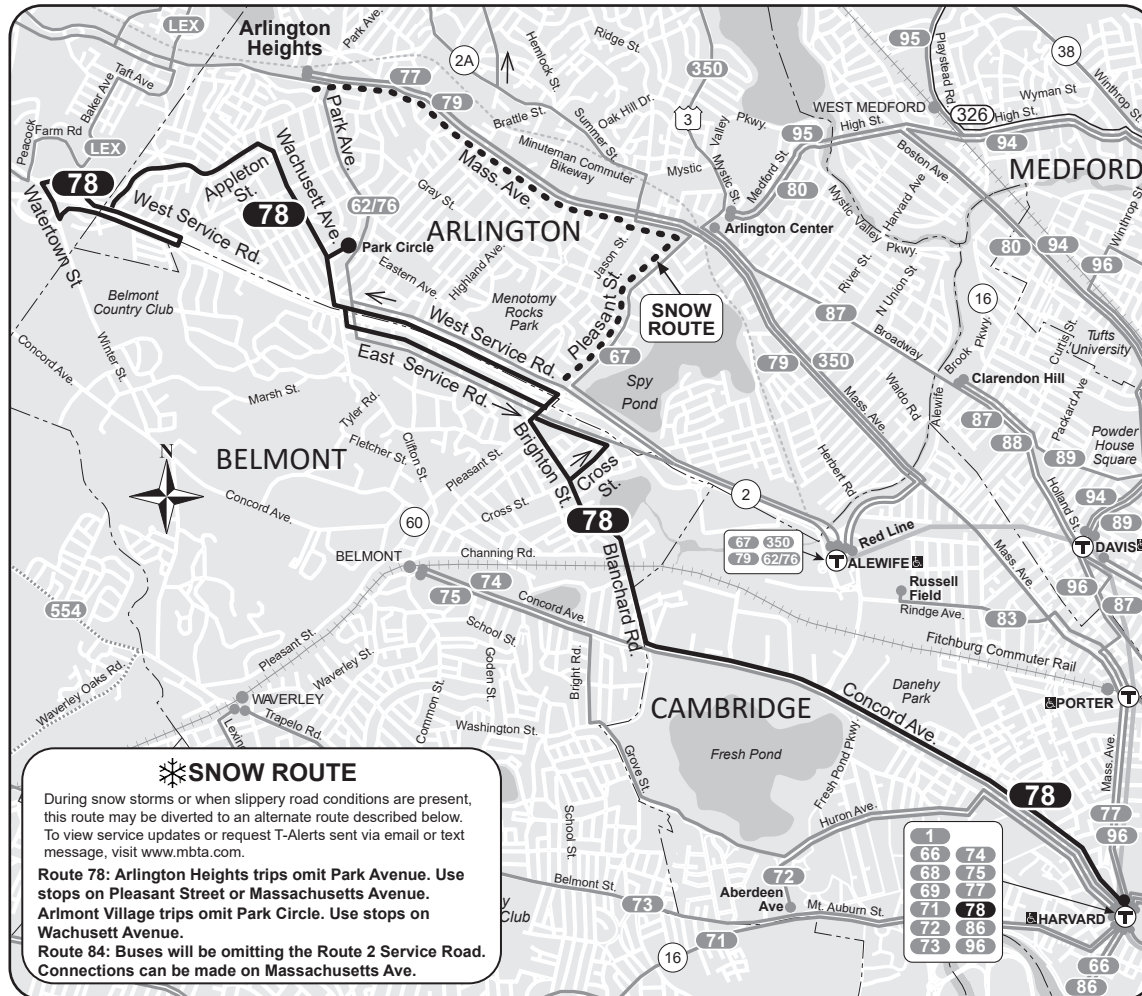
Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0.2	0	0
Off	0.7	5.3	1	3
Total	3	1	1	0.5

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	1	0.1
Off	3	1	0	0.4
Total	3	1	1	0.5

AM	3	1	1.1	0.5
PM	3.7	6.5	2	3.5

Route 78 Arlmont Village - Harvard Station
Route 84 Arlmont Village - Alewife Station



Service/Schedule Change

78•84

Effective August 30, 2020

78 Arlmont Village-Harvard Station

84 Arlmont Village-Alewife Station

Serving

- Park Circle
- Harvard University
- Eliot Street
- Red Line



T Massachusetts Bay Transportation Authority **massDOT**
Massachusetts Department of Transportation

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78 Weekday					
Inbound			Outbound		
Leave Arlmont Village	Arrive Pleasant Street	Arrive Harvard Square	Leave Harvard Square	Arrive Pleasant Street	Arrive Arlmont Village
5:35A	5:42A	6:01A	5:45A	5:57A	6:17A
6:00	6:07	6:26	6:05	6:17	6:37
6:25	6:32	6:53	6:30	6:42	7:01
6:48	6:55	7:20	7:00	7:16	7:32
7:08	7:15	7:42	7:27	7:45	8:01
7:35	7:42	8:09	7:52	8:10	8:26
8:05	8:12	8:38	8:20	8:38	8:54
8:31	8:38	9:02	8:50	9:06	9:18
9:03	9:10	9:33	9:15	9:29	9:41
9:28	9:35	9:55	9:48	10:02	10:14
9:46	9:53	10:13	10:18	10:32	10:44
10:19	10:26	10:46	10:51	11:05	11:17
10:49	10:56	11:16	11:21	11:35	11:47
11:22	11:29	11:49	11:54	12:08P	12:20P
11:52	11:59	12:19P			
			12:24P	12:38	12:50
12:25P	12:32P	12:52	12:57	1:11	1:23
12:55	1:02	1:22	1:27	1:41	1:53
1:28	1:35	1:55	2:00	2:14	2:26
1:58	2:05	2:25	2:30	2:48	3:02
2:31	2:37	2:58	3:10	3:30	3:45
3:07	3:13	3:34	3:45	4:07	4:24
3:51	3:57	4:18	4:15	4:38	4:55
4:36	4:42	5:03	4:45	5:08	5:25
5:05	5:11	5:33	5:15	5:39	5:56
5:35	5:41	6:03	5:45	6:04	6:21
6:05	6:11	6:32	6:15	6:30	6:47
6:30	6:36	6:56	6:47	7:02	7:19
6:55	7:01	7:21	7:25	7:40	7:57
7:25	7:31	7:51	7:55	8:09	8:20
8:03	8:09	8:29	8:20	8:34	8:45
8:26	8:32	8:52	8:50	9:04	9:15
9:05	9:11	9:31	9:34	9:48	9:59
10:05	10:11	10:29	10:33	10:46	10:57
11:04	11:10	11:28	11:33	11:46	11:57
12:02A	12:08A	12:26A	12:30A	12:43A	12:54A

a - From Arlington Heights, does NOT serve Arlmont Village
b - To Arlington Heights, does NOT serve Arlmont Village

All buses are accessible to persons with disabilities

78 Saturday					
Inbound			Outbound		
Leave Arlmont Village	Arrive Pleasant Street	Arrive Harvard Square	Leave Harvard Square	Arrive Pleasant Street	Arrive Arlmont Village
6:55A	7:03A	7:17A	6:25A	6:38A	6:49A
7:50	7:58	8:15	7:20	7:33	7:44
8:50	8:58	9:18	8:20	8:33	8:44
9:50	9:58	10:18	9:20	9:33	9:44
10:50	10:58	11:18	10:20	10:34	10:47
11:52	12:00N	12:20P	11:20	11:34	11:47
			12:24P	12:38P	12:51P
12:56P	1:04	1:24	12:24P	12:38P	12:51P
1:59	2:07	2:27	1:28	1:42	1:56
3:00	3:08	3:28	2:29	2:43	2:57
4:01	4:08	4:28	3:30	3:44	3:58
5:01	5:08	5:28	4:30	4:44	4:58
6:01	6:08	6:28	5:30	5:44	5:58
7:01	7:08	7:25	6:30	6:44	6:58
8:01	8:08	8:25	7:30	7:44	7:58
9:00	9:07	9:24	8:30	8:42	8:55
10:00	10:05	10:21	9:30	9:42	9:55
11:05	11:10	11:26	10:30	10:42	10:55
12:05A	12:10A	12:26A	11:30	11:42	11:52
			12:35A	12:47A	12:57A

78 Sunday					
Inbound			Outbound		
Leave Arlmont Village	Arrive Pleasant Street	Arrive Harvard Square	Leave Harvard Square	Arrive Pleasant Street	Arrive Arlmont Village
6:40A	6:48A	7:00A	6:10A	6:21A	6:33A
7:35	7:43	7:55	7:05	7:16	7:28
8:35	8:43	8:59	8:05	8:16	8:28
9:35	9:43	9:59	9:05	9:16	9:28
10:35	10:43	11:02	10:05	10:19	10:31
11:35	11:43	12:02P	11:05	11:19	11:31
			12:07P	12:23P	12:35P
12:37P	12:45P	1:04	12:07P	12:23P	12:35P
1:39	1:47	2:06	1:08	1:24	1:36
2:41	2:48	3:06	2:10	2:26	2:38
3:43	3:50	4:08	3:11	3:27	3:39
4:44	4:51	5:09	4:12	4:26	4:38
5:45	5:52	6:10	5:13	5:27	5:39
6:45	6:52	7:08	6:13	6:27	6:39
7:45	7:52	8:06	7:10	7:24	7:36
8:45	8:52	9:06	8:10	8:23	8:35
9:45	9:52	10:06	9:10	9:23	9:35
10:45	10:52	11:06	10:10	10:23	10:35
11:45	11:52	12:06A	11:10	11:23	11:35
12:40A	12:47A	1:01	12:10A	12:23A	12:35A

Route 84 service may be limited or suspended.

**For schedules, alerts and updates, visit:
mbta.com/schedules/84**

Harvard Busway construction note:

Harvard Bus Tunnel will be undergoing renovations. Inbound service will not serve Harvard Station Busway during this time. Passengers wishing to access Harvard Station are advised to disembark at the temporary bus stop located on Brattle St @ Palmer St. Outbound service is unaffected, and will continue to board passengers in the Harvard Station Busway.

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

VALID PASSES LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); *Student/Youth LinkPass (\$30.00/mo.); **Senior/LinkPass on demand
FREE FARES Children and older riders receive an additional 50% discount on all fares
* Riders 18-24 years old are eligible for the Student/Youth LinkPass. Youth CharlieCards are available through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston area.
www.mbta.com/yotass for details
Riders 65+ are eligible for the Senior CharlieCard. Riders 65+ and persons with disabilities.

Fall 2020 & Winter 2021 Holidays
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Route 78

Inbound			Outbound		
	Seq - StopID - Stop Name	40 - 2150 - CONCORD AVE OPP SMITH PL		Seq - StopID - Stop Name	16 - 2185 - CONCORD AVE @ SMITH PL
05:42	On	0	05:55	On	0
(78.13)(B088) [2]	Off	0	(78.13)(B090) [2]	Off	0
{FA19}	Load	11	{FA19}	Load	4
06:07	On	0	06:17	On	0
(78.13)(B089) [7]	Off	0	(78.13)(B088) [2]	Off	7.5
{FA19}	Load	10.9	{FA19}	Load	0
06:27	On	0	06:40	On	0
(78.13)(B090) [2]	Off	0	(78.14)(B089) [7]	Off	2.7
{FA19}	Load	23	{FA19}	Load	7.7
06:52	On	0	07:05	On	0
(78.13)(B078) [1]	Off	0	(78.14)(B090) [2]	Off	3.5
<06:55>	Load	23	{FA19}	Load	9.5
07:10	On	0	07:35	On	0
(78.14)(B089) [7]	Off	0	(78.14)(B088) [2]	Off	2
{FA19}	Load	16.9	{FA19}	Load	15
07:34	On	0	08:01	On	0.1
(78.14)(B090) [2]	Off	0	(78.14)(B089) [7]	Off	2
{FA19}	Load	12	{FA19}	Load	6.4
08:08	On	0.3	08:25	On	0
(78.14)(B088) [3]	Off	0	(78.13)(B090) [2]	Off	1
{FA19}	Load	25.3	{FA19}	Load	8.5
08:37	On	0	09:04	On	0
(78.14)(B089) [7]	Off	0	(78.13)(B088) [3]	Off	0.3
{FA19}	Load	17.4	{FA19}	Load	5.3
09:01	On	0	09:43	On	0
(78.13)(B090) [2]	Off	0	(78.13)(B090) [3]	Off	1.3
{FA19}	Load	21	{FA19}	Load	8
09:39	On	1	10:21	On	0
(78.13)(B088) [1]	Off	0	(78.13)(B088) [2]	Off	2
{FA19}	Load	20	{FA19}	Load	5
10:17	On	3	10:58	On	0
(78.13)(B090) [2]	Off	0	(78.13)(B090) [3]	Off	0.7
{FA19}	Load	13	{FA19}	Load	3
10:55	On	1.5	11:35	On	0
(78.13)(B088) [2]	Off	0	(78.13)(B088) [2]	Off	0.5
{FA19}	Load	10	{FA19}	Load	9
11:33	On	0.3	12:12	On	0
(78.13)(B090) [3]	Off	0	(78.13)(B090) [3]	Off	0.3
{FA19}	Load	7.3	{FA19}	Load	7.3
12:11	On	0.5	12:49	On	0
(78.13)(B088) [2]	Off	0	(78.13)(B088) [2]	Off	1
{FA19}	Load	4	{FA19}	Load	11

12:49	On	0
(78.13)(B0	Off	0
90) [3]		
{FA19}	Load	6.7
13:27	On	0
(78.13)(B0	Off	0
88) [2]		
{FA19}	Load	4.5
14:05	On	2.3
(78.13)(B0	Off	0
90) [7]		
{FA19}	Load	8.4
14:43	On	0.7
(78.13)(B0	Off	0
88) [3]		
{FA19}	Load	3.7
15:21	On	4.5
(78.13)(B0	Off	0.3
90) [6]		
{FA19}	Load	14.7
15:59	On	2.7
(78.13)(B0	Off	0
88) [3]		
{FA19}	Load	12
16:36	On	2.4
(78.14)(B0	Off	0.3
90) [7]		
{FA19}	Load	10.6
17:01	On	1.8
(78.14)(B0	Off	0
91) [9]		
{FA19}	Load	10.9
17:25	On	2.3
(78.14)(B0	Off	0
88) [3]		
{FA19}	Load	8.7
18:00	On	1
(78.14)(B0	Off	0
90) [8]		
{FA19}	Load	7.4
18:18	On	1.2
(78.13)(B0	Off	0
06) [31]		
{FA19}	Load	7.3
18:25	On	0.3
(78.14)(B0	Off	0.1
91) [12]		
{FA19}	Load	2.9
18:49	On	0.3
(78.14)(B0	Off	0
88) [3]		
{FA19}	Load	1.7
19:15	On	1.2
(78.13)(B0	Off	0
90) [5]		
{FA19}	Load	4.2
20:02	On	1.8
(78.13)(B0	Off	0
88) [4]		
{FA19}	Load	4.3
21:02	On	4.5
(78.13)(B0	Off	0
88) [4]		
{FA19}	Load	6.3
22:02	On	2
(78.13)(B0	Off	0
88) [1]		
{FA19}	Load	5
23:02	On	1.3
(78.13)(B0	Off	0
92) [10]		
{FA19}	Load	2
24:02	On	0
(78.13)(B0	Off	0
92) [7]		
{FA19}	Load	0.7

13:26	On	0
(78.13)(B0	Off	0.6
90) [5]		
{FA19}	Load	11.8
14:03	On	0
(78.13)(B0	Off	1
88) [4]		
{FA19}	Load	11.3
14:41	On	0
(78.13)(B0	Off	2
90) [7]		
{FA19}	Load	12.4
15:19	On	0
(78.13)(B0	Off	1
88) [3]		
{FA19}	Load	15
15:59	On	0
(78.14)(B0	Off	2
90) [5]		
{FA19}	Load	15.4
16:21	On	0.2
(78.14)(B0	Off	0.2
91) [6]		
{FA19}	Load	11.8
16:44	On	2
(78.14)(B0	Off	0.7
88) [3]		
{FA19}	Load	14
17:15	On	0
(78.14)(B0	Off	1
90) [7]		
{FA19}	Load	23.4
17:41	On	0.2
(78.14)(B0	Off	0.2
91) [11]		
{FA19}	Load	19.9
18:08	On	0
(78.14)(B0	Off	0.7
88) [3]		
{FA19}	Load	26
18:36	On	0
(78.13)(B0	Off	0.1
90) [9]		
{FA19}	Load	18.8
18:57	On	0.1
(78.13)(B0	Off	0.3
91) [11]		
{FA19}	Load	13
19:25	On	0
(78.13)(B0	Off	0
88) [3]		
{FA19}	Load	8.3
19:55	On	0
(78.13)(B0	Off	0
47) [16]		
{FA19}	Load	11.8
20:30	On	0
(78.13)(B0	Off	0
88) [4]		
{FA19}	Load	5.8
21:30	On	0.2
(78.13)(B0	Off	0
88) [5]		
{FA19}	Load	12.2
22:30	On	0
(78.13)(B0	Off	0
92) [12]		
{FA19}	Load	9.3
23:30	On	0
(78.13)(B0	Off	0
92) [11]		
{FA19}	Load	2.7
24:30	On	0
(78.13)(B0	Off	0
92) [10]		
{FA19}	Load	1.7

Route 78

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0.3
Off	0	0	0	0
Total	0	0	0	0.3

	3-4PM	4-5PM	5-6PM	6-7 PM
On	7.2	2.4	4.1	2.8
Off	0.3	0.3	0	0.1
Total	7.5	2.7	4.1	2.9

Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0.1
Off	0	10.2	5.5	3
Total	0	10.2	5.5	3.1

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	2.2	0.2	0.1
Off	3	0.9	1.2	1.1
Total	3	3.1	1.4	1.2

AM	0	10.2	5.5	3.4
PM	10.5	5.8	5.5	4.1

Route 84

Inbound			Outbound		
	Seq - StopID - Stop Name	25 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
06:42 (84.2)(B061) [8] {FA19}	On	0	07:04 (84.2)(B109) [58] {FA19}	On	3
	Off	30.4		Off	0
	Load	0		Load	3
07:14 (84.2)(B109) [58] {FA19}	On	0	07:36 (84.2)(B109) [58] {FA19}	On	1.3
	Off	32.5		Off	0
	Load	0		Load	1.3
07:45 (84.2)(B109) [58] {FA19}	On	0	08:08 (84.2)(B109) [57] {FA19}	On	1.2
	Off	37.8		Off	0
	Load	0		Load	1.2
08:17 (84.2)(B109) [58] {FA19}	On	0	08:39 (84.2)(B109) [56] {FA19}	On	1.9
	Off	36.5		Off	0
	Load	0		Load	1.9
08:48 (84.2)(B109) [56] {FA19}	On	0	15:58 (84.1)(B059) [31] {FA19}	On	12.5
	Off	17.3		Off	0
	Load	0		Load	12.5
16:10 (84.1)(B059) [31] {FA19}	On	0	16:30 (84.1)(B059) [31] {FA19}	On	16.9
	Off	2.9		Off	0
	Load	2.1		Load	16.9
16:42 (84.1)(B059) [31] {FA19}	On	0	17:00 (84.1)(B059) [31] {FA19}	On	23.5
	Off	3		Off	0
	Load	3.5		Load	23.5
17:12 (84.1)(B059) [18] {FA19}	On	0	17:25 (84.1)(B183) [34] {FA19}	On	29
	Off	3.7		Off	0
	Load	0		Load	29
17:38 (84.1)(B183) [33] {FA19}	On	0	17:45 (84.1)(B156) [9] {FA19}	On	36.8
	Off	3.8		Off	0
	Load	4.6		Load	36.8
17:58 (84.1)(B156) [9] {FA19}	On	0	18:05 (84.2)(B006) [30] {FA19}	On	22.6
	Off	0.8		Off	0
	Load	12.1		Load	22.6
18:47 (84.1)(B004) [18] {FA19}	On	0	18:35 (84.1)(B004) [23] {FA19}	On	14.4
	Off	1		Off	0
	Load	1.4		Load	14.4

Route 84

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	1	30.4	70.3	53.8
Total	1	30.4	70.3	53.8

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	1	5.9	8.3	1
Total	1	5.9	8.3	1

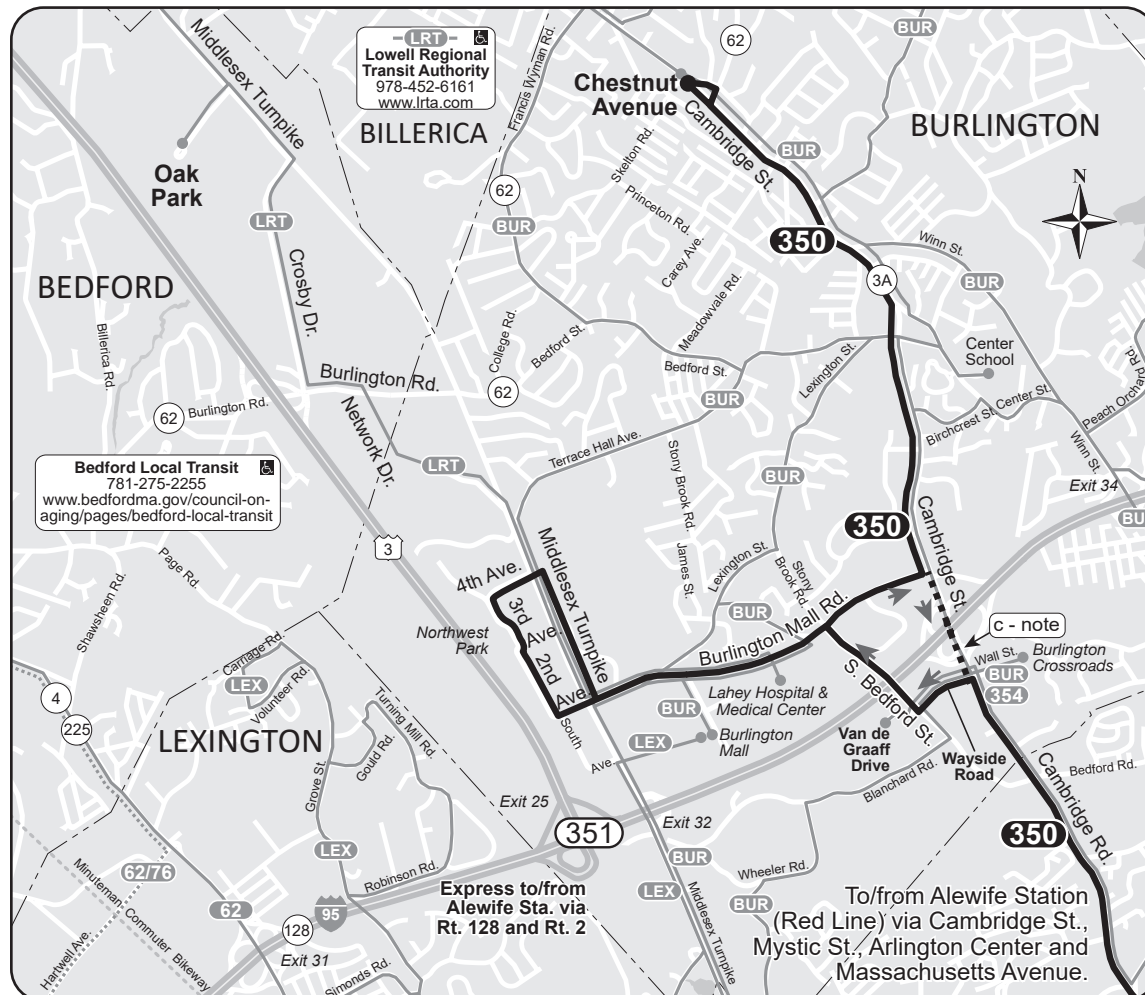
Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	4.3	3.1
Off	0	0	0	0
Total	0	0	4.3	3.1

	3-4PM	4-5PM	5-6PM	6-7 PM
On	12.5	16.9	89.3	37
Off	0	0	0	0
Total	12.5	16.9	89.3	37

AM	1	30.4	74.6	56.9
PM	13.5	22.8	97.6	38

Route 350 North Burlington - Alewife Station
Route 351 Bedford Woods Dr - Alewife Station



Service/Schedule Change

350•351

Effective August 30, 2020

350 North Burlington-Alewife Station

351 Bedford Woods Dr - Alewife Station

Serving

- Burlington Mall
- Oak Park
- Northwest Park
- Red Line
- Lahey Hospital & Medical Center
- Four Corners
- Arlington Center



Massachusetts Bay Transportation Authority *massDOT*
 Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
 (TTY) 617-222-5146 • www.mbta.com

350 & 351

Weekday

Inbound				
Leave Chestnut & Cambridge	Arrive Burlington Mall Road	Arrive Woburn/Burl. Line	Arrive Arlington Center	Arrive Alewife Station
6:00A	.....	6:05A	6:19A	6:31A
.....	.....	.....	6:23	6:32
6:20	.....	6:25	6:42	7:02
6:38	.....	6:45	7:04	7:24
6:53	.....	7:00	7:19	7:41
7:15	.....	7:22	7:41	8:03
7:35	.....	7:44	8:03	8:25
7:55	.....	8:04	8:23	8:45
8:20	8:35A	8:42	9:03	9:13
8:40	8:55	9:02	9:19	9:29
9:00	9:14	9:21	9:38	9:48
9:20	9:34	9:41	9:58	10:09
10:00	10:14	10:21	10:38	10:49
10:40	10:54	11:01	11:18	11:29
11:20	11:34	11:41	11:58	12:09P
12:00N	12:14P	12:21P	12:38P	12:49
12:40	12:54	1:02	1:19	1:30
1:20	1:34	1:42	1:59	2:10
2:00	2:14	2:22	2:39	2:50
2:40	2:54	3:03	3:21	3:32
3:25	3:40	3:50	4:08	4:19
3:45	4:00	4:10	4:28	4:39
4:10	4:25	4:35	4:53	5:07
4:30	4:45	4:55	5:16	5:32
4:45	5:00	5:10	5:32	5:48
5:10	5:25	5:35	5:57	6:10
5:35	5:50	6:00	6:21	6:34
5:55	6:10	6:18	6:37	6:50
6:15	6:30	6:37	6:52	7:05
6:35	6:49	6:56	7:11	7:24
6:55	7:09	7:16	7:31	7:41
7:45	7:59	8:05	8:18	8:28
8:35	8:49	8:55	9:08	9:18
9:30	9:44	9:50	10:03	10:13
10:25	10:39	10:45	10:58	11:08

ROUTE 350 FARES

Fare	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10

VALID PASSES: LinkPass (\$90.00/mo.); Local Bus (outdoor) only (LinkPass \$30.00/mo.); **Senior/TAP LinkPass (\$30.00/mo.); and express bus, commuter rail, and boat passes.
VALID PASSES on 448/449: Inner Express Bus (\$136.00/mo.); Outer Express Bus (\$168/mo.); commuter rail zone 1 or higher, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide the guide rides free.
 * Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through county partners in the Boston metro area. Visit www.mbta.com/youthpass for details.
 ** Requires Senior AP CharlieCard or Youth CharlieCard. Senior AP CharlieCards are available to Medicare cardholders 65 and older and persons with disabilities.

Weekday

Outbound				
Leave Alewife Station	Arrive Arlington Center	Arrive Woburn/Burl. Line	Arrive Burlington Mall Road	Arrive Chestnut & Cambridge
b 5:53	6:00	.....	.....	.....
b 6:16	6:22	6:39	6:50	7:08
b 6:36	6:42	6:59	7:09	7:25
b 6:56	7:02	7:17	7:27	7:43
7:16	7:22	7:37	7:47	8:03
7:36	7:43	8:02	8:11	8:31
7:56	8:03	8:22	8:31	8:51
8:16	8:23	8:42	8:51	9:11
8:56	9:03	9:22	9:31	9:49
9:36	9:42	9:59	10:08	10:26
10:16	10:22	10:39	10:48	11:06
10:56	11:02	11:19	11:28	11:46
11:36	11:42	11:59	12:08P	12:26P
12:16P	12:22P	12:39P	12:48	1:06
12:56	1:02	1:19	1:28	1:46
1:36	1:42	1:59	2:07	2:24
2:16	2:26	2:45	2:53	3:12
2:41	2:51	3:09	3:18	3:37
3:05	3:13	3:31	3:40	3:59
3:30	3:38	3:56	4:05	4:27
3:55	4:03	4:22	4:31	4:53
4:25	4:35	4:54	5:03	5:25
4:55	5:08	5:28	.....	5:43
5:20	5:33	5:53	.....	6:08
5:40	5:53	6:13	.....	6:28
6:00	6:13	6:33	.....	6:48
6:20	6:33	6:53	.....	7:08
6:42	6:51	7:06	7:15	7:37
7:05	7:14	7:29	7:38	8:00
7:35	7:44	7:59	8:07	8:23
8:31	8:39	8:54	9:02	9:17
9:25	9:33	9:48	9:56	10:11
10:20	10:32	10:50	.....	11:05

Route 351 indicated by shaded areas

ROUTE 351 FARES

Fare	Local Bus	Inner Express	Inner Express + Local Bus	Inner Express + Subway
CharlieCard	\$1.70	\$4.25	\$4.25	\$4.25
CharlieTicket	\$2.00	\$5.25	\$7.25	\$8.15
Cash-on-Board	\$2.00	\$5.25	\$7.25	\$8.15
Student/Youth*	\$0.85	\$2.10	\$2.10	\$2.10
Senior/TAP**	\$0.85	\$2.10	\$2.10	\$2.10

VALID PASSES on 441/442: LinkPass (\$90.00/mo.); Local Bus (\$55/mo.); **Senior/TAP LinkPass (\$30.00/mo.); and express bus, commuter rail, and boat passes.
VALID PASSES on 448/449: Inner Express Bus (\$136.00/mo.); Outer Express Bus (\$168/mo.); commuter rail zone 1 or higher, and boat passes.
FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.
 * Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit www.mbta.com/youthpass for details.
 ** Requires Senior AP CharlieCard or Youth CharlieCard. Senior AP CharlieCards are available to Medicare cardholders 65 and older and persons with disabilities.

350

Saturday

Inbound			Outbound		
Leave Chestnut & Cambridge	Arrive Burlington Mall Road	Arrive Alewife Station	Leave Alewife Station	Arrive Burlington Mall Road	Arrive Chestnut & Cambridge
7:10A	.....	7:38A	6:25A	6:51A	7:05A
7:50	.....	8:18	7:05	7:31	7:45
8:30	8:45A	9:14	7:45	8:11	8:25
9:30	9:45	10:17	8:30	8:59	9:18
10:30	10:46	11:19	9:30	10:01	10:22
11:30	11:46	12:21P	10:30	11:01	11:22
			11:30	12:01P	12:21P
12:30P	12:46P	1:25			
1:30	1:46	2:25	12:30P	1:02	1:22
2:30	2:46	3:21	1:30	2:02	2:22
3:30	3:46	4:21	2:30	3:02	3:22
4:30	4:46	5:20	3:30	4:01	4:19
5:30	5:46	6:17	4:30	4:58	5:16
6:25	6:41	7:10	5:30	5:55	6:13
7:20	7:35	8:04	6:25	6:50	7:08
8:10	8:25	8:54	7:15	7:40	7:58
9:00	9:15	9:44	8:10	8:33	8:52
9:50	10:05	10:34	9:00	9:23	9:42
			9:50	.....	10:20
			10:40	.....	11:10

350

Sunday

Inbound			Outbound		
Leave Chestnut & Cambridge	Arrive Burlington Mall Road	Arrive Alewife Station	Leave Alewife Station	Arrive Burlington Mall Road	Arrive Chestnut & Cambridge
7:55A	.....	8:24A	7:05A	7:31A	7:49A
9:20	.....	9:52	8:30	8:57	9:16
10:50	.....	11:22	9:55	10:24	10:43
			11:25	11:54	12:13P
12:20P	12:34P	1:06P			
1:15	1:29	2:00	12:20P	12:49P	1:08
2:10	2:24	2:56	1:15	1:45	2:04
3:05	3:19	3:53	2:10	2:38	2:57
4:00	4:14	4:50	3:05	3:33	3:52
4:55	5:09	5:42	4:00	4:28	4:47
5:50	6:04	6:37	4:55	5:23	5:42
6:50	7:04	7:35	5:50	6:18	6:37
			6:50	.....	7:26

Fall 2020 & Winter 2021 Holidays
 9/7/20; Sunday; 10/12/20 & 11/11/20: Weekday
 11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

NOTE:
 Route 351 Alewife service operates via Berth 8

Route 351 may be limited or suspended. Visit mbta.com for latest updates.

All buses are accessible to persons with disabilities

b - Omits Northwest Park

**Route 350
 North Burlington-
 Alewife Station**

**Route 351
 Bedford Woods Dr -
 Alewife Station**

Route 350

Inbound			Outbound			
	Seq - StopID - Stop Name	67 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY	
	06:04	On	0	06:20	On	20
	(350.4)(B0 04) [50]	Off	32.7	(350.7)(B1 74) [9]	Off	0
	{FA19}	Load	0	{SP19}	Load	20
	06:36	On	0	06:42	On	19
	(350.4)(B0 19) [54]	Off	37.7	(350.7)(B1 69) [48]	Off	0
	{FA19}	Load	0	{FA19}	Load	19
	06:55	On	0	06:58	On	19.5
	(350.4)(B1 79) [66]	Off	41.2	(350.7)(B0 04) [50]	Off	0
	{FA19}	Load	0	{FA19}	Load	19.5
	07:15	On	0	07:22	On	18.6
	(350.4)(B1 74) [10]	Off	41.5	(350.7)(B1 76) [36]	Off	0
	{SP19}	Load	0	{FA19}	Load	18.6
	07:35	On	0	07:46	On	25.3
	(350.4)(B1 69) [49]	Off	30.3	(350.5)(B1 79) [66]	Off	0
	{FA19}	Load	0	{FA19}	Load	25.3
	07:55	On	0	08:15	On	30.1
	(350.4)(B0 04) [50]	Off	33.6	(350.5)(B1 74) [9]	Off	0
	{FA19}	Load	0	{SP19}	Load	30.1
	08:20	On	0	08:50	On	19.5
	(350.5)(B1 76) [37]	Off	24.3	(350.3)(B0 05) [63]	Off	0
	{FA19}	Load	0	{FA19}	Load	19.5
	08:50	On	0	09:20	On	30.5
	(350.5)(B1 79) [66]	Off	16.6	(350.5)(B0 07) [55]	Off	0
	{FA19}	Load	0	{FA19}	Load	30.5
	09:20	On	0	10:15	On	11.9
	(350.5)(B1 74) [9]	Off	16.1	(350.5)(B1 74) [14]	Off	0
	{SP19}	Load	0.1	{FA19}	Load	11.9
	10:20	On	0	11:15	On	12.4
	(350.5)(B0 07) [62]	Off	15.3	(350.5)(B0 07) [55]	Off	0
	{FA19}	Load	0.1	{FA19}	Load	12.5
	11:20	On	0	12:15	On	12.4
	(350.5)(B1 74) [14]	Off	15.3	(350.5)(B1 74) [18]	Off	0
	{FA19}	Load	0.1	{FA19}	Load	12.4
	12:20	On	0	13:15	On	17.8
	(350.5)(B1 83) [44]	Off	14.6	(350.5)(B1 83) [46]	Off	0
	{FA19}	Load	0	{FA19}	Load	18.3
	13:20	On	0	14:20	On	22.5
	(350.5)(B1 74) [18]	Off	13.1	(350.5)(B1 74) [18]	Off	0
	{FA19}	Load	0	{FA19}	Load	22.5
	14:20	On	0	14:50	On	10.9
	(350.5)(B1 83) [45]	Off	24.6	(350.5)(B1 87) [27]	Off	0
	{FA19}	Load	0.4	{FA19}	Load	10.9

15:20	On	0
(350.5)(B1 82) [58] {FA19}	Off	40.9
	Load	0
15:45	On	0
(350.5)(B1 74) [17] {FA19}	Off	25.7
	Load	0
16:20	On	0
(350.5)(B1 83) [35] {FA19}	Off	33.9
	Load	0.1
17:05	On	0
(350.5)(B1 81) [14] {FA19}	Off	28
	Load	0
17:25	On	0
(350.5)(B1 82) [58] {FA19}	Off	12.1
	Load	0.1
17:40	On	0
(350.5)(B1 85) [4] {FA19}	Off	9.8
	Load	0.5
18:00	On	0
(350.5)(B1 75) [53] {FA19}	Off	9.1
	Load	0.2
18:20	On	0
(350.5)(B1 77) [35] {FA19}	Off	8.2
	Load	0.1
18:40	On	0
(350.5)(B0 57) [7] {FA19}	Off	5
	Load	0
19:00	On	0
(350.5)(B1 60) [17] {FA19}	Off	7.6
	Load	0.2
19:25	On	0
(350.5)(B1 84) [2] {FA19}	Off	7.5
	Load	0
19:50	On	0
(350.5)(B1 85) [6] {FA19}	Off	5.8
	Load	0
20:20	On	0
(350.5)(B1 77) [36] {FA19}	Off	7.1
	Load	0.2
21:20	On	0
(350.5)(B1 78) [12] {FA19}	Off	17.9
	Load	0
22:20	On	0
(350.5)(B1 80) [10] {FA19}	Off	9.3
	Load	0

15:20	On	15.5
(350.5)(B1 83) [32] {FA19}	Off	0
	Load	15.5
16:00	On	17.9
(350.5)(B1 81) [13] {FA19}	Off	0
	Load	17.9
16:20	On	19
(350.5)(B1 82) [55] {FA19}	Off	0
	Load	19
16:40	On	27.5
(350.4)(B1 85) [4] {FA19}	Off	0
	Load	27.5
17:00	On	37.1
(350.4)(B1 75) [54] {FA19}	Off	0
	Load	37.6
17:20	On	26.1
(350.4)(B1 77) [33] {FA19}	Off	0
	Load	27.6
17:40	On	29.6
(350.4)(B0 57) [5] {FA19}	Off	0
	Load	29.6
18:05	On	32.6
(350.4)(B1 60) [16] {FA19}	Off	0
	Load	35.2
18:25	On	16.5
(350.5)(B1 84) [2] {FA19}	Off	0
	Load	33
18:50	On	24
(350.5)(B1 85) [5] {FA19}	Off	0
	Load	24
19:20	On	15.6
(350.5)(B1 77) [34] {FA19}	Off	0
	Load	15.6
20:20	On	13.3
(350.5)(B1 78) [12] {FA19}	Off	0
	Load	13.3
21:20	On	6.7
(350.5)(B1 80) [10] {FA19}	Off	0
	Load	6.7
22:20	On	8.3
(350.4)(B1 78) [9] {FA19}	Off	0
	Load	8.3

Route 350

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	0	111.6	105.4	40.9
Total	0	111.6	105.4	40.9

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	0
Off	66.6	33.9	-6.1	4.1
Total	66.6	33.9	-6.1	4.1

Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	58.5	43.9	49.6
Off	1	0	0	0
Total	1	58.5	43.9	49.6

	3-4PM	4-5PM	5-6PM	6-7 PM
On	15.5	64.4	92.8	73.1
Off	0	0	0	0
Total	15.5	64.4	92.8	73.1

AM	1	170.1	149.3	90.5
PM	82.1	98.3	86.7	77.2

Route 351

Inbound			Outbound		
	Seq - StopID - Stop Name	24 - 141 - ALEWIFE STATION BUSWAY		Seq - StopID - Stop Name	1 - 141 - ALEWIFE STATION BUSWAY
15:35	On	0	06:15	On	14.1
(351.3)(B1	Off	22	(351.3)(B1	Off	0
86) [37]	Load	0	88) [30]	Load	14.1
{FA19}			{FA19}		
16:35	On	0	07:00	On	15
(351.3)(B1	Off	32.7	(351.3)(B1	Off	0
87) [26]	Load	0	89) [6]	Load	15
{FA19}			{FA19}		
17:25	On	0	07:55	On	36.2
(351.3)(B1	Off	19.5	(351.3)(B1	Off	0
86) [37]	Load	0	88) [29]	Load	36.2
{FA19}			{FA19}		
18:20	On	0	08:45	On	28.8
(351.3)(B1	Off	7.7	(351.3)(B1	Off	0
87) [29]	Load	0	89) [13]	Load	28.8
{FA19}			{FA19}		

Route 351

Inbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	0	0	0
Off	0	0	0	0
Total	0	0	0	0

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	19.5	0
Off	22	32.7	0	7.7
Total	22	32.7	19.5	7.7

Outbound

	5-6 AM	6-7AM	7-8AM	8-9AM
On	0	14.1	51.2	28.8
Off	1	0	0	0
Total	1	14.1	51.2	28.8

	3-4PM	4-5PM	5-6PM	6-7 PM
On	0	0	0	
Off	0	0	0	
Total	0	0	0	0

AM	1	14.1	51.2	28.8
PM	22	32.7	19.5	7.7

T Fares

PRICE PER TRIP	Local Bus	Bus + Bus	Rapid Transit	Bus + Rapid Transit
CharlieCard	\$1.70	\$1.70	\$2.40	\$2.40
CharlieTicket	\$2.00	\$2.00	\$2.90	\$4.90***
Cash-on-Board	\$2.00	\$4.00	\$2.90	\$4.90***
Student/Youth*	\$0.85	\$0.85	\$1.10	\$1.10
Senior/TAP**	\$0.85	\$0.85	\$1.10	\$1.10
UNLIMITED TRIP PASSES				
1-Day	\$12.75	\$12.75	\$12.75	\$12.75
7-Day	\$22.50	\$22.50	\$22.50	\$22.50
Monthly	\$55.00	\$55.00	\$90.00	\$90.00
Senior/TAP Monthly \$30.00/month for unlimited travel on Local Bus and Rapid Transit				

VALID PASSES: LinkPass (\$84.50/mo.); Student/Youth LinkPass* (\$30/mo.); Senior/TAP LinkPass* (\$30/mo.); and express bus, commuter rail, and boat passes.

FREE FARES: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free: if using a guide, the guide rides free

* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit www.mbta.com/youthpass for details.

** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities

*** For Silver Line SL4 or SL5 pay \$2.75. Also see "transfers."

TRANSFERS

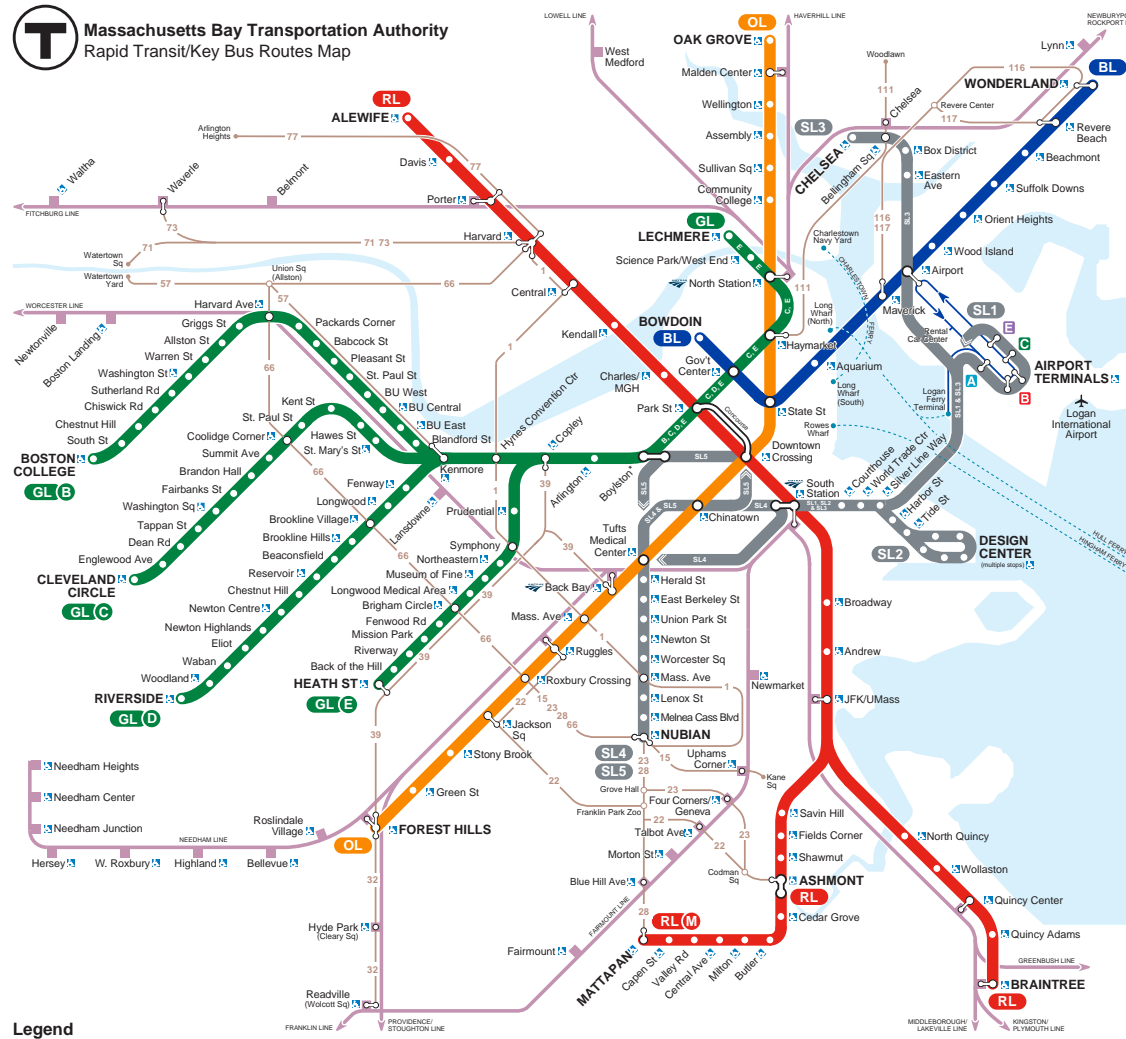
If paying with a CharlieTicket or CharlieCard, discounted transfers that are available are automatic — just use the same ticket or card throughout your trip. If paying with cash onboard a vehicle, free transfers are only allowed between rapid transit lines and inside paid platform areas at gated stations

SCHEDULES

Schedules are available at the following stations: Park Street, Airport, Malden, Harvard, Haymarket (Green Line Level), Back Bay and Downtown Crossing (Orange Line Level) or see station personnel. Schedules also available at the Transportation Building (10 Park Plaza), 45 High St, and online at mbta.com.

For real-time subway and bus tracking, download the Transit app on any smartphone.

T Massachusetts Bay Transportation Authority Rapid Transit/Key Bus Routes Map



Legend

- RED LINE
- ORANGE LINE
- BLUE LINE
- GREEN LINE and branches
- SILVER LINE and branches
- COMMUTER RAIL
- KEY BUS ROUTE
- FERRY
- Accessible station
- Rapid Transit transfer station
- Commuter Rail transfer station
- Free Logan Airport shuttle bus
- Amtrak services
- Customer Communications & Travel Info
- MBTA Transit Police
- Elevator/escalator/lift updates

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Not to scale

Rapid Transit

Effective August 30, 2020



Blue Line



Green Line



Orange Line



Red Line



Silver Line

T Massachusetts Bay Transportation Authority **massDOT**
Massachusetts Department of Transportation

Information 617-222-3200 • 1-800-392-6100
(TTY) 617-222-5146 • www.mbta.com

Rapid Transit Line	Weekday				Saturday			Sunday		
	First Trip	Peak	Off Peak	Last Trip	First Trip	Arriving Every	Last Trip	First Trip	Arriving Every	Last Trip
Red Line										
Alewife Braintree	5:24 AM 5:08 AM	9 mins	12-16 mins	12:20 AM 12:17 AM	5:24 AM 5:09 AM	12-16 mins	12:20 AM 12:17 AM	6:08AM 6:00AM	12-16 mins	12:20 AM 12:17 AM
Alewife Ashmont	5:16 AM 5:16 AM	9 mins	12-16 mins	w 12:27 AM w 12:30 AM	5:16 AM 5:16 AM	12-16 mins	w 12:27 AM w 12:30 AM	6:00AM 6:00AM	12-16 mins	w 12:27 AM w 12:30 AM
"M" Ashmont Mattapan	5:17 AM 5:05 AM	5 mins	8-12 Day 26 Late	w 1:05 AM 12:53 AM	5:15 AM 5:05 AM	8-12 Day 26 Early/Late	w 1:05 AM 12:53 AM	6:03AM 5:51AM	8-12 Day 26 Early/Late	w 1:05 AM 12:53 AM
Blue Line										
Wonderland Orient Heights Bowdoin	5:13 AM 5:14 AM 5:30 AM	5 mins	9-13 mins	12:28 AM 12:33 AM w 1:00 AM	5:25 AM 5:13 AM 5:29 AM	9-13 mins	12:28 AM 12:33 AM w 1:00 AM	5:58AM 6:03AM 6:21AM	9-13 mins	12:28 AM 12:33 AM w 1:00 AM
Orange Line										
Oak Grove Forest Hills	5:16 AM 5:16 AM	6 mins	9-11 mins	w 12:30 AM w 12:28 AM	5:16 AM 5:16 AM	9-11 mins	w 12:30 AM w 12:28 AM	6:00AM 6:00AM	9-11 mins	w 12:30 AM w 12:28 AM
Green Line*										
B Boston College Park Street	5:01 AM 5:45 AM	5-6 mins	7-9 mins	12:10 AM w 12:52 AM	4:45 AM ² 5:40 AM	7-8 mins	12:09 AM w 12:52 AM	5:20AM ² 6:12AM	9 mins	12:10 AM w 12:52 AM
C Cleveland Circle North Station	4:57 AM ¹ 5:48 AM	6-8 mins	9-11 mins	12:07 AM w 12:46 AM	4:50 AM ² 5:30 AM	9-10 mins	12:10 AM w 12:46 AM	5:30AM ² 6:06AM	10 mins	12:10 AM w 12:46 AM
D Riverside Government Ctr.	4:56 AM 5:45 AM	6 mins	8-11 mins	12:05 AM w 12:49 AM	4:55 AM 5:38 AM	8-9 mins	12:02 AM w 12:49 AM	5:25AM 6:10AM	11-12 mins	12:05 AM w 12:49 AM
E Lechmere* Heath Street	5:00 AM ⁴ 5:45 AM	6-7 mins	8-10 mins	12:30 AM 12:47 AM ³	5:01 AM 5:39 AM	10 mins	12:30 AM 12:47 AM ³	5:35AM 6:15AM	12 mins	12:30 AM 12:47 AM ³
Silver Line										
SL1 Logan Airport South Station	5:38 AM 5:40 AM	7-12 mins	10-12 mins	f 1:03 AM w 1:02 AM	5:48 AM 5:45 AM	10-12 mins	1:15 AM w 12:59 AM	5:50AM 6:12AM	10-12 mins	f 1:12 AM w 1:00 AM
SL2 Design Center South Station	6:07 AM 5:44 AM	6 mins	14-16 mins	12:37 AM 12:50 AM	6:03 AM 5:47 AM	14-16 mins	12:35 AM 12:45 AM	6:51AM 6:35AM	14-16 mins	12:51 AM 12:36 AM
SL3 Chelsea Station South Station	4:55 AM 4:20 AM	6-11 mins	8-13 mins	f 1:05 AM w 12:35 AM	5:30 AM 4:56 AM	8-13 mins	1:22 AM w 12:55 AM	6:26AM 5:53AM	8-13 mins	f 1:25 AM w 12:55 AM
SL4 Nubian Station South Station	5:20 AM 5:38 AM	6-11 mins	6-11 mins	12:20 AM 12:37 AM	5:23 AM 5:40 AM	13-20 mins	12:20 AM 12:40 AM	6:02AM 6:20AM	13-20 mins	12:20 AM 12:40 AM
SL5 Nubian Station Downtown Xing	5:15 AM 5:32 AM	11-14 mins	13-20 mins	12:51 AM w 1:07 AM	5:19 AM 5:34 AM	6-11 mins	12:43 AM w 1:00 AM	6:00AM 6:16AM	6-11 mins	12:25 AM w 12:47 AM

Peak Service:
Weekdays 7 AM - 9 AM, 4 PM - 6:30 PM

Green Line Notes:

New and ongoing infrastructure projects may result in diversions on some branches at various times.

See GL service changes at mbta.com/GLwork

View service alerts at mbta.com/alerts

* E trains start/end at North Station for Green Line Extension work – shuttles provided between North Station and Lechmere.

More: mbta.com/GLEwork

1 - The first two C train AM northbound trips run through to Lechmere Station on weekdays.

2 - The first B and second C train AM northbound trips run through to Lechmere Station on weekends.

3 - On weekdays the 12:27 AM trip (weekends the 12:32 AM trip) from Heath St is the last connecting train to other lines downtown. The 12:37AM and 12:47AM trips (weekends the 12:47AM trip) from Heath St. runs in service to Lechmere with no guaranteed connections.

4 - Early morning service from Lechmere to Riverside departs Lechmere at 5:00 AM.

f - After exiting Ted Williams Tunnel bus will only service World Trade Center and South Station stops.

w - Last trips wait at some stations, primarily in the Downtown area, for connecting service. Departure times are approximate.

Fall 2020 & Winter 2021 Holidays
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

Alewife

Start Time	Average Daily Entries	Average Daily Exits	Total	Average Flow
3:00 AM	1	2.6	3.6	
4:00 AM	8.5	2.1	10.6	
5:00 AM	265.8	40.3	306.1	
6:00 AM	901.7	286.9	1188.6	
7:00 AM	2210	465.8	2675.8	
8:00 AM	2623.1	684.2	3307.3	6092.0
9:00 AM	1182.8	408.8	1591.6	
10:00 AM	509.7	206.7	716.4	
11:00 AM	371.6	186.7	558.3	
12:00 PM	316.5	252.8	569.3	
1:00 PM	298.7	328	626.7	
2:00 PM	310.7	452.9	763.6	
3:00 PM	403.5	751.9	1155.4	
4:00 PM	696.4	1297.5	1993.9	
5:00 PM	1005	2082.1	3087.1	7291.0
6:00 PM	653.3	1636.1	2289.4	
7:00 PM	283.3	854.7	1138	
8:00 PM	145.7	498.9	644.6	
9:00 PM	141.2	369.5	510.7	
10:00 PM	110.8	303.5	414.3	
11:00 PM	48.1	229.4	277.5	
12:00 AM	12.2	95.9	108.1	
1:00 AM	5.7	23.5	29.2	
2:00 AM	1.8	4	5.8	
Total	12507.1	11464.8	23971.9	13383.0

Rail Flows Fall 2019

Direction 1			
time_period_id	time_period_name	stop_name	total_ons
time_period_06	PM_PEAK	Alewife	1979
time_period_03	AM_PEAK	Alewife	4837
time_period_07	EVENING	Alewife	755
time_period_04	MIDDAY_BASE	Alewife	2555
time_period_05	MIDDAY_SCHOOL	Alewife	779
time_period_01	VERY_EARLY_MORNING	Alewife	102
time_period_02	EARLY_AM	Alewife	937
time_period_08	LATE_EVENING	Alewife	120
time_period_09	NIGHT	Alewife	8

Direction 1			
time_period_id	time_period_name	stop_name	total_offs
time_period_01	VERY_EARLY_MORNING	Alewife	101
time_period_04	MIDDAY_BASE	Alewife	1093
time_period_05	MIDDAY_SCHOOL	Alewife	1720
time_period_08	LATE_EVENING	Alewife	420
time_period_09	NIGHT	Alewife	23
time_period_06	PM_PEAK	Alewife	5312
time_period_02	EARLY_AM	Alewife	327
time_period_07	EVENING	Alewife	2144
time_period_03	AM_PEAK	Alewife	1255

VEHICLE CRASH DATA



MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge COUNT DATE : 2020 Adj.

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue at Blanchard Road/

ST #

MINOR STREET(S) : Griswold Street

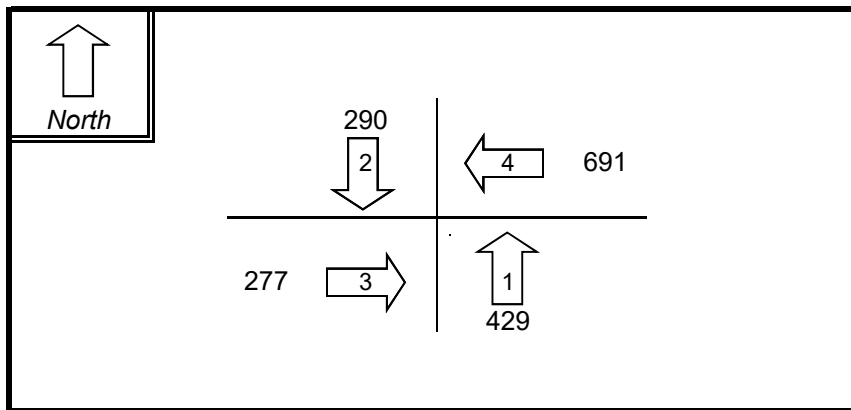
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	429	290	277	691	10	1,697

" K " FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Accident Rate for District 6 signalized intersections = 0.71
Accident Rate for District 6 unsignalized intersections = 0.52

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge COUNT DATE : 2020 Adj.

DISTRICT : 6 UNSIGNALIZED : x SIGNALIZED :

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

ST #

MINOR STREET(S) : Smith Place

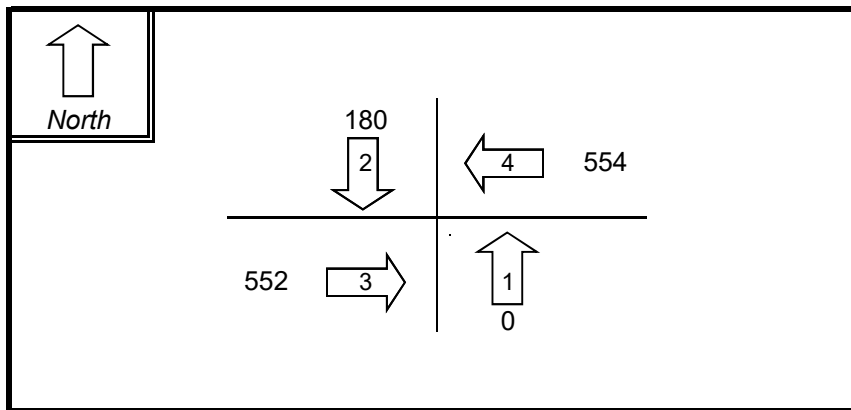
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :		180	552	554		1,286

" K " FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Accident Rate for District 6 signalized intersections = 0.71
Accident Rate for District 6 unsignalized intersections = 0.52

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge COUNT DATE : 2020 Adj.

MHD USE ONLY

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue at

ST #

MINOR STREET(S) : Moulton Street

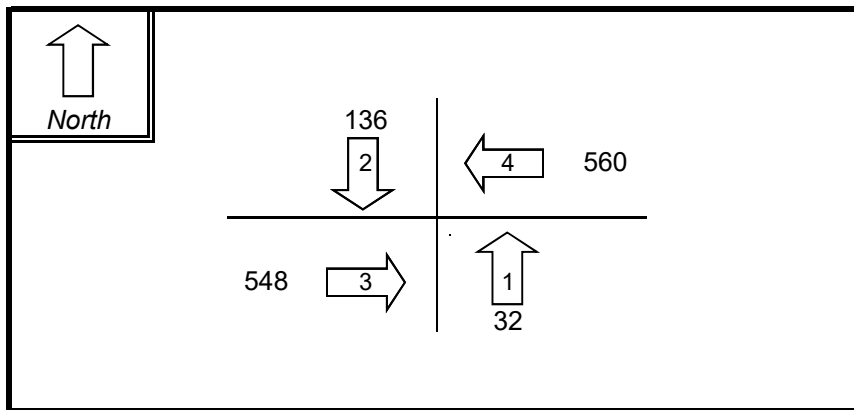
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	32	136	548	560		1,276

" K " FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Accident Rate for District 6 signalized intersections = 0.71
Accident Rate for District 6 unsignalized intersections = 0.52

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge COUNT DATE : 2020 Adj.

DISTRICT : 6 UNSIGNALIZED : SIGNALIZED :

MHD USE ONLY

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue at

ST #

MINOR STREET(S) : Fawcett Street

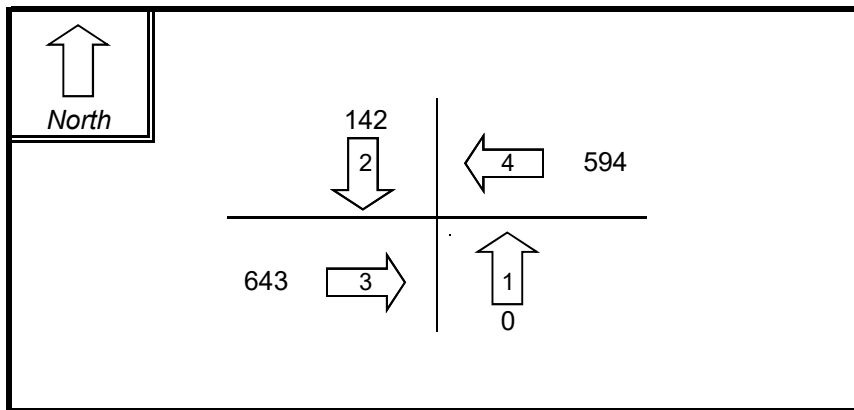
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :		142	643	594		1,379

"K" FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

Comments : Accident Rate for District 6 signalized intersections = 0.71
Accident Rate for District 6 unsignalized intersections = 0.52

MassHighway

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge COUNT DATE : 2020 Adj.

MHD USE ONLY

DISTRICT : 6 UNSIGNALIZED : x SIGNALIZED :

Source #

~ INTERSECTION DATA ~

MAJOR STREET : Smith Place at

ST #

MINOR STREET(S) : Fawcett Street

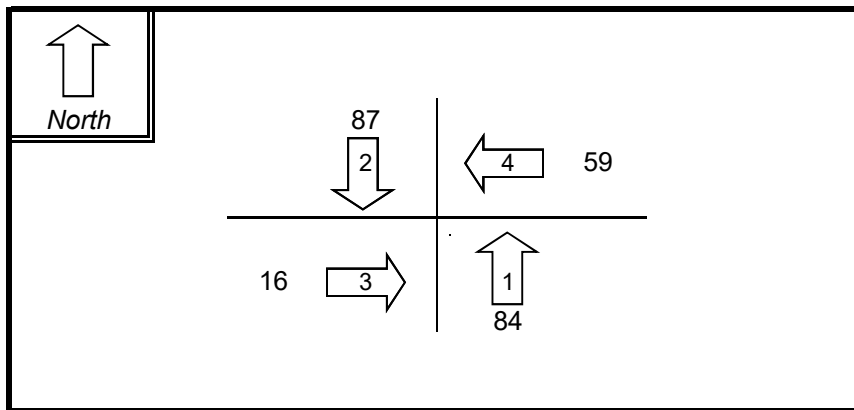
ST #

ST #

ST #

ST #

**INTERSECTION
DIAGRAM
(Label Approaches)**



INTERSECTION
REF #

Peak Hour Volumes

APPROACH :	1	2	3	4	5	Total Entering Vehicles
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	84	87	16	59		246

" K " FACTOR : APPROACH ADT : ADT = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : # OF YEARS : AVERAGE # OF ACCIDENTS (A) :

CRASH RATE CALCULATION : RATE = $\frac{(A * 1,000,000)}{(ADT * 365)}$

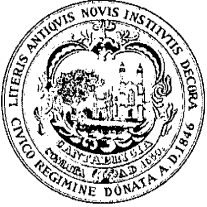
Comments : Accident Rate for District 6 signalized intersections = 0.71
Accident Rate for District 6 unsignalized intersections = 0.52

MODE SPLIT DATA



Comparable Nearby R&D Properties: PTDM Reporting of Mode Shares

	Land Use/Building	Size (Occupied)		SOV		HOV		Vehicle (SOV+HOV)		Transit		Walk		Bike		Other		Other (WFH)		Total		Source:	No.	Date of Original PTDM Approval
R&D	West Cambridge Science Park	58.47	KSF	164	45.2%	45	12.4%	209	57.6%	53	14.6%	32	8.8%	48	13.2%	2	0.6%	19	5.2%	363	100.0%	2018 PTDM Report	F-17	9/20/2016
		65.21	KSF	169	44.7%	52	13.8%	221	58.5%	66	17.5%	19	5.0%	53	14.0%	0	0.0%	19	5.0%	378	100.0%	2019 PTDM Report	F-17	9/20/2016
	10 Wilson Road	50.00	KSF	143	66.2%	17	7.9%	160	74.1%	7	3.2%	11	5.1%	5	2.3%	0	0.0%	33	15.3%	216	100.0%	2017 PTDM Report	F-6	4/6/1999
	75 Moulton St	36.30	KSF	142	56.6%	15	6.0%	157	62.5%	58	23.1%	4	1.6%	30	12.0%	0	0.0%	2	0.8%	251	100.0%	2019 PTDM Report	F-60	4/13/2001
	Median from PTDM properties	50.00	KSF	143	56.6%	17	7.9%	160	62.5%	58	17.5%	11	5.0%	30	12.0%	0	0.0%	19	5.0%	251	103.9%			
	Normalized Median				54.4%		7.6%		60.2%		16.8%		4.8%		11.5%		0.0%		4.8%		100.0%			
Average From PTDM	50.50	KSF	151	55.8%	28	9.2%	179	65.0%	44	14.6%	11	3.9%	29	9.4%	0	0.0%	18	7.0%	282	100.0%				
Total	151.51		454	54%	84	10%	538	64%	131	16%	34	4%	88	10%	-	0%	54	6%	845	100.0%	weighted average			



CITY OF CAMBRIDGE

TRAFFIC, PARKING, + TRANSPORTATION

Joseph E. Barr, Director
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January 21, 2020

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Chris Chandor
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RE: 40 Wilson Road TIS Scope

The Cambridge Traffic, Parking, and Transportation Department (TP+T) received your November 21, 2019 request for a Transportation Impact Study (TIS) scope for a proposed development project located at 40 Wilson Road in the Alewife Quadrangle area of Cambridge.

The Project proposes approximately 250,000 gross square feet of laboratory space in a new building, replacing the existing approximately 58,600 SF building and structures. The Project proposes approximately 444 parking spaces in a below-grade parking garage and a small surface parking lot including 375 spaces to serve 40 Wilson Road tenants, 59 spaces to serve 10 Wilson Road tenants, and 10 spaces to serve 26 Smith Place.

The project proposes 56 long-term bicycle parking spaces and 16 short-term bicycle parking spaces. However, the TIS scope request letter did not indicate the number of existing or proposed bicycle parking spaces to serve the 10 Wilson Road and 26 Smith Place buildings, which should also be indicated in the TIS.

Based on staff review, the TIS scope is approved as follows:

- The TIS shall comply with the Cambridge TIS Guidelines.
<http://www.cambridgema.gov/traffic/alldocuments/Documents/T/trafficstudyguidelines>.
Please provide 3 hard copies of the full TIS and one CD-ROM that includes the full TIS, TIS appendices and all electronic files.
- The TIS shall document the existing site and study area transportation conditions, including the following information:

- Collect AM (7:30 AM – 9:30 AM) and PM (4:30 PM – 7:30 PM) vehicle, pedestrian, and bicycle turning movement counts (TMCs), including vehicle classification and queue observations at the following study area intersections. The exact dates of the traffic counts should be labeled on the traffic network figures. All average daily traffic (ADT) and turning movement count (TMC) output data shall be provided to TP+T. Turning movement counts should be conducted on a Tuesday, Wednesday or Thursday.
 1. Concord Avenue/Smith Place
 2. Concord Avenue/Moulton Street/Neville Manor (signalized)
 3. Concord Avenue/Fawcett Street
 4. Concord Avenue Blanchard Road/Griswold Street
 5. Smith Place at 55 Wilson Road Driveway (proposed site driveway)
 6. Smith Place/Wilson Road
- Provide 12-hour pedestrian and bicycle counts at the following locations:
 - A. Smith Place at Concord Avenue, including bicycle counts for the bike lane on the north side of Concord Avenue, and bicycle and pedestrian counts for the cycle track on the south side of Concord Avenue.
 - B. Concord Avenue pedestrian/bike mid-block crossing between Fawcett Street and Wheeler Street (signalized)
 - C. Concord Avenue pedestrian/bike crossing between the Alewife Brook Parkway and Fresh Pond Parkway rotaries (signalized).
- As stated in your scope request letter, the TIS should include crash data for the three most recent years available at all study area intersections, however, crash data should be obtained from the Cambridge Police Department instead of or in addition to MassDOT crash report data. Bicycle and pedestrian crash rates should be listed separately. Crash rates should be compared to district and statewide averages for signalized and un-signalized intersections.
- The TIS mode split assumptions for the Project's trip generation analysis should be as shown below or as approved by TP+T.

Land Use	SOV	HOV	Transit	Bike	Walk	Work at Home	Other
R&D	54%	10%	16%	10%	4%	2%	4%

Source: Average mode shares for 10 Wilson Ave 2017 PTDM report, 767 Concord Ave 2019 PTDM report, and 75 Moulton Street 2019 PTDM report.

- As suggested in your TIS scope request letter, the TIS should use the trip distribution assumptions used in the Envision Cambridge Alewife Planning Study for the Quadrangle Commercial Land Use.
- The TIS should justify any trip credits from vehicle trips currently being generated from the Project site.
- The estimated Total Project Generated Trips in your scope request letter appears low. TP+T will work with you on comparing ITE trip rates with local data and

TRIP GENERATION DATA



Land Use/Building	No.	Size (Occupied)	Date of Original PTDM Approval	% Parking On-Site	Year	Daily			AM Peak			PM Peak			Daily		AM		PM		Source:
						Trips In	Trips Out	Total Trips	Trips In	Trips Out	Total Trips	Trips In	Trips Out	Total Trips	Enter	Exit	Enter	Exit	Enter	Exit	
10 Wilson Road	F-6	50.00 KSF	4/6/1999	100%	2017	34	40	74	13	0	13	5	8	13	0.68	0.80	0.26	0.00	0.10	0.16	2017 PTDM Report
West Cambridge Science Park	F-17	58.47 KSF	9/20/2016	100%	2018	301	305	606	49	19	68	9	46	55	5.17	5.24	0.84	0.33	0.15	0.79	2018 PTDM Report
75 Moulton St	F-17	65.21 KSF	9/20/2016	94%	2019										No Driveway Counts Available						2019 PTDM Report
75 Moulton St	F-60	36.30 KSF	4/13/2001	100%	2019	74	75	149	20	4	24	6	16	22	2.04	2.07	0.55	0.11	0.17	0.44	2019 PTDM Report
Median From PTDM		54.24 KSF													2.04	2.07	0.55	0.11	0.15	0.44	essentially 75 Moulton
Average From PTDM		52.50 KSF													2.63	2.70	0.55	0.15	0.14	0.46	
Total		144.78				409	420	829	82	23	105	20	70	90	2.83	2.90	0.57	0.16	0.14	0.48	weighted average

Adam's working trip rates (for comparison)

	AM Enter	AM Exit	PM Enter	PM Exit	R&D average
Trip Rates:	0.55	0.17	0.09	0.57	

Time Period/ <i>Direction</i>	<i>Rates</i>	R&D		Vehicles Trip			Total Person trip	
		Total (SOV+HOV) Vehicle Trips		Drive Alone (SOV) Auto	Rideshare (HOV) Auto	Total Trips	(SOV+HOV) Vehicle Person Trips	Total 100% Person Trips
Weekday :		62.05		84%	16%			64
Entering	2.83	176	176	148	28	275	185	289
Exiting	2.90	180	180	151	29	281	189	295
Total	5.73	356	356	299	57	556	374	584
Weekday Morning Peak Hour:								
Entering	0.57	35	35	29	6	55	37	58
Exiting	0.16	10	10	8	2	16	11	17
Total	0.73	45	45	37	8	71	48	75
Weekday Evening Peak Hour:								
Entering	0.14	9	9	8	1	13	9	14
Exiting	0.48	30	30	25	5	48	32	50
Total	0.62	39	39	33	6	61	41	64

Total Person trip by mode

Drive Alone (SOV) Auto	Rideshare (HOV) Auto	Transit	Bicycle	Pedestrian	Other		Total Vehicles Trips	
156	29	46	29	12	17	289	176	0
159	30	47	30	11	18	295	180	0
315	59	93	59	23	35	584	356	0
31	6	9	6	2	4	58	35	0
9	2	2	2	1	1	17	10	0
40	8	11	8	3	5	75	45	0
8	1	2	1	1	1	14	9	0
27	5	8	5	2	3	50	30	0
35	6	10	6	3	4	64	39	0

	Office
(SOV) Auto	54%
(HOV) Auto	10%
Transit	16%
Bicycle	10%
Pedestrian	4%
Other	6%
Total	1

Veh	1.05
-----	------

TRIP DISTRIBUTION DATA



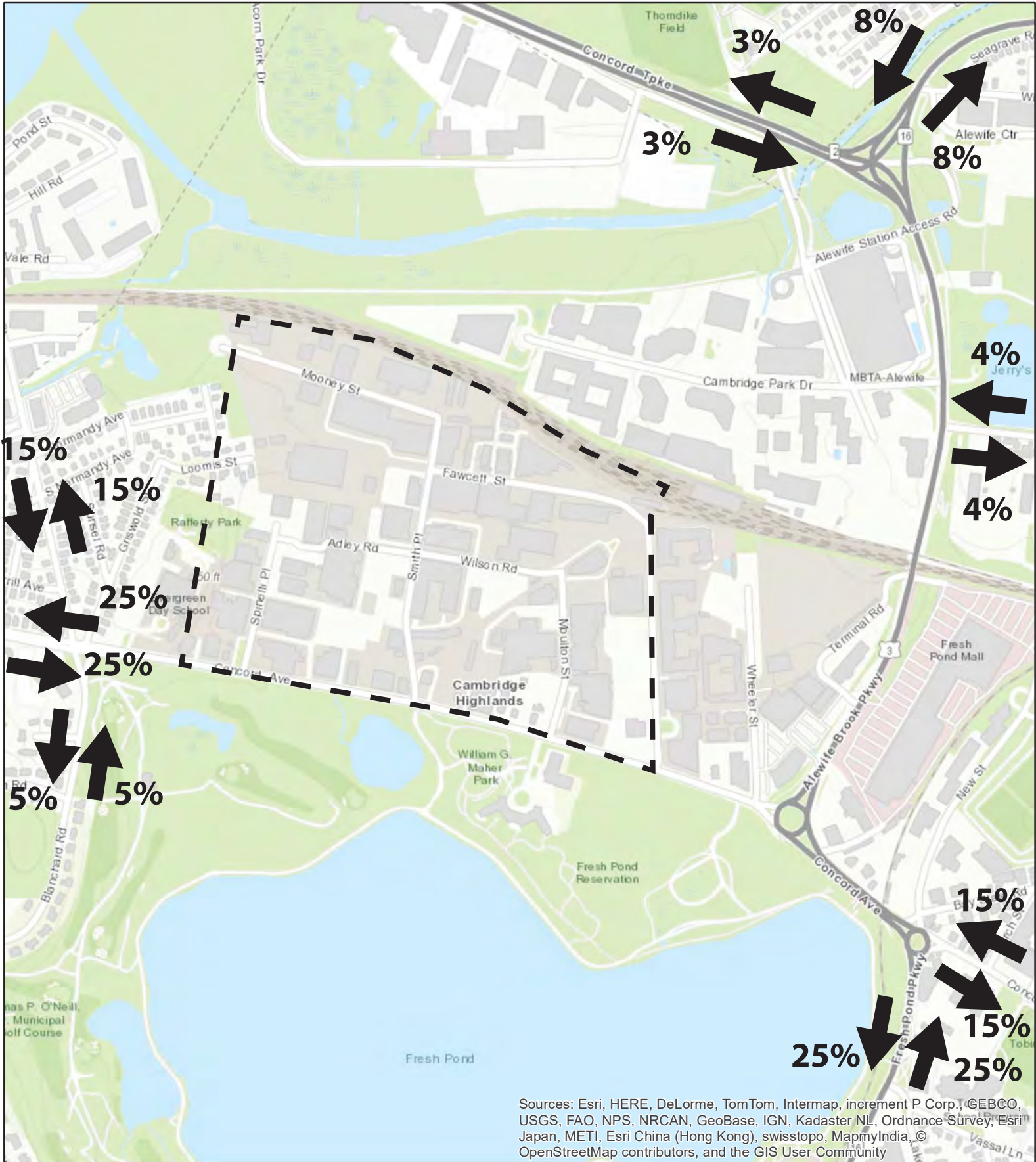
Alewife Critical Sums Analysis Envision Cambridge

McMahon Associates

Prepared for the City of Cambridge

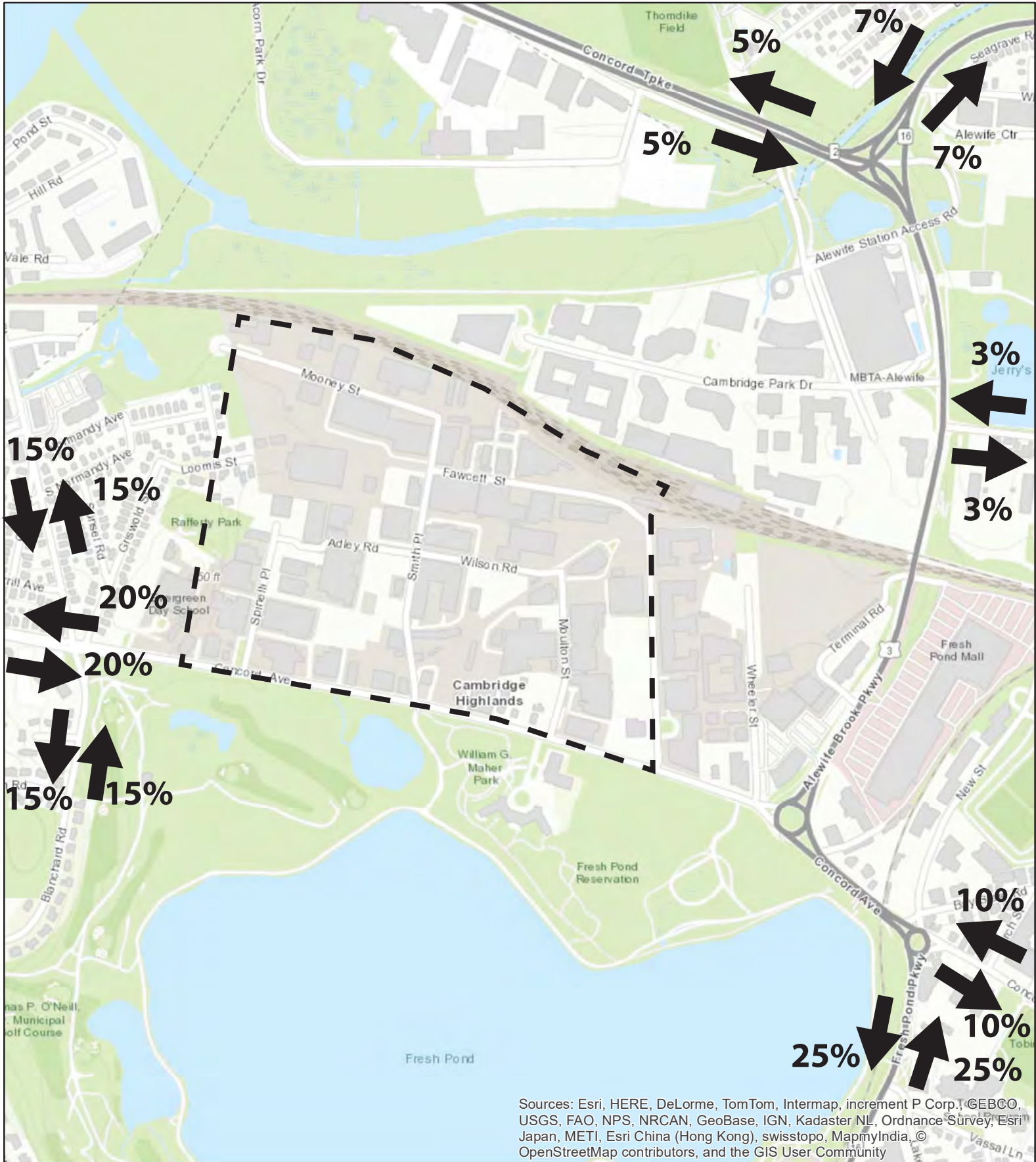
Revised January 25, 2019

QUAD RESIDENTIAL



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

QUAD COMMERCIAL



Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

CAPACITY ANALYSIS METHODOLOGY



CAPACITY ANALYSIS METHODOLOGY

LEVELS OF SERVICE

A primary result of capacity analyses is the assignment of level of service to traffic facilities under various traffic-flow conditions.¹ The concept of level of service is defined as a qualitative measure describing operational conditions within a traffic stream and their perception by motorists and/or passengers. A level-of-service definition provides an index to quality of traffic flow in terms of such factors as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience, and safety.

Six levels of service are defined for each type of facility. They are given letter designations from A to F, with level-of-service (LOS) A representing the best operating conditions and LOS F representing congested or constrained operating conditions.

Since the level of service of a traffic facility is a function of the traffic flows placed upon it, such a facility may operate at a wide range of levels of service, depending on the time of day, day of week, or period of year.

Unsignalized Intersections

The six levels of service for unsignalized intersections may be described as follows:

- *LOS A* represents a condition with little or no control delay to minor street traffic.
- *LOS B* represents a condition with short control delays to minor street traffic.
- *LOS C* represents a condition with average control delays to minor street traffic.
- *LOS D* represents a condition with long control delays to minor street traffic.
- *LOS E* represents operating conditions at or near capacity level, with very long control delays to minor street traffic.

¹The capacity analysis methodology is based on the concepts and procedures presented in the *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2016.

- *LOS F* represents a condition where minor street demand volume exceeds capacity of an approach lane, with extreme control delays resulting.

The levels of service of unsignalized intersections are determined by application of a procedure described in the *Highway Capacity Manual 6th Edition*.² Level of service is measured in terms of average control delay. Mathematically, control delay is a function of the capacity and degree of saturation of the lane group and/or approach under study and is a quantification of motorist delay associated with traffic control devices such as traffic signals and STOP signs. Control delay includes the effects of initial deceleration delay approaching a STOP sign, stopped delay, queue move-up time, and final acceleration delay from a stopped condition. Definitions for level of service at unsignalized intersections are also given in the *Highway Capacity Manual 6th Edition*. Table 13 summarizes the relationship between level of service and average control delay for two-way stop controlled and all-way stop controlled intersections.

LEVEL-OF-SERVICE CRITERIA FOR UNSIGNALIZED INTERSECTIONS^a

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay (Seconds Per Vehicle)
v/c ≤ 1.0	v/c > 1.0	
A	F	≤10.0
B	F	10.1 to 15.0
C	F	15.1 to 25.0
D	F	25.1 to 35.0
E	F	35.1 to 50.0
F	F	>50.0

^aSource: *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2016; page 20-6.

Signalized Intersections

The six levels of service for signalized intersections may be described as follows:

- * *LOS A* describes operations with very low control delay; most vehicles do not stop at all.
- * *LOS B* describes operations with relatively low control delay. However, more vehicles stop than *LOS A*.
- * *LOS C* describes operations with higher control delays. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
- * *LOS D* describes operations with control delay in the range where the influence of congestion becomes more noticeable. Many vehicles stop and individual cycle failures are noticeable.
- * *LOS E* describes operations with high control delay values. Individual cycle failures are frequent occurrences.

²*Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2016.

- * *LOS F* describes operations with high control delay values that often occur with over-saturation. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Levels of service for signalized intersections are calculated using the operational analysis methodology of the *Highway Capacity Manual 6th Edition*. This method assesses the effects of signal type, timing, phasing, and progression; vehicle mix; and geometrics on delay. Level-of-service designations are based on the criterion of control or signal delay per vehicle. Control or signal delay is a measure of driver discomfort, frustration, and fuel consumption, and includes initial deceleration delay approaching the traffic signal, queue move-up time, stopped delay and final acceleration delay. Table 14 summarizes the relationship between level-of-service and control delay. The tabulated control delay criterion may be applied in assigning level-of-service designations to individual lane groups, to individual intersection approaches, or to entire intersections.

**LEVEL-OF-SERVICE CRITERIA
FOR SIGNALIZED INTERSECTIONS^a**

Level-Of-Service by Volume-to-Capacity Ratio		Average Control Delay (Seconds Per Vehicle)
$v/c \leq 1.0$	$v/c > 1.0$	
A	F	≤ 10.0
B	F	10.1 to 20.0
C	F	20.1 to 35.0
D	F	35.1 to 55.0
E	F	55.1 to 80.0
F	F	> 80.0

^aSource: *Highway Capacity Manual 6th Edition*; Transportation Research Board; Washington, DC; 2016; page 19-16.

PEDESTRIAN ANALYSIS

The six pedestrian levels of service may be described as follows:

- * *LOS A*: Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
- * *LOS B*: Sufficient area is provided to allow pedestrians to freely select walking speeds, to bypass other pedestrians, and to avoid crossing conflicts with others.
- * *LOS C*: Sufficient space is available to select normal walking speeds, and to bypass other pedestrians in primarily unidirectional streams.
- * *LOS D*: Freedom to select individual walking speed and to bypass other pedestrians is restricted.
- * *LOS E*: Virtually all pedestrians would have their normal walking speed restricted, requiring frequent adjustment of gait. At the lower range of this level of service, forward movement is possible only by “shuffling.” Insufficient space is provided for passing of slower pedestrians.

- * *LOS F*: All walking speeds are severely restricted, and forward progress is made only by “shuffling.” There is frequent, unavoidable contact with other pedestrians. Flow is sporadic and unstable.

**PEDESTRIAN LEVEL-OF-SERVICE CRITERIA
AT SIGNALIZED INTERSECTIONS^a**

Level of Service	Average Delay Per Pedestrian (Seconds)
A	<10
B	≥10 to 20
C	>20 to 30
D	>30 to 40
E	>40 to 60
F	>60

^aSource: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000; Exhibit 18-9.

**PEDESTRIAN LEVEL-OF-SERVICE CRITERIA
AT UNSIGNALIZED INTERSECTIONS^a**

Level of Service	Average Delay Per Pedestrian (Seconds)
A	≤5
B	≥5 to 10
C	>10 to 20
D	>20 to 30
E	>30 to 45
F	>45

^aSource: *Highway Capacity Manual*; Transportation Research Board; Washington, DC; 2000; Exhibit 18-13.

SIMTRAFFIC METHODOLOGY

SimTraffic is designed to model networks of signalized and unsignalized intersections, including roundabouts. SimTraffic can provide a number of measures of effectiveness for evaluating networks. One such measure is delay per vehicle which is calculated by dividing the total delay by the number of vehicles. The delay values were then used to determine level-of-service characteristics based on the HCM methodology previously described. Queue lengths are another output that SimTraffic generates. A vehicle is considered queued whenever it is traveling at less than 10 ft/sec. SimTraffic presents delays and queues by each individual lane and not by lane group.

QUEUE ANALYSIS



Queuing and Blocking Report

1 - 2021 Baseline Condition Weekday Morning

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	280	244	136	145	88	287	125	358
Average Queue (ft)	159	107	112	123	39	145	61	208
95th Queue (ft)	271	231	154	154	76	262	163	351
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			21	20	0			
Queuing Penalty (veh)			44	44	0			
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						19	0	
Queuing Penalty (veh)						32	0	

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	209	219	186	39	51
Average Queue (ft)	113	97	86	6	33
95th Queue (ft)	204	200	178	33	57
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 120

Queuing and Blocking Report

2 - 2021 Baseline Condition Weekday Evening

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	182	167	137	136	124	541	125	258
Average Queue (ft)	125	71	126	118	55	334	49	168
95th Queue (ft)	179	159	156	156	112	615	147	267
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			47	20	1	4		
Queuing Penalty (veh)			109	47	2	0		
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						38	0	
Queuing Penalty (veh)						51	0	

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	156	170	192	60	101
Average Queue (ft)	84	79	92	21	54
95th Queue (ft)	152	150	172	56	98
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 210

Queuing and Blocking Report

3 - 2021 Build Weekday Morning

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	217	189	135	155	76	291	125	355
Average Queue (ft)	150	111	113	118	38	167	57	205
95th Queue (ft)	209	194	161	157	71	283	157	319
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			28	15				
Queuing Penalty (veh)			62	33				
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						23	0	
Queuing Penalty (veh)						38	0	

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	201	210	259	40	76
Average Queue (ft)	103	89	93	6	32
95th Queue (ft)	199	189	200	28	66
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 133

Queuing and Blocking Report

4 - 2021 Build Weekday Evening

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	189	159	140	136	134	570	125	309
Average Queue (ft)	125	66	132	114	58	332	52	178
95th Queue (ft)	184	153	150	159	120	638	152	289
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			69	16	2	7		
Queuing Penalty (veh)			161	37	5	0		
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						40	0	
Queuing Penalty (veh)						53	0	

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	144	147	199	52	138
Average Queue (ft)	81	69	92	21	61
95th Queue (ft)	133	135	176	48	113
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 256

Queuing and Blocking Report

5 - 2026 Build Weekday Morning

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	318	269	138	137	104	326	125	410
Average Queue (ft)	216	175	131	127	50	160	51	251
95th Queue (ft)	369	336	144	148	92	304	151	385
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			68	30	0			
Queuing Penalty (veh)			169	76	0			
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						25	0	
Queuing Penalty (veh)						47	0	

Intersection: 37: Concord Avenue & Fawcett Street

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	407	392	609	219
Average Queue (ft)	173	183	441	96
95th Queue (ft)	340	339	762	185
Link Distance (ft)	530	530	739	1314
Upstream Blk Time (%)	0		10	
Queuing Penalty (veh)	1		0	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	247	274	438	45	68
Average Queue (ft)	125	123	211	5	32
95th Queue (ft)	231	233	458	27	62
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)			1		
Queuing Penalty (veh)			9		
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 302

Queuing and Blocking Report
 6 - 2026 Build Weekday Evening

05/26/2021

Intersection: 17: blanchard Road & Concord Avenue

Movement	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	LT	TR	L	T	R	LT	R	LTR
Maximum Queue (ft)	273	222	141	135	133	658	125	322
Average Queue (ft)	167	115	134	120	86	639	64	216
95th Queue (ft)	267	240	145	153	148	693	165	342
Link Distance (ft)	755	755	122	122	122	631		778
Upstream Blk Time (%)			85	33	6	50		
Queuing Penalty (veh)			228	88	17	0		
Storage Bay Dist (ft)							100	
Storage Blk Time (%)						61	0	
Queuing Penalty (veh)						95	1	

Intersection: 37: Concord Avenue & Fawcett Street

Movement	EB	EB	WB	SB
Directions Served	LT	T	TR	LR
Maximum Queue (ft)	175	172	265	197
Average Queue (ft)	83	89	139	117
95th Queue (ft)	151	164	256	199
Link Distance (ft)	530	530	739	1314
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 40: Private Drive/Moulton Street & Concord Avenue

Movement	EB	EB	WB	NB	SB
Directions Served	LT	TR	LTR	LTR	LTR
Maximum Queue (ft)	187	156	303	44	121
Average Queue (ft)	112	95	162	23	79
95th Queue (ft)	167	156	310	49	122
Link Distance (ft)	647	647	530	194	834
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Zone Summary

Zone wide Queuing Penalty: 429

TRAFFIC ANALYSIS

2021 Existing Weekday Morning Peak Hour
2021 Existing Weekday Evening Peak Hour
2021 Build Weekday Morning Peak Hour
2021 Build Weekday Evening Peak Hour
2026 Future Weekday Morning Peak Hour
2026 Future Weekday Evening Peak Hour



2021 Existing Weekday Morning Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

1 - 2021 Baseline Condition Weekday Morning
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↗		↕↕	
Traffic Volume (vph)	14	402	12	147	285	164	16	210	213	376	324	11
Future Volume (vph)	14	402	12	147	285	164	16	210	213	376	324	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996				0.850			0.850		0.998	
Flt Protected		0.998		0.950				0.996			0.974	
Satd. Flow (prot)	0	3318	0	1574	1756	1492	0	1892	1583	0	1785	0
Flt Permitted		0.936		0.950				0.996			0.974	
Satd. Flow (perm)	0	3112	0	1574	1756	1492	0	1892	1583	0	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				193			169			1
Link Speed (mph)		30			30			30				30
Link Distance (ft)		799			183			684				825
Travel Time (s)		18.2			4.2			15.5				18.8
Peak Hour Factor	0.91	0.91	0.91	0.85	0.85	0.85	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	7%	1%	1%	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	15	442	13	173	335	193	17	221	224	388	334	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	470	0	173	335	193	0	238	224	0	733	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	30.0	30.0		21.0	51.0	51.0	45.0	45.0	45.0	45.0	45.0	
Total Split (%)	21.3%	21.3%		14.9%	36.2%	36.2%	31.9%	31.9%	31.9%	31.9%	31.9%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

1 - 2021 Baseline Condition Weekday Morning
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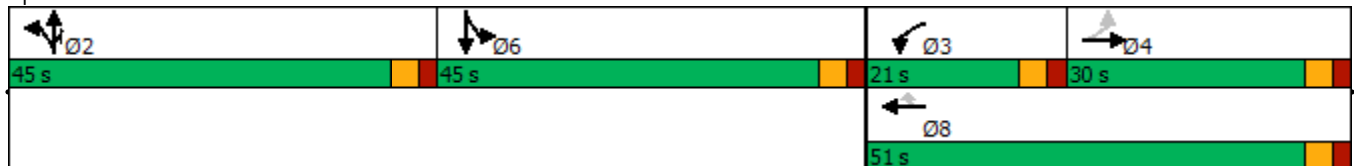


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	25.0	25.0		16.0	46.0	46.0	40.0	40.0	40.0	40.0	40.0	40.0
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)		24.7		17.0	45.8	45.8		41.0	41.0			41.0
Actuated g/C Ratio		0.18		0.12	0.33	0.33		0.29	0.29			0.29
v/c Ratio		0.85		0.91	0.58	0.31		0.43	0.38			1.40
Control Delay		70.8		105.0	43.9	5.7		43.1	12.8			228.4
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		70.8		105.0	43.9	5.7		43.1	12.8			228.4
LOS		E		F	D	A		D	B			F
Approach Delay		70.8			48.4			28.4				228.4
Approach LOS		E			D			C				F
Queue Length 50th (ft)		219		159	253	0		178	37			~906
Queue Length 95th (ft)		#296		#276	331	44		260	109			#1155
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		580		191	590	630		555	584			524
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.81		0.91	0.57	0.31		0.43	0.38			1.40

Intersection Summary

Area Type: Other
 Cycle Length: 141
 Actuated Cycle Length: 139.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.40
 Intersection Signal Delay: 104.7
 Intersection LOS: F
 Intersection Capacity Utilization 90.7%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings

1 - 2021 Baseline Condition Weekday Morning

40: Private Drive/Moulton Street & Concord Avenue

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	18	843	19	12	649	52	2	0	4	41	1	10
Future Volume (vph)	18	843	19	12	649	52	2	0	4	41	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990			0.916			0.974	
Flt Protected		0.999			0.999			0.982			0.962	
Satd. Flow (prot)	0	3410	0	0	1779	0	0	1343	0	0	1694	0
Flt Permitted		0.937			0.983			0.871			0.766	
Satd. Flow (perm)	0	3199	0	0	1751	0	0	1191	0	0	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			61			12	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.75	0.75	0.75	0.77	0.77	0.77
Heavy Vehicles (%)	0%	2%	0%	8%	2%	2%	50%	0%	0%	2%	0%	0%
Adj. Flow (vph)	20	937	21	12	669	54	3	0	5	53	1	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	978	0	0	735	0	0	8	0	0	67	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

1 - 2021 Baseline Condition Weekday Morning
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		53.9			53.9			8.3			8.3	
Actuated g/C Ratio		0.78			0.78			0.12			0.12	
v/c Ratio		0.39			0.53			0.04			0.39	
Control Delay		4.0			6.1			0.3			30.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.0			6.1			0.3			30.0	
LOS		A			A			A			C	
Approach Delay		4.0			6.1			0.3			30.0	
Approach LOS		A			A			A			C	
Queue Length 50th (ft)		63			107			0			24	
Queue Length 95th (ft)		108			220			0			43	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2509			1374			325			325	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.53			0.02			0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	68.7
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	5.8
Intersection LOS:	A
Intersection Capacity Utilization:	61.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	46	64	0	0	0
Future Vol, veh/h	0	46	64	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	50	70	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	70	0	-	0	120 70
Stage 1	-	-	-	-	70 -
Stage 2	-	-	-	-	50 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1531	-	-	-	876 993
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	972 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1531	-	-	-	876 993
Mov Cap-2 Maneuver	-	-	-	-	876 -
Stage 1	-	-	-	-	953 -
Stage 2	-	-	-	-	972 -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1531	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	991	562	6	0	34
Future Vol, veh/h	0	991	562	6	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	85	85	77	77
Heavy Vehicles, %	0	1	8	12	0	0
Mvmt Flow	0	1089	661	7	0	44

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	334
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	569
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	569
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	569
HCM Lane V/C Ratio	-	-	-	0.078
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection						
Int Delay, s/veh	2.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	65	877	601	38	34	51
Future Vol, veh/h	65	877	601	38	34	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	94	94	79	79
Heavy Vehicles, %	6	1	1	10	9	6
Mvmt Flow	73	985	639	40	43	65

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	679	0	-	0	1298 659
Stage 1	-	-	-	-	659 -
Stage 2	-	-	-	-	639 -
Critical Hdwy	4.19	-	-	-	6.735 6.29
Critical Hdwy Stg 1	-	-	-	-	5.535 -
Critical Hdwy Stg 2	-	-	-	-	5.935 -
Follow-up Hdwy	2.257	-	-	-	3.5855 3.357
Pot Cap-1 Maneuver	889	-	-	-	158 454
Stage 1	-	-	-	-	497 -
Stage 2	-	-	-	-	473 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	889	-	-	-	129 454
Mov Cap-2 Maneuver	-	-	-	-	129 -
Stage 1	-	-	-	-	407 -
Stage 2	-	-	-	-	473 -

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	34.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	889	-	-	-	226
HCM Lane V/C Ratio	0.082	-	-	-	0.476
HCM Control Delay (s)	9.4	0.7	-	-	34.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.3	-	-	-	2.4

Intersection												
Int Delay, s/veh	4.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	6	30	1	33	1	26	32	13	31	0
Future Vol, veh/h	1	1	6	30	1	33	1	26	32	13	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	87	87	87	75	75	75
Heavy Vehicles, %	0	0	17	3	0	9	100	38	0	15	23	0
Mvmt Flow	1	1	8	40	1	44	1	30	37	17	41	0

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	148	144	41	131	126	49	41	0	0	67	0	0
Stage 1	75	75	-	51	51	-	-	-	-	-	-	-
Stage 2	73	69	-	80	75	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.37	7.13	6.5	6.29	5.1	-	-	4.25	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.453	3.527	4	3.381	3.1	-	-	2.335	-	-
Pot Cap-1 Maneuver	825	751	989	839	768	1000	1115	-	-	1456	-	-
Stage 1	939	836	-	959	856	-	-	-	-	-	-	-
Stage 2	942	841	-	926	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	780	741	989	823	758	1000	1115	-	-	1456	-	-
Mov Cap-2 Maneuver	780	741	-	823	758	-	-	-	-	-	-	-
Stage 1	938	826	-	958	855	-	-	-	-	-	-	-
Stage 2	898	840	-	906	826	-	-	-	-	-	-	-

Approach	EB		WB			NB			SB		
HCM Control Delay, s	9		9.4			0.1			2.2		
HCM LOS	A		A								

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1115	-	-	920	904	1456	-	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.094	0.012	-	-
HCM Control Delay (s)	8.2	0	-	9	9.4	7.5	0	-
HCM Lane LOS	A	A	-	A	A	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0	0.3	0	-	-

Intersection						
Int Delay, s/veh	4.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	22	899	679	149	73	31
Future Vol, veh/h	22	899	679	149	73	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	98	98	79	79
Heavy Vehicles, %	4	1	3	3	6	0
Mvmt Flow	24	999	693	152	92	39

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	845	0	-	0	1317 769
Stage 1	-	-	-	-	769 -
Stage 2	-	-	-	-	548 -
Critical Hdwy	4.16	-	-	-	6.69 6.2
Critical Hdwy Stg 1	-	-	-	-	5.49 -
Critical Hdwy Stg 2	-	-	-	-	5.89 -
Follow-up Hdwy	2.238	-	-	-	3.557 3.3
Pot Cap-1 Maneuver	779	-	-	-	157 404
Stage 1	-	-	-	-	447 -
Stage 2	-	-	-	-	535 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	779	-	-	-	146 404
Mov Cap-2 Maneuver	-	-	-	-	146 -
Stage 1	-	-	-	-	416 -
Stage 2	-	-	-	-	535 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	65.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	779	-	-	-	180
HCM Lane V/C Ratio	0.031	-	-	-	0.731
HCM Control Delay (s)	9.8	0.3	-	-	65.7
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	4.6

2021 Existing Weekday Evening Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

2 - 2021 Baseline Condition Weekday Evening

05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↗		↕	
Traffic Volume (vph)	31	228	17	197	277	200	16	291	120	159	266	7
Future Volume (vph)	31	228	17	197	277	200	16	291	120	159	266	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.991				0.850			0.850		0.998	
Fl _t Protected		0.994		0.950				0.997			0.982	
Satd. Flow (prot)	0	3319	0	1685	1773	1492	0	1894	1599	0	1789	0
Fl _t Permitted		0.876		0.950				0.997			0.982	
Satd. Flow (perm)	0	2925	0	1685	1773	1492	0	1894	1599	0	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				213			74			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		799			183			684			825	
Travel Time (s)		18.2			4.2			15.5			18.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.80	0.80	0.80	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	33	243	18	210	295	213	20	364	150	169	283	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	294	0	210	295	213	0	384	150	0	459	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	45.0	45.0		21.0	66.0	66.0	55.0	55.0	55.0	55.0	55.0	
Total Split (%)	25.6%	25.6%		11.9%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

2 - 2021 Baseline Condition Weekday Evening
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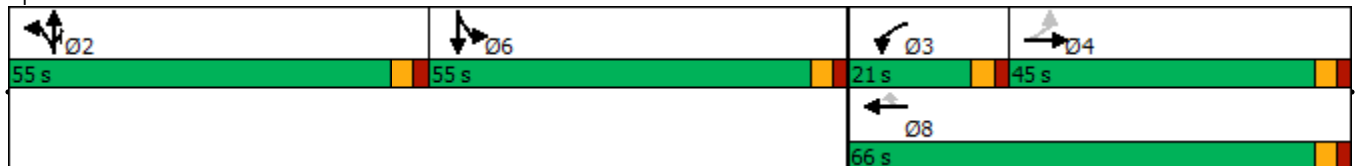


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	40.0	40.0		16.0	61.0	61.0	50.0	50.0	50.0	50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effect Green (s)		21.3		17.1	42.5	42.5		51.3	51.3			44.1
Actuated g/C Ratio		0.14		0.11	0.28	0.28		0.34	0.34			0.29
v/c Ratio		0.70		1.09	0.59	0.37		0.59	0.25			0.87
Control Delay		70.6		152.1	52.4	6.9		47.1	20.8			68.7
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		70.6		152.1	52.4	6.9		47.1	20.8			68.7
LOS		E		F	D	A		D	C			E
Approach Delay		70.6			68.1			39.7				68.7
Approach LOS		E			E			D				E
Queue Length 50th (ft)		146		~239	255	0		319	53			428
Queue Length 95th (ft)		206		#445	369	64		407	99			#607
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		807		192	737	745		648	596			612
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.36		1.09	0.40	0.29		0.59	0.25			0.75

Intersection Summary

Area Type: Other
 Cycle Length: 176
 Actuated Cycle Length: 149.9
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 61.0
 Intersection LOS: E
 Intersection Capacity Utilization 75.1%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

2 - 2021 Baseline Condition Weekday Evening

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	2	535	8	7	542	8	12	1	19	93	0	43
Future Volume (vph)	2	535	8	7	542	8	12	1	19	93	0	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.998			0.920			0.958	
Flt Protected					0.999			0.981			0.967	
Satd. Flow (prot)	0	3449	0	0	1814	0	0	1600	0	0	1701	0
Flt Permitted		0.954			0.994			0.879			0.769	
Satd. Flow (perm)	0	3290	0	0	1804	0	0	1434	0	0	1353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			25			61	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.79	0.79	0.79
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	582	9	8	645	10	16	1	25	118	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	593	0	0	663	0	0	42	0	0	172	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

2 - 2021 Baseline Condition Weekday Evening

05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		44.8			44.8			10.8			10.8	
Actuated g/C Ratio		0.68			0.68			0.16			0.16	
v/c Ratio		0.26			0.54			0.16			0.63	
Control Delay		4.9			8.1			13.9			26.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.9			8.1			13.9			26.1	
LOS		A			A			B			C	
Approach Delay		4.9			8.1			13.9			26.1	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		37			106			5			38	
Queue Length 95th (ft)		76			207			21			74	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2246			1231			369			377	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.26			0.54			0.11			0.46	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	65.6
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization:	56.6%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	0	36	59	0	0	0
Future Vol, veh/h	0	36	59	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	39	64	0	0	0

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	64	0	-	0	103
Stage 1	-	-	-	-	64
Stage 2	-	-	-	-	39
Critical Hdwy	4.12	-	-	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	2.218	-	-	-	3.518
Pot Cap-1 Maneuver	1538	-	-	-	895
Stage 1	-	-	-	-	959
Stage 2	-	-	-	-	983
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	1538	-	-	-	895
Mov Cap-2 Maneuver	-	-	-	-	895
Stage 1	-	-	-	-	959
Stage 2	-	-	-	-	983

Approach	EB	WB	SB
HCM Control Delay, s	0	0	0
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1538	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	-	-	0
HCM Lane LOS	A	-	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	-

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	507	664	24	0	10
Future Vol, veh/h	0	507	664	24	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	539	706	26	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 366
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.1
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 543
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 543
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.8
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	543
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	11.8
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection						
Int Delay, s/veh	4.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	57	493	533	18	77	103
Future Vol, veh/h	57	493	533	18	77	103
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	93	93	88	88
Heavy Vehicles, %	0	1	0	1	0	1
Mvmt Flow	61	524	573	19	88	117

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	592	0	-	0	967 583
Stage 1	-	-	-	-	583 -
Stage 2	-	-	-	-	384 -
Critical Hdwy	4.1	-	-	-	6.6 6.215
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3095
Pot Cap-1 Maneuver	994	-	-	-	270 514
Stage 1	-	-	-	-	562 -
Stage 2	-	-	-	-	664 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	994	-	-	-	247 514
Mov Cap-2 Maneuver	-	-	-	-	247 -
Stage 1	-	-	-	-	513 -
Stage 2	-	-	-	-	664 -

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	28.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	994	-	-	-	351
HCM Lane V/C Ratio	0.061	-	-	-	0.583
HCM Control Delay (s)	8.9	0.3	-	-	28.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	3.5

Intersection												
Int Delay, s/veh	4.8											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	14	24	9	26	44	19	21	13	73	1
Future Vol, veh/h	0	2	14	24	9	26	44	19	21	13	73	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	4	0	5	0	8	3	0
Mvmt Flow	0	3	19	32	12	35	59	25	28	17	97	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	313	303	98	300	289	39	98	0	0	53	0	0
Stage 1	132	132	-	157	157	-	-	-	-	-	-	-
Stage 2	181	171	-	143	132	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.336	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	643	613	963	656	624	1027	1508	-	-	1515	-	-
Stage 1	876	791	-	850	772	-	-	-	-	-	-	-
Stage 2	825	761	-	865	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	588	581	963	616	592	1027	1508	-	-	1515	-	-
Mov Cap-2 Maneuver	588	581	-	616	592	-	-	-	-	-	-	-
Stage 1	841	782	-	816	741	-	-	-	-	-	-	-
Stage 2	753	731	-	835	782	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9.1		10.4		3.9		1.1	
HCM LOS	A		B					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	890	742	1515	-
HCM Lane V/C Ratio	0.039	-	-	0.024	0.106	0.011	-
HCM Control Delay (s)	7.5	0	-	9.1	10.4	7.4	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.4	0	-

Intersection						
Int Delay, s/veh	4.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	22	618	493	99	110	32
Future Vol, veh/h	22	618	493	99	110	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	85	85	87	87
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	24	665	580	116	126	37

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	696	0	-	0	1019 638
Stage 1	-	-	-	-	638 -
Stage 2	-	-	-	-	381 -
Critical Hdwy	4.1	-	-	-	6.6 6.2
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3
Pot Cap-1 Maneuver	909	-	-	-	250 480
Stage 1	-	-	-	-	530 -
Stage 2	-	-	-	-	666 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	909	-	-	-	240 480
Mov Cap-2 Maneuver	-	-	-	-	240 -
Stage 1	-	-	-	-	508 -
Stage 2	-	-	-	-	666 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	36.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	909	-	-	-	270
HCM Lane V/C Ratio	0.026	-	-	-	0.605
HCM Control Delay (s)	9.1	0.2	-	-	36.8
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	3.6

2021 Build Weekday Morning Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

3 - 2021 Build Weekday Morning

05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↗		↕↕	
Traffic Volume (vph)	14	409	12	148	287	166	16	210	218	382	324	11
Future Volume (vph)	14	409	12	148	287	166	16	210	218	382	324	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.996				0.850			0.850		0.998	
Fl _t Protected		0.998		0.950				0.996			0.974	
Satd. Flow (prot)	0	3318	0	1574	1756	1492	0	1892	1583	0	1785	0
Fl _t Permitted		0.936		0.950				0.996			0.974	
Satd. Flow (perm)	0	3112	0	1574	1756	1492	0	1892	1583	0	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2				195			173		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		799			183			684			825	
Travel Time (s)		18.2			4.2			15.5			18.8	
Peak Hour Factor	0.91	0.91	0.91	0.85	0.85	0.85	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	7%	1%	1%	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	15	449	13	174	338	195	17	221	229	394	334	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	477	0	174	338	195	0	238	229	0	739	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	30.0	30.0		21.0	51.0	51.0	45.0	45.0	45.0	45.0	45.0	
Total Split (%)	21.3%	21.3%		14.9%	36.2%	36.2%	31.9%	31.9%	31.9%	31.9%	31.9%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

3 - 2021 Build Weekday Morning
05/20/2021

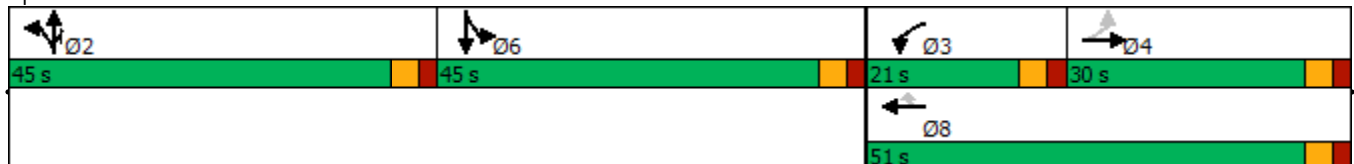


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	25.0	25.0		16.0	46.0	46.0	40.0	40.0	40.0	40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)		24.9		17.0	45.9	45.9		41.0	41.0			41.0
Actuated g/C Ratio		0.18		0.12	0.33	0.33		0.29	0.29			0.29
v/c Ratio		0.86		0.91	0.59	0.31		0.43	0.39			1.41
Control Delay		71.4		106.2	44.0	5.7		43.2	12.8			234.1
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		71.4		106.2	44.0	5.7		43.2	12.8			234.1
LOS		E		F	D	A		D	B			F
Approach Delay		71.4			48.7			28.3				234.1
Approach LOS		E			D			C				F
Queue Length 50th (ft)		223		160	256	0		178	38			~917
Queue Length 95th (ft)		#305		#278	334	44		260	111			#1168
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		579		191	589	630		554	586			523
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.82		0.91	0.57	0.31		0.43	0.39			1.41

Intersection Summary

Area Type: Other
 Cycle Length: 141
 Actuated Cycle Length: 139.9
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.41
 Intersection Signal Delay: 106.6
 Intersection LOS: F
 Intersection Capacity Utilization 91.3%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

3 - 2021 Build Weekday Morning
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	18	844	19	12	649	52	2	0	4	41	1	10
Future Volume (vph)	18	844	19	12	649	52	2	0	4	41	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.990			0.916			0.974	
Flt Protected		0.999			0.999			0.982			0.962	
Satd. Flow (prot)	0	3410	0	0	1779	0	0	1343	0	0	1694	0
Flt Permitted		0.937			0.983			0.871			0.766	
Satd. Flow (perm)	0	3199	0	0	1751	0	0	1191	0	0	1349	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			6			61			12	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.75	0.75	0.75	0.77	0.77	0.77
Heavy Vehicles (%)	0%	2%	0%	8%	2%	2%	50%	0%	0%	2%	0%	0%
Adj. Flow (vph)	20	938	21	12	669	54	3	0	5	53	1	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	979	0	0	735	0	0	8	0	0	67	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

3 - 2021 Build Weekday Morning
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		53.9			53.9			8.3			8.3	
Actuated g/C Ratio		0.78			0.78			0.12			0.12	
v/c Ratio		0.39			0.53			0.04			0.39	
Control Delay		4.0			6.1			0.3			30.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.0			6.1			0.3			30.0	
LOS		A			A			A			C	
Approach Delay		4.0			6.1			0.3			30.0	
Approach LOS		A			A			A			C	
Queue Length 50th (ft)		63			107			0			24	
Queue Length 95th (ft)		108			220			0			43	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2509			1374			325			325	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.39			0.53			0.02			0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	68.7
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.53
Intersection Signal Delay:	5.8
Intersection LOS:	A
Intersection Capacity Utilization:	61.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	18	46	64	17	4	6
Future Vol, veh/h	18	46	64	17	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	50	70	18	4	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	88	0	-	0	169 79
Stage 1	-	-	-	-	79 -
Stage 2	-	-	-	-	90 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1508	-	-	-	821 981
Stage 1	-	-	-	-	944 -
Stage 2	-	-	-	-	934 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1508	-	-	-	810 981
Mov Cap-2 Maneuver	-	-	-	-	810 -
Stage 1	-	-	-	-	931 -
Stage 2	-	-	-	-	934 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1508	-	-	-	905
HCM Lane V/C Ratio	0.013	-	-	-	0.012
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1009	567	6	0	34
Future Vol, veh/h	0	1009	567	6	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	85	85	77	77
Heavy Vehicles, %	0	1	8	12	0	0
Mvmt Flow	0	1109	667	7	0	44

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	-
Stage 1	-	-	-
Stage 2	-	-	-
Critical Hdwy	-	-	-
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	-	-	-
Follow-up Hdwy	-	-	-
Pot Cap-1 Maneuver	0	-	-
Stage 1	0	-	-
Stage 2	0	-	-
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	-
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	567
HCM Lane V/C Ratio	-	-	-	0.078
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection						
Int Delay, s/veh	3.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	83	877	601	38	35	56
Future Vol, veh/h	83	877	601	38	35	56
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	94	94	79	79
Heavy Vehicles, %	6	1	1	10	9	6
Mvmt Flow	93	985	639	40	44	71

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	679	0	-	0	1338 659
Stage 1	-	-	-	-	659 -
Stage 2	-	-	-	-	679 -
Critical Hdwy	4.19	-	-	-	6.735 6.29
Critical Hdwy Stg 1	-	-	-	-	5.535 -
Critical Hdwy Stg 2	-	-	-	-	5.935 -
Follow-up Hdwy	2.257	-	-	-	3.5855 3.357
Pot Cap-1 Maneuver	889	-	-	-	149 454
Stage 1	-	-	-	-	497 -
Stage 2	-	-	-	-	451 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	889	-	-	-	115 454
Mov Cap-2 Maneuver	-	-	-	-	115 -
Stage 1	-	-	-	-	382 -
Stage 2	-	-	-	-	451 -

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	40.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	889	-	-	-	213
HCM Lane V/C Ratio	0.105	-	-	-	0.541
HCM Control Delay (s)	9.5	0.9	-	-	40.2
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	2.9

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	6	36	1	33	1	26	50	13	31	0
Future Vol, veh/h	1	1	6	36	1	33	1	26	50	13	31	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	87	87	87	75	75	75
Heavy Vehicles, %	0	0	17	3	0	9	100	38	0	15	23	0
Mvmt Flow	1	1	8	48	1	44	1	30	57	17	41	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	158	164	41	141	136	59	41	0	0	87	0	0
Stage 1	75	75	-	61	61	-	-	-	-	-	-	-
Stage 2	83	89	-	80	75	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.37	7.13	6.5	6.29	5.1	-	-	4.25	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.453	3.527	4	3.381	3.1	-	-	2.335	-	-
Pot Cap-1 Maneuver	813	732	989	827	759	987	1115	-	-	1431	-	-
Stage 1	939	836	-	948	848	-	-	-	-	-	-	-
Stage 2	930	825	-	926	836	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	768	722	989	811	749	987	1115	-	-	1431	-	-
Mov Cap-2 Maneuver	768	722	-	811	749	-	-	-	-	-	-	-
Stage 1	938	826	-	947	847	-	-	-	-	-	-	-
Stage 2	886	824	-	906	826	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		9.6		0.1		2.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1115	-	-	914	884	1431	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.106	0.012	-
HCM Control Delay (s)	8.2	0	-	9	9.6	7.5	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-

Intersection						
Int Delay, s/veh	5.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	22	900	679	166	77	31
Future Vol, veh/h	22	900	679	166	77	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	90	90	98	98	79	79
Heavy Vehicles, %	4	1	3	3	6	0
Mvmt Flow	24	1000	693	169	97	39

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	862	0	-	0	1326 778
Stage 1	-	-	-	-	778 -
Stage 2	-	-	-	-	548 -
Critical Hdwy	4.16	-	-	-	6.69 6.2
Critical Hdwy Stg 1	-	-	-	-	5.49 -
Critical Hdwy Stg 2	-	-	-	-	5.89 -
Follow-up Hdwy	2.238	-	-	-	3.557 3.3
Pot Cap-1 Maneuver	767	-	-	-	154 400
Stage 1	-	-	-	-	443 -
Stage 2	-	-	-	-	535 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	767	-	-	-	143 400
Mov Cap-2 Maneuver	-	-	-	-	143 -
Stage 1	-	-	-	-	412 -
Stage 2	-	-	-	-	535 -

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	74.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	767	-	-	-	175
HCM Lane V/C Ratio	0.032	-	-	-	0.781
HCM Control Delay (s)	9.8	0.3	-	-	74.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	5.2

2021 Build Weekday Evening Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

4 - 2021 Build Weekday Evening
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↖		↕	
Traffic Volume (vph)	31	230	17	201	283	205	16	291	121	161	266	7
Future Volume (vph)	31	230	17	201	283	205	16	291	121	161	266	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.991				0.850			0.850		0.998	
Fl _t Protected		0.994		0.950				0.997			0.982	
Satd. Flow (prot)	0	3319	0	1685	1773	1492	0	1894	1599	0	1789	0
Fl _t Permitted		0.875		0.950				0.997			0.982	
Satd. Flow (perm)	0	2922	0	1685	1773	1492	0	1894	1599	0	1789	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				218			74			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		799			183			684			825	
Travel Time (s)		18.2			4.2			15.5			18.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.80	0.80	0.80	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	33	245	18	214	301	218	20	364	151	171	283	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	296	0	214	301	218	0	384	151	0	461	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	45.0	45.0		21.0	66.0	66.0	55.0	55.0	55.0	55.0	55.0	
Total Split (%)	25.6%	25.6%		11.9%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

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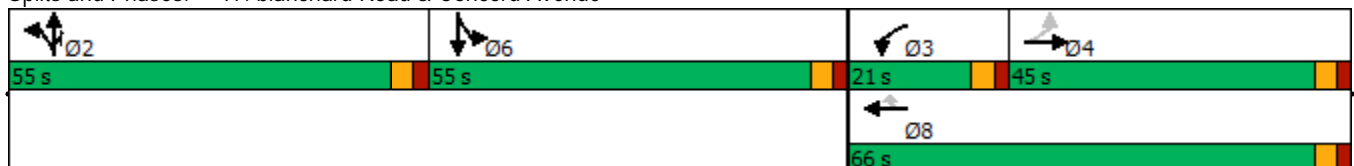


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	40.0	40.0		16.0	61.0	61.0	50.0	50.0	50.0	50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effect Green (s)		21.5		17.1	42.7	42.7		51.3	51.3			44.3
Actuated g/C Ratio		0.14		0.11	0.28	0.28		0.34	0.34			0.29
v/c Ratio		0.70		1.12	0.60	0.38		0.59	0.25			0.87
Control Delay		70.9		159.3	52.9	6.8		47.4	21.0			68.9
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		70.9		159.3	52.9	6.8		47.4	21.0			68.9
LOS		E		F	D	A		D	C			E
Approach Delay		70.9			70.3			40.0				68.9
Approach LOS		E			E			D				E
Queue Length 50th (ft)		148		~249	262	0		321	54			431
Queue Length 95th (ft)		207		#455	377	65		408	100			#612
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		803		191	735	746		646	594			610
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.37		1.12	0.41	0.29		0.59	0.25			0.76

Intersection Summary

Area Type: Other
 Cycle Length: 176
 Actuated Cycle Length: 150.3
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 62.0
 Intersection LOS: E
 Intersection Capacity Utilization 75.6%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	2	538	8	7	542	8	12	1	19	93	0	43
Future Volume (vph)	2	538	8	7	542	8	12	1	19	93	0	43
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.998			0.920			0.958	
Flt Protected					0.999			0.981			0.967	
Satd. Flow (prot)	0	3449	0	0	1814	0	0	1600	0	0	1701	0
Flt Permitted		0.954			0.994			0.879			0.769	
Satd. Flow (perm)	0	3290	0	0	1804	0	0	1434	0	0	1353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			25			61	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.79	0.79	0.79
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	585	9	8	645	10	16	1	25	118	0	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	596	0	0	663	0	0	42	0	0	172	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		44.8			44.8			10.8			10.8	
Actuated g/C Ratio		0.68			0.68			0.16			0.16	
v/c Ratio		0.27			0.54			0.16			0.63	
Control Delay		4.9			8.1			13.9			26.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		4.9			8.1			13.9			26.1	
LOS		A			A			B			C	
Approach Delay		4.9			8.1			13.9			26.1	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		38			106			5			38	
Queue Length 95th (ft)		77			207			21			74	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2246			1231			369			377	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.27			0.54			0.11			0.46	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	65.6
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.63
Intersection Signal Delay:	9.1
Intersection LOS:	A
Intersection Capacity Utilization:	56.6%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	2.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	5	36	59	4	12	18
Future Vol, veh/h	5	36	59	4	12	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	39	64	4	13	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	68	0	-	0	115 66
Stage 1	-	-	-	-	66 -
Stage 2	-	-	-	-	49 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1533	-	-	-	881 998
Stage 1	-	-	-	-	957 -
Stage 2	-	-	-	-	973 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1533	-	-	-	878 998
Mov Cap-2 Maneuver	-	-	-	-	878 -
Stage 1	-	-	-	-	954 -
Stage 2	-	-	-	-	973 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1533	-	-	-	946
HCM Lane V/C Ratio	0.004	-	-	-	0.034
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	512	679	24	0	10
Future Vol, veh/h	0	512	679	24	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	545	722	26	0	13

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	-	0	-	0	374
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	-	-	7.1
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	3.9
Pot Cap-1 Maneuver	0	-	-	-	537
Stage 1	0	-	-	-	-
Stage 2	0	-	-	-	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	537
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.9
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	537
HCM Lane V/C Ratio	-	-	-	0.025
HCM Control Delay (s)	-	-	-	11.9
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection						
Int Delay, s/veh	5.6					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	62	493	533	18	80	118
Future Vol, veh/h	62	493	533	18	80	118
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	93	93	88	88
Heavy Vehicles, %	0	1	0	1	0	1
Mvmt Flow	66	524	573	19	91	134

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	592	0	0	977	583
Stage 1	-	-	-	583	-
Stage 2	-	-	-	394	-
Critical Hdwy	4.1	-	-	6.6	6.215
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	3.5	3.3095
Pot Cap-1 Maneuver	994	-	-	266	514
Stage 1	-	-	-	562	-
Stage 2	-	-	-	656	-
Platoon blocked, %		-	-		
Mov Cap-1 Maneuver	994	-	-	241	514
Mov Cap-2 Maneuver	-	-	-	241	-
Stage 1	-	-	-	509	-
Stage 2	-	-	-	656	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	31.5
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	994	-	-	-	353
HCM Lane V/C Ratio	0.066	-	-	-	0.637
HCM Control Delay (s)	8.9	0.3	-	-	31.5
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0.2	-	-	-	4.2

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	14	42	9	26	44	19	26	13	73	1
Future Vol, veh/h	0	2	14	42	9	26	44	19	26	13	73	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	4	0	5	0	8	3	0
Mvmt Flow	0	3	19	56	12	35	59	25	35	17	97	1

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	316	310	98	304	293	43	98	0	0	60	0	0
Stage 1	132	132	-	161	161	-	-	-	-	-	-	-
Stage 2	184	178	-	143	132	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.336	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	641	608	963	652	621	1022	1508	-	-	1506	-	-
Stage 1	876	791	-	846	769	-	-	-	-	-	-	-
Stage 2	822	756	-	865	791	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	585	576	963	612	588	1022	1508	-	-	1506	-	-
Mov Cap-2 Maneuver	585	576	-	612	588	-	-	-	-	-	-	-
Stage 1	840	782	-	811	737	-	-	-	-	-	-	-
Stage 2	749	725	-	835	782	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	11	3.7	1.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1508	-	-	888	704	1506	-
HCM Lane V/C Ratio	0.039	-	-	0.024	0.146	0.012	-
HCM Control Delay (s)	7.5	0	-	9.2	11	7.4	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.5	0	-

Intersection						
Int Delay, s/veh	4.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	22	621	493	103	122	32
Future Vol, veh/h	22	621	493	103	122	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	93	93	85	85	87	87
Heavy Vehicles, %	0	1	1	0	0	0
Mvmt Flow	24	668	580	121	140	37

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	701	0	0	1023	641
Stage 1	-	-	-	641	-
Stage 2	-	-	-	382	-
Critical Hdwy	4.1	-	-	6.6	6.2
Critical Hdwy Stg 1	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	5.8	-
Follow-up Hdwy	2.2	-	-	3.5	3.3
Pot Cap-1 Maneuver	905	-	-	249	478
Stage 1	-	-	-	528	-
Stage 2	-	-	-	665	-
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	905	-	-	239	478
Mov Cap-2 Maneuver	-	-	-	239	-
Stage 1	-	-	-	506	-
Stage 2	-	-	-	665	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	41.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	905	-	-	-	267
HCM Lane V/C Ratio	0.026	-	-	-	0.663
HCM Control Delay (s)	9.1	0.2	-	-	41.5
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.1	-	-	-	4.3

2026 Future Weekday Morning Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

5 - 2026 Build Weekday Morning

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↖		↕	
Traffic Volume (vph)	14	467	12	169	346	192	16	215	235	407	332	11
Future Volume (vph)	14	467	12	169	346	192	16	215	235	407	332	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr _t		0.996				0.850			0.850		0.998	
Fl _t Protected		0.999		0.950				0.997			0.974	
Satd. Flow (prot)	0	3321	0	1574	1756	1492	0	1894	1583	0	1785	0
Fl _t Permitted		0.935		0.950				0.997			0.974	
Satd. Flow (perm)	0	3108	0	1574	1756	1492	0	1894	1583	0	1785	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				226			183		1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		799			183			684			825	
Travel Time (s)		18.2			4.2			15.5			18.8	
Peak Hour Factor	0.91	0.91	0.91	0.85	0.85	0.85	0.95	0.95	0.95	0.97	0.97	0.97
Heavy Vehicles (%)	0%	1%	0%	7%	1%	1%	0%	0%	2%	0%	0%	1%
Adj. Flow (vph)	15	513	13	199	407	226	17	226	247	420	342	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	541	0	199	407	226	0	243	247	0	773	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	30.0	30.0		21.0	51.0	51.0	45.0	45.0	45.0	45.0	45.0	
Total Split (%)	21.3%	21.3%		14.9%	36.2%	36.2%	31.9%	31.9%	31.9%	31.9%	31.9%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

5 - 2026 Build Weekday Morning
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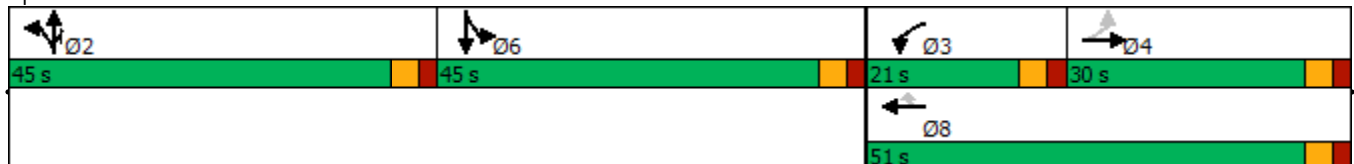


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	25.0	25.0		16.0	46.0	46.0	40.0	40.0	40.0	40.0	40.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	0
Act Effect Green (s)		26.0		17.0	47.0	47.0		41.0	41.0			41.0
Actuated g/C Ratio		0.18		0.12	0.33	0.33		0.29	0.29			0.29
v/c Ratio		0.94		1.05	0.70	0.35		0.44	0.42			1.49
Control Delay		82.5		138.1	48.3	5.5		43.8	13.4			266.0
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		82.5		138.1	48.3	5.5		43.8	13.4			266.0
LOS		F		F	D	A		D	B			F
Approach Delay		82.5			58.2			28.5				266.0
Approach LOS		F			E			C				F
Queue Length 50th (ft)		260		~198	324	0		182	44			~983
Queue Length 95th (ft)		#375		#331	414	46		267	121			#1236
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		573		189	585	648		550	590			519
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.94		1.05	0.70	0.35		0.44	0.42			1.49

Intersection Summary

Area Type: Other
 Cycle Length: 141
 Actuated Cycle Length: 141
 Natural Cycle: 120
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.49
 Intersection Signal Delay: 118.6
 Intersection LOS: F
 Intersection Capacity Utilization 98.1%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings
37: Concord Avenue & Fawcett Street

5 - 2026 Build Weekday Morning
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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations		↕↕	↔		↕↕		
Traffic Volume (vph)	24	982	810	180	120	38	
Future Volume (vph)	24	982	810	180	120	38	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	11	12	12	11	11	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	
Frt			0.975		0.968		
Flt Protected		0.999			0.963		
Satd. Flow (prot)	0	3449	1799	0	1637	0	
Flt Permitted		0.804			0.963		
Satd. Flow (perm)	0	2776	1799	0	1637	0	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)			17		15		
Link Speed (mph)		25	25		25		
Link Distance (ft)		591	768		1376		
Travel Time (s)		16.1	20.9		37.5		
Peak Hour Factor	0.90	0.90	0.98	0.98	0.79	0.79	
Heavy Vehicles (%)	4%	1%	3%	3%	6%	0%	
Adj. Flow (vph)	27	1091	827	184	152	48	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	1118	1011	0	200	0	
Number of Detectors	1	2	2		1		
Detector Template	Left	Thru	Thru		Left		
Leading Detector (ft)	20	100	100		20		
Trailing Detector (ft)	0	0	0		0		
Detector 1 Position(ft)	0	0	0		0		
Detector 1 Size(ft)	20	6	6		20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				
Turn Type	Perm	NA	NA		Prot		
Protected Phases		2	6		4		9
Permitted Phases	2						
Detector Phase	2	2	6		4		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0		4.0		4.0
Minimum Split (s)	20.5	20.5	20.5		20.5		21.0
Total Split (s)	48.5	48.5	48.5		20.5		21.0
Total Split (%)	53.9%	53.9%	53.9%		22.8%		23%
Maximum Green (s)	43.5	43.5	43.5		15.5		16.0
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0

Lanes, Volumes, Timings
37: Concord Avenue & Fawcett Street

5 - 2026 Build Weekday Morning
05/20/2021

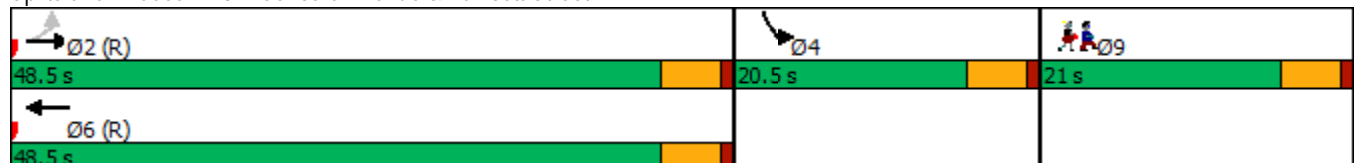


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		5.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	C-Max	C-Max	C-Max		Max		None
Walk Time (s)							5.0
Flash Dont Walk (s)							11.0
Pedestrian Calls (#/hr)							7
Act Effct Green (s)		60.3	60.3		15.5		
Actuated g/C Ratio		0.67	0.67		0.17		
v/c Ratio		0.60	0.83		0.68		
Control Delay		12.0	21.3		45.3		
Queue Delay		0.0	0.0		0.0		
Total Delay		12.0	21.3		45.3		
LOS		B	C		D		
Approach Delay		12.0	21.3		45.3		
Approach LOS		B	C		D		
Queue Length 50th (ft)		133	306		100		
Queue Length 95th (ft)		372	#922		147		
Internal Link Dist (ft)		511	688		1296		
Turn Bay Length (ft)							
Base Capacity (vph)		1859	1211		294		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.60	0.83		0.68		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 100
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.83
 Intersection Signal Delay: 18.9
 Intersection LOS: B
 Intersection Capacity Utilization 70.9%
 ICU Level of Service C
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 37: Concord Avenue & Fawcett Street



Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

5 - 2026 Build Weekday Morning
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	18	925	19	12	782	53	2	0	4	42	1	10
Future Volume (vph)	18	925	19	12	782	53	2	0	4	42	1	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.991			0.916			0.975	
Flt Protected		0.999			0.999			0.982			0.962	
Satd. Flow (prot)	0	3410	0	0	1781	0	0	1343	0	0	1696	0
Flt Permitted		0.934			0.984			0.874			0.764	
Satd. Flow (perm)	0	3188	0	0	1754	0	0	1196	0	0	1347	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			5			61			11	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.90	0.90	0.90	0.97	0.97	0.97	0.75	0.75	0.75	0.77	0.77	0.77
Heavy Vehicles (%)	0%	2%	0%	8%	2%	2%	50%	0%	0%	2%	0%	0%
Adj. Flow (vph)	20	1028	21	12	806	55	3	0	5	55	1	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1069	0	0	873	0	0	8	0	0	69	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

5 - 2026 Build Weekday Morning
05/20/2021

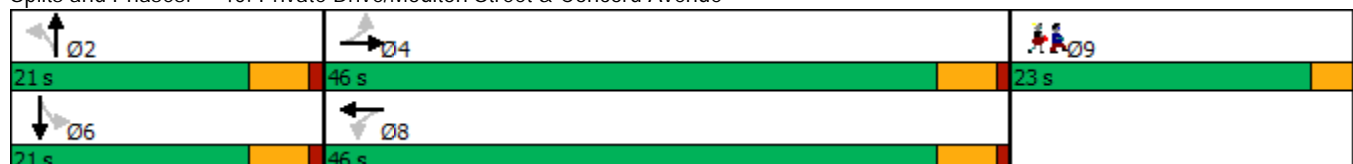


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		53.7			53.7			8.4			8.4	
Actuated g/C Ratio		0.78			0.78			0.12			0.12	
v/c Ratio		0.43			0.64			0.04			0.40	
Control Delay		4.3			7.9			0.3			30.4	
Queue Delay		0.0			0.3			0.0			0.0	
Total Delay		4.3			8.2			0.3			30.4	
LOS		A			A			A			C	
Approach Delay		4.3			8.2			0.3			30.4	
Approach LOS		A			A			A			C	
Queue Length 50th (ft)		73			150			0			25	
Queue Length 95th (ft)		125			319			0			44	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2493			1372			326			323	
Starvation Cap Reductn		0			125			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.43			0.70			0.02			0.21	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	68.7
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	6.9
Intersection LOS:	A
Intersection Capacity Utilization:	68.7%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	18	47	66	17	4	6
Future Vol, veh/h	18	47	66	17	4	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	51	72	18	4	7

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	90	0	-	0	172 81
Stage 1	-	-	-	-	81 -
Stage 2	-	-	-	-	91 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1505	-	-	-	818 979
Stage 1	-	-	-	-	942 -
Stage 2	-	-	-	-	933 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1505	-	-	-	807 979
Mov Cap-2 Maneuver	-	-	-	-	807 -
Stage 1	-	-	-	-	929 -
Stage 2	-	-	-	-	933 -

Approach	EB	WB	SB
HCM Control Delay, s	2.1	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1505	-	-	-	902
HCM Lane V/C Ratio	0.013	-	-	-	0.012
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection						
Int Delay, s/veh	0.3					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	1109	673	6	0	34
Future Vol, veh/h	0	1109	673	6	0	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	85	85	77	77
Heavy Vehicles, %	0	1	8	12	0	0
Mvmt Flow	0	1219	792	7	0	44

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 400
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.1
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 517
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 517
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.6
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	517
HCM Lane V/C Ratio	-	-	-	0.085
HCM Control Delay (s)	-	-	-	12.6
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.3

Intersection						
Int Delay, s/veh	22.5					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	131	934	691	85	50	73
Future Vol, veh/h	131	934	691	85	50	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	89	89	94	94	79	79
Heavy Vehicles, %	6	1	1	10	9	6
Mvmt Flow	147	1049	735	90	63	92

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	825	0	-	0	1599 780
Stage 1	-	-	-	-	780 -
Stage 2	-	-	-	-	819 -
Critical Hdwy	4.19	-	-	-	6.735 6.29
Critical Hdwy Stg 1	-	-	-	-	5.535 -
Critical Hdwy Stg 2	-	-	-	-	5.935 -
Follow-up Hdwy	2.257	-	-	-	3.5855 3.357
Pot Cap-1 Maneuver	782	-	-	-	101 386
Stage 1	-	-	-	-	435 -
Stage 2	-	-	-	-	381 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	782	-	-	-	~ 55 386
Mov Cap-2 Maneuver	-	-	-	-	~ 55 -
Stage 1	-	-	-	-	239 -
Stage 2	-	-	-	-	381 -

Approach	EB	WB	SB
HCM Control Delay, s	3	0	291.7
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	782	-	-	-	112
HCM Lane V/C Ratio	0.188	-	-	-	1.39
HCM Control Delay (s)	10.7	1.9	-	-	291.7
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.7	-	-	-	10.8

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection												
Int Delay, s/veh	4.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	1	6	37	1	34	1	27	51	13	32	0
Future Vol, veh/h	1	1	6	37	1	34	1	27	51	13	32	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	87	87	87	75	75	75
Heavy Vehicles, %	0	0	17	3	0	9	100	38	0	15	23	0
Mvmt Flow	1	1	8	49	1	45	1	31	59	17	43	0

Major/Minor	Minor2		Minor1		Major1			Major2				
Conflicting Flow All	163	169	43	145	140	61	43	0	0	90	0	0
Stage 1	77	77	-	63	63	-	-	-	-	-	-	-
Stage 2	86	92	-	82	77	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.37	7.13	6.5	6.29	5.1	-	-	4.25	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.13	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.453	3.527	4	3.381	3.1	-	-	2.335	-	-
Pot Cap-1 Maneuver	806	728	986	822	755	985	1113	-	-	1427	-	-
Stage 1	937	835	-	945	846	-	-	-	-	-	-	-
Stage 2	927	823	-	924	835	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	760	719	986	806	745	985	1113	-	-	1427	-	-
Mov Cap-2 Maneuver	760	719	-	806	745	-	-	-	-	-	-	-
Stage 1	936	825	-	944	845	-	-	-	-	-	-	-
Stage 2	882	822	-	904	825	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	9		9.6		0.1		2.2	
HCM LOS	A		A					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1113	-	-	910	881	1427	-
HCM Lane V/C Ratio	0.001	-	-	0.012	0.109	0.012	-
HCM Control Delay (s)	8.2	0	-	9	9.6	7.6	0
HCM Lane LOS	A	A	-	A	A	A	A
HCM 95th %tile Q(veh)	0	-	-	0	0.4	0	-

2026 Future Weekday Evening Peak Hour



Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

6 - 2026 Build Weekday Evening
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕		↖	↗	↗		↖	↗		↕	
Traffic Volume (vph)	32	283	17	218	330	220	16	298	134	176	273	7
Future Volume (vph)	32	283	17	218	330	220	16	298	134	176	273	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	12	12	12	11	11	11
Storage Length (ft)	0		0	0		0	0		100	0		0
Storage Lanes	0		0	1		1	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850			0.850		0.998	
Flt Protected		0.995		0.950				0.997			0.981	
Satd. Flow (prot)	0	3326	0	1685	1773	1492	0	1894	1599	0	1787	0
Flt Permitted		0.877		0.950				0.997			0.981	
Satd. Flow (perm)	0	2931	0	1685	1773	1492	0	1894	1599	0	1787	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3				232			74			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		799			183			684			825	
Travel Time (s)		18.2			4.2			15.5			18.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.80	0.80	0.80	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	34	301	18	232	351	234	20	373	168	187	290	7
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	353	0	232	351	234	0	393	168	0	484	0
Number of Detectors	1	2		1	2	1	1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100	20	20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0	0	0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6	20	20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Prot	Split	NA	
Protected Phases		4		3	8		2	2	2	6	6	
Permitted Phases	4					8						6
Detector Phase	4	4		3	8	8	2	2	2	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	23.0	23.0		21.0	21.0	21.0	21.0	21.0	21.0	23.0	23.0	
Total Split (s)	45.0	45.0		21.0	66.0	66.0	55.0	55.0	55.0	55.0	55.0	
Total Split (%)	25.6%	25.6%		11.9%	37.5%	37.5%	31.3%	31.3%	31.3%	31.3%	31.3%	

Lanes, Volumes, Timings
17: blanchard Road & Concord Avenue

6 - 2026 Build Weekday Evening
05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	40.0	40.0		16.0	61.0	61.0	50.0	50.0	50.0	50.0	50.0	
Yellow Time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)		-1.0		-1.0	-1.0	-1.0		-1.0	-1.0			-1.0
Total Lost Time (s)		4.0		4.0	4.0	4.0		4.0	4.0			4.0
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?	Yes	Yes		Yes								
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		None	None	None	Max	Max	Max	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0	0	0	0	
Act Effect Green (s)		25.0		17.1	46.1	46.1		51.2	51.2			47.4
Actuated g/C Ratio		0.16		0.11	0.29	0.29		0.33	0.33			0.30
v/c Ratio		0.75		1.27	0.67	0.39		0.64	0.29			0.90
Control Delay		73.3		209.9	56.4	6.7		52.0	24.4			72.8
Queue Delay		0.0		0.0	0.0	0.0		0.0	0.0			0.0
Total Delay		73.3		209.9	56.4	6.7		52.0	24.4			72.8
LOS		E		F	E	A		D	C			E
Approach Delay		73.3			85.7			43.7				72.8
Approach LOS		E			F			D				E
Queue Length 50th (ft)		187		~309	328	2		355	72			476
Queue Length 95th (ft)		246		#516	446	68		432	120			#713
Internal Link Dist (ft)		719			103			604				745
Turn Bay Length (ft)									100			
Base Capacity (vph)		771		183	704	732		618	572			583
Starvation Cap Reductn		0		0	0	0		0	0			0
Spillback Cap Reductn		0		0	0	0		0	0			0
Storage Cap Reductn		0		0	0	0		0	0			0
Reduced v/c Ratio		0.46		1.27	0.50	0.32		0.64	0.29			0.83

Intersection Summary

Area Type: Other
 Cycle Length: 176
 Actuated Cycle Length: 156.8
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.27
 Intersection Signal Delay: 70.3
 Intersection LOS: E
 Intersection Capacity Utilization 81.1%
 ICU Level of Service D
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 17: blanchard Road & Concord Avenue



Lanes, Volumes, Timings
37: Concord Avenue & Fawcett Street

6 - 2026 Build Weekday Evening
05/20/2021



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lane Configurations		↕↕	↔		↕↕		
Traffic Volume (vph)	30	744	526	143	150	36	
Future Volume (vph)	30	744	526	143	150	36	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Lane Width (ft)	10	11	12	12	11	11	
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	
Frt			0.971		0.974		
Flt Protected		0.998			0.961		
Satd. Flow (prot)	0	3450	1831	0	1719	0	
Flt Permitted		0.904			0.961		
Satd. Flow (perm)	0	3125	1831	0	1719	0	
Right Turn on Red				Yes		Yes	
Satd. Flow (RTOR)			21		12		
Link Speed (mph)		25	25		25		
Link Distance (ft)		591	768		1376		
Travel Time (s)		16.1	20.9		37.5		
Peak Hour Factor	0.93	0.93	0.85	0.85	0.87	0.87	
Heavy Vehicles (%)	0%	1%	1%	0%	0%	0%	
Adj. Flow (vph)	32	800	619	168	172	41	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	0	832	787	0	213	0	
Number of Detectors	1	2	2		1		
Detector Template	Left	Thru	Thru		Left		
Leading Detector (ft)	20	100	100		20		
Trailing Detector (ft)	0	0	0		0		
Detector 1 Position(ft)	0	0	0		0		
Detector 1 Size(ft)	20	6	6		20		
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex		
Detector 1 Channel							
Detector 1 Extend (s)	0.0	0.0	0.0		0.0		
Detector 1 Queue (s)	0.0	0.0	0.0		0.0		
Detector 1 Delay (s)	0.0	0.0	0.0		0.0		
Detector 2 Position(ft)		94	94				
Detector 2 Size(ft)		6	6				
Detector 2 Type		Cl+Ex	Cl+Ex				
Detector 2 Channel							
Detector 2 Extend (s)		0.0	0.0				
Turn Type	Perm	NA	NA		Prot		
Protected Phases		2	6		4		9
Permitted Phases	2						
Detector Phase	2	2	6		4		
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0		4.0		4.0
Minimum Split (s)	20.5	20.5	20.5		20.5		21.0
Total Split (s)	48.5	48.5	48.5		20.5		21.0
Total Split (%)	53.9%	53.9%	53.9%		22.8%		23%
Maximum Green (s)	43.5	43.5	43.5		15.5		16.0
Yellow Time (s)	4.0	4.0	4.0		4.0		4.0
All-Red Time (s)	1.0	1.0	1.0		1.0		1.0

Lanes, Volumes, Timings
 37: Concord Avenue & Fawcett Street

6 - 2026 Build Weekday Evening
 05/20/2021

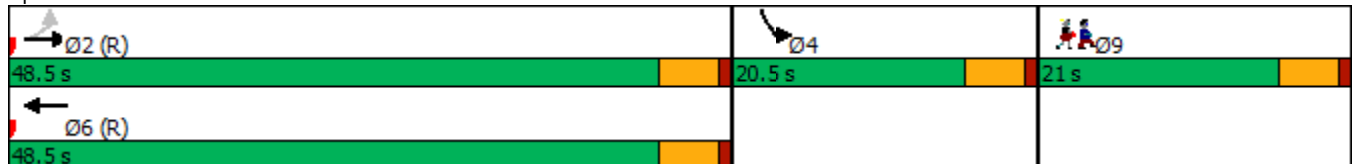


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR	Ø9
Lost Time Adjust (s)		0.0	0.0		0.0		
Total Lost Time (s)		5.0	5.0		5.0		
Lead/Lag							
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	3.0	3.0		3.0		3.0
Recall Mode	C-Max	C-Max	C-Max		Max		None
Walk Time (s)							5.0
Flash Dont Walk (s)							11.0
Pedestrian Calls (#/hr)							7
Act Effect Green (s)		60.3	60.3		15.5		
Actuated g/C Ratio		0.67	0.67		0.17		
v/c Ratio		0.40	0.64		0.70		
Control Delay		8.8	13.9		46.6		
Queue Delay		0.0	0.0		0.0		
Total Delay		8.8	13.9		46.6		
LOS		A	B		D		
Approach Delay		8.8	13.9		46.6		
Approach LOS		A	B		D		
Queue Length 50th (ft)		81	181		109		
Queue Length 95th (ft)		223	#554		#191		
Internal Link Dist (ft)		511	688		1296		
Turn Bay Length (ft)							
Base Capacity (vph)		2093	1233		305		
Starvation Cap Reductn		0	0		0		
Spillback Cap Reductn		0	0		0		
Storage Cap Reductn		0	0		0		
Reduced v/c Ratio		0.40	0.64		0.70		

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBT, Start of Green
 Natural Cycle: 90
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.70
 Intersection Signal Delay: 15.4
 Intersection LOS: B
 Intersection Capacity Utilization 61.4%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 37: Concord Avenue & Fawcett Street



Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

6 - 2026 Build Weekday Evening

05/20/2021



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	2	666	8	7	580	8	12	1	19	95	0	44
Future Volume (vph)	2	666	8	7	580	8	12	1	19	95	0	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	11	11	11	11	10	10	10	11	11	11
Lane Util. Factor	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.998			0.920			0.957	
Flt Protected					0.999			0.981			0.967	
Satd. Flow (prot)	0	3449	0	0	1813	0	0	1600	0	0	1700	0
Flt Permitted		0.954			0.993			0.879			0.770	
Satd. Flow (perm)	0	3290	0	0	1803	0	0	1434	0	0	1353	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			1			25			61	
Link Speed (mph)		25			25			30			30	
Link Distance (ft)		705			591			232			864	
Travel Time (s)		19.2			16.1			5.3			19.6	
Peak Hour Factor	0.92	0.92	0.92	0.84	0.84	0.84	0.75	0.75	0.75	0.79	0.79	0.79
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	2	724	9	8	690	10	16	1	25	120	0	56
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	735	0	0	708	0	0	42	0	0	176	0
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0		21.0	21.0		21.0	21.0		21.0	21.0	
Total Split (s)	46.0	46.0		46.0	46.0		21.0	21.0		21.0	21.0	
Total Split (%)	51.1%	51.1%		51.1%	51.1%		23.3%	23.3%		23.3%	23.3%	
Maximum Green (s)	41.0	41.0		41.0	41.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	

Lane Group	Ø9
Lane Configurations	
Traffic Volume (vph)	
Future Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Lane Util. Factor	
Frt	
Flt Protected	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Peak Hour Factor	
Heavy Vehicles (%)	
Adj. Flow (vph)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Number of Detectors	
Detector Template	
Leading Detector (ft)	
Trailing Detector (ft)	
Detector 1 Position(ft)	
Detector 1 Size(ft)	
Detector 1 Type	
Detector 1 Channel	
Detector 1 Extend (s)	
Detector 1 Queue (s)	
Detector 1 Delay (s)	
Detector 2 Position(ft)	
Detector 2 Size(ft)	
Detector 2 Type	
Detector 2 Channel	
Detector 2 Extend (s)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	4.0
Minimum Split (s)	23.0
Total Split (s)	23.0
Total Split (%)	26%
Maximum Green (s)	20.0
Yellow Time (s)	3.0
All-Red Time (s)	0.0

Lanes, Volumes, Timings
40: Private Drive/Moulton Street & Concord Avenue

6 - 2026 Build Weekday Evening
05/20/2021

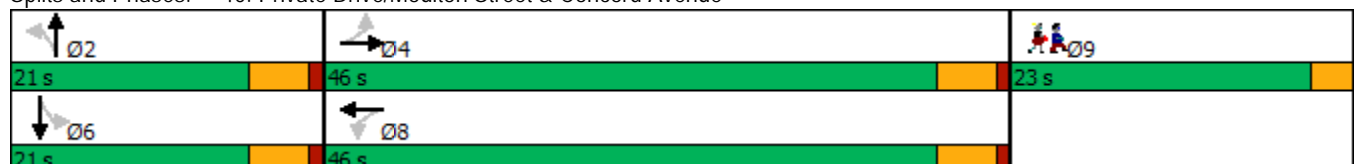


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max		Max	Max		None	None		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effect Green (s)		44.7			44.7			11.0			11.0	
Actuated g/C Ratio		0.68			0.68			0.17			0.17	
v/c Ratio		0.33			0.58			0.16			0.64	
Control Delay		5.3			8.7			13.8			26.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		5.3			8.8			13.8			26.4	
LOS		A			A			B			C	
Approach Delay		5.3			8.8			13.8			26.4	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)		51			119			5			39	
Queue Length 95th (ft)		98			230			21			76	
Internal Link Dist (ft)		625			511			152			784	
Turn Bay Length (ft)												
Base Capacity (vph)		2239			1227			369			376	
Starvation Cap Reductn		0			17			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.33			0.59			0.11			0.47	

Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	65.7
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.64
Intersection Signal Delay:	9.2
Intersection LOS:	A
Intersection Capacity Utilization:	58.9%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 40: Private Drive/Moulton Street & Concord Avenue



Lane Group	Ø9
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
Walk Time (s)	
Flash Dont Walk (s)	
Pedestrian Calls (#/hr)	
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	
Intersection Summary	

Intersection						
Int Delay, s/veh	2.2					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	37	61	4	12	18
Future Vol, veh/h	5	37	61	4	12	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	5	40	66	4	13	20

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	70	0	-	0	118 68
Stage 1	-	-	-	-	68 -
Stage 2	-	-	-	-	50 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1531	-	-	-	878 995
Stage 1	-	-	-	-	955 -
Stage 2	-	-	-	-	972 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1531	-	-	-	875 995
Mov Cap-2 Maneuver	-	-	-	-	875 -
Stage 1	-	-	-	-	952 -
Stage 2	-	-	-	-	972 -

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1531	-	-	-	943
HCM Lane V/C Ratio	0.004	-	-	-	0.035
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑↑			↑
Traffic Vol, veh/h	0	593	758	25	0	10
Future Vol, veh/h	0	593	758	25	0	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	280	-	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	94	94	75	75
Heavy Vehicles, %	0	0	0	1	0	0
Mvmt Flow	0	631	806	27	0	13

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	-	0	- 0 - 417
Stage 1	-	-	- - -
Stage 2	-	-	- - -
Critical Hdwy	-	-	- - 7.1
Critical Hdwy Stg 1	-	-	- - -
Critical Hdwy Stg 2	-	-	- - -
Follow-up Hdwy	-	-	- - 3.9
Pot Cap-1 Maneuver	0	-	- 0 504
Stage 1	0	-	- 0 -
Stage 2	0	-	- 0 -
Platoon blocked, %	-	-	- - -
Mov Cap-1 Maneuver	-	-	- - 504
Mov Cap-2 Maneuver	-	-	- - -
Stage 1	-	-	- - -
Stage 2	-	-	- - -

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.3
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	-	-	-	504
HCM Lane V/C Ratio	-	-	-	0.026
HCM Control Delay (s)	-	-	-	12.3
HCM Lane LOS	-	-	-	B
HCM 95th %tile Q(veh)	-	-	-	0.1

Intersection						
Int Delay, s/veh	30.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑		↑	
Traffic Vol, veh/h	74	562	551	27	137	178
Future Vol, veh/h	74	562	551	27	137	178
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	94	94	93	93	88	88
Heavy Vehicles, %	0	1	0	1	0	1
Mvmt Flow	79	598	592	29	156	202

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	621	0	-	0	1064 607
Stage 1	-	-	-	-	607 -
Stage 2	-	-	-	-	457 -
Critical Hdwy	4.1	-	-	-	6.6 6.215
Critical Hdwy Stg 1	-	-	-	-	5.4 -
Critical Hdwy Stg 2	-	-	-	-	5.8 -
Follow-up Hdwy	2.2	-	-	-	3.5 3.3095
Pot Cap-1 Maneuver	969	-	-	-	235 498
Stage 1	-	-	-	-	548 -
Stage 2	-	-	-	-	610 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	969	-	-	-	206 498
Mov Cap-2 Maneuver	-	-	-	-	206 -
Stage 1	-	-	-	-	481 -
Stage 2	-	-	-	-	610 -

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	139.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	969	-	-	-	308
HCM Lane V/C Ratio	0.081	-	-	-	1.162
HCM Control Delay (s)	9	0.4	-	-	139.5
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	15.1

Intersection												
Int Delay, s/veh	5.3											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	2	14	43	9	27	45	19	27	13	75	1
Future Vol, veh/h	0	2	14	43	9	27	45	19	27	13	75	1
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
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	75	75	75	75	75	75	75	75	75	75	75	75
Heavy Vehicles, %	0	0	0	0	0	4	0	5	0	8	3	0
Mvmt Flow	0	3	19	57	12	36	60	25	36	17	100	1

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	322	316	101	309	298	43	101	0	0	61	0	0
Stage 1	135	135	-	163	163	-	-	-	-	-	-	-
Stage 2	187	181	-	146	135	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.24	4.1	-	-	4.18	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.336	2.2	-	-	2.272	-	-
Pot Cap-1 Maneuver	635	603	960	647	617	1022	1504	-	-	1505	-	-
Stage 1	873	789	-	844	767	-	-	-	-	-	-	-
Stage 2	819	754	-	861	789	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	579	571	960	607	584	1022	1504	-	-	1505	-	-
Mov Cap-2 Maneuver	579	571	-	607	584	-	-	-	-	-	-	-
Stage 1	837	780	-	809	736	-	-	-	-	-	-	-
Stage 2	745	723	-	831	780	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9.2	11	3.7	1.1
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	885	701	1505	-
HCM Lane V/C Ratio	0.04	-	-	0.024	0.15	0.012	-
HCM Control Delay (s)	7.5	0	-	9.2	11	7.4	0
HCM Lane LOS	A	A	-	A	B	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.1	0.5	0	-

PEDESTRIAN ANALYSIS



PEDESTRIAN WORKSHEET

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Agency or Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2021 Baseline / 2021 Build/ 2026 Build
Analysis Time Period	AM		
<input type="checkbox"/> Operational (LOS)	<input type="checkbox"/> Design (W _E)	<input type="checkbox"/> Planning (LOS)	<input type="checkbox"/> Planning (W _E)

Crossings at Signalized Intersections										
Pedestrian Delay at Signalized Intersections	1	2	3	4	5	6	7	8	9	10
Cycle length, C (s)	141	141	141	141	90	90	90	90	90	
Effective green time for pedestrians, g (s)	41	41	25	25	20	20	20	21	21	
Average delay, d _p	35.5	35.5	47.7	47.7	27.2	27.2	27.2	26.5	26.5	
LOS at signalized intersections (Exhibit 18-9)	D	D	E	E	C	C	C	C	C	

Signalized Intersection Identification		
Intersection #	Major Street	at Minor Street
1	Concord Avenue at Blanchard Road (Concord AV West Crossing)	
2	Concord Avenue at Blanchard Road (Concord AV East Crossing)	
3	Concord Avenue at Blanchard Road (Blanchard North Crossing)	
4	Concord Avenue at Blanchard Road (Blanchard South Crossing)	
5	Concord Avenue at Moulton St/ Private Driveway (Concord Crossing)	
6	Concord Avenue at Moulton St/ Private Driveway (Molton Crossing)	
7	Concord Avenue at Moulton St/ Private Driveway (Private Crossing)	
8	Concord Avenue at Fawcett Street (Concord Crossing)	
9	Concord Avenue at Fawcett Street (Fawcett Crossing)	

* - Street which pedestrians are crossing

PEDESTRIAN WORKSHEET

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Agency or Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2021 Baseline / 2021 Build/ 2026 Build
Analysis Time Period	AM		
<input type="checkbox"/> Operational (LOS)	<input type="checkbox"/> Design (W _E)	<input type="checkbox"/> Planning (LOS)	<input type="checkbox"/> Planning (W _E)

Crossings at Signalized Intersections										
Pedestrian Delay at Signalized Intersections	1	2	3	4	5	6	7	8	9	10
Cycle length, C (s)	176	176	176	176	90	90	90	90	90	
Effective green time for pedestrians, g (s)	44	44	43	43	20	20	20	17	17	
Average delay, d _p	49.5	49.5	50.6	50.3	27.2	27.2	27.2	29.6	29.6	
LOS at signalized intersections (Exhibit 18-9)	E	E	E	E	C	C	C	C	C	

Signalized Intersection Identification		
Intersection #	Major Street at Minor Street	
1	Concord Avenue at Blanchard Road (Concord AV West Crossing)	
2	Concord Avenue at Blanchard Road (Concord AV East Crossing)	
3	Concord Avenue at Blanchard Road (Blanchard North Crossing)	
4	Concord Avenue at Blanchard Road (Blanchard South Crossing)	
5	Concord Avenue at Moulton St/ Private Driveway (Concord Crossing)	
6	Concord Avenue at Moulton St/ Private Driveway (Molton Crossing)	
7	Concord Avenue at Moulton St/ Private Driveway (Private Crossing)	
8	Concord Avenue at Fawcett Street (Concord Crossing)	
9	Concord Avenue at Fawcett Street (Fawcett Crossing)	

* - Street which pedestrians are crossing

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2020 Baseline
Analysis Time Period	AM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities								
	1	2	3	4	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o								
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)								
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$								
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)								

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities									
Pedestrian Delay at Signalized Intersections		1	2	3	4	5	6	7	8
Cycle Length, C (s)									
Effective green time for pedestrians, g (s)									
Average delay, $d_p = 0.5(C-g)^2/C$									
LOS at Signalized Intersections (Exhibit 18-9)									
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Fawcett St. at Concord Av. (West)	Fawcett St. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		2	15	16	15	2	1	1	2
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00056	0.00417	0.00444	0.00417	0.00056	0.00028	0.00028	0.00056
Vehicular flow rate, veh/h		1594	188	1631	275	10	110	104	126
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	38	33	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c ³		2.23	1.02	6.11	1.03	1	1	1	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT}[8.0(N_c - 1)/W_E] + 1$		1	1	5	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		15.5714286	11	21.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.4428	0.0522	0.4531	0.0764	0.0028	0.0306	0.0289	0.0350
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		2211.3	3.9	44077.1	8.3	0.1	2.3	2.2	2.0
LOS at unsignalized intersections (Exhibit 18-13)		F	A	F	B	A	A	A	A

Notes

^a Based on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2020 Baseline
Analysis Time Period	PM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities								
	1	2	3	4	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o								
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)								
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$								
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)								

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities									
Pedestrian Delay at Signalized Intersections		1	2	3	4	5	6	7	8
Cycle Length, C (s)									
Effective green time for pedestrians, g (s)									
Average delay, $d_p = 0.5(C-g)^2/C$									
LOS at Signalized Intersections (Exhibit 18-9)									
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Fawcett St. at Concord Av. (West)	Fawcett St. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		19	20	17	39	5	9	13	2
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00528	0.00556	0.00472	0.01083	0.00139	0.00250	0.00361	0.00056
Vehicular flow rate, veh/h		1186	255	1165	263	70	95	132	195
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	38	33	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c^3		3.57	1.03	2.2	1.08	1	1	1.01	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT}[8.0(N_c - 1)/W_E] + 1$		3	1	1	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		19.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.3294	0.0708	0.3236	0.0731	0.0194	0.0264	0.0367	0.0542
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		1893.5	5.7	256.9	7.8	1.0	2.0	2.8	3.4
LOS at unsignalized intersections (Exhibit 18-13)		F	B	F	B	A	A	A	A

Notes

^a Based on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2021 Build
Analysis Time Period	AM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities								
	1	2	3	4	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o								
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)								
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$								
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)								

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities									
Pedestrian Delay at Signalized Intersections		1	2	3	4	5	6	7	8
Cycle Length, C (s)									
Effective green time for pedestrians, g (s)									
Average delay, $d_p = 0.5(C-g)^2/C$									
LOS at Signalized Intersections (Exhibit 18-9)									
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Fawcett St. at Concord Av. (West)	Fawcett St. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		4	17	16	17	4	4	3	3
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00111	0.00472	0.00444	0.00472	0.00111	0.00111	0.00083	0.00083
Vehicular flow rate, veh/h		1617	212	1632	296	10	134	104	150
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	38	33	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c ³		3.67	1.02	6.12	1.04	1	1	1	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT} [8.0 (N_c - 1)/W_E] + 1$		3	1	5	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		19.5714286	11	21.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.4492	0.0589	0.4533	0.0822	0.0028	0.0372	0.0289	0.0417
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		14613.5	4.5	44318.4	9.2	0.1	2.9	2.2	2.5
LOS at unsignalized intersections (Exhibit 18-13)		F	A	F	B	A	A	A	A

Notes

^a Based on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2021 Build
Analysis Time Period	PM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities								
	1	2	3	4	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o								
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)								
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$								
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)								

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities									
Pedestrian Delay at Signalized Intersections		1	2	3	4	5	6	7	8
Cycle Length, C (s)									
Effective green time for pedestrians, g (s)									
Average delay, $d_p = 0.5(C-g)^2/C$									
LOS at Signalized Intersections (Exhibit 18-9)									
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Fawcett St. at Concord Av. (West)	Fawcett St. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		22	22	17	39	7	15	15	3
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00611	0.00611	0.00472	0.01083	0.00194	0.00417	0.00417	0.00083
Vehicular flow rate, veh/h		1206	278	1168	279	70	92	132	218
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	38	33	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c^3		4.19	1.04	2.21	1.09	1	1.01	1.01	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT}[8.0(N_c - 1)/W_E] + 1$		3	1	1	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		19.5714286	11	13.85714286	12.42857143	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.3350	0.0772	0.3244	0.0775	0.0194	0.0256	0.0367	0.0606
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		2078.2	6.3	259.4	8.5	1.0	1.9	2.8	3.9
LOS at unsignalized intersections (Exhibit 18-13)		F	B	F	B	A	A	A	A

Notes

^a Based on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2026 Build
Analysis Time Period	AM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities						
	1	2	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o						
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)						
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$						
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)						

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities							
Pedestrian Delay at Signalized Intersections		1	2	5	6	7	8
Cycle Length, C (s)							
Effective green time for pedestrians, g (s)							
Average delay, $d_p = 0.5(C-g)^2/C$							
LOS at Signalized Intersections (Exhibit 18-9)							
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		4	17	4	4	3	3
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00111	0.00472	0.00111	0.00111	0.00083	0.00083
Vehicular flow rate, veh/h		1829	339	10	137	107	154
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c^3		6.93	1.04	1	1	1	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT} [8.0 (N_c - 1)/W_E] + 1$		5	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		23.5714286	11	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.5081	0.0942	0.0028	0.0381	0.0297	0.0428
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		312599.5	8.3	0.1	3.0	2.2	2.6
LOS at unsignalized intersections (Exhibit 18-13)		F	B	A	A	A	A

Notes

^aBased on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

PEDESTRIANS WORKSHEET^a

General Information		Site Information	
Analyst	JC	Facility	180 Fawcett Street
Company	VAI	Jurisdiction	Cambridge, MA
Date Performed	6/2/2021	Analysis Year	2061 Build
Analysis Time Period	PM		
<input checked="" type="checkbox"/> Operational (LOS)		<input type="checkbox"/> Planning (LOS)	

Walkways and Sidewalk Pedestrian Facilities						
	1	2	5	6	7	8
Total Width of crosswalks (ft), W_T	10	10	10	10	10	10
Sum of obstructions width and/or shy distances (ft), ¹ W_o						
Effective crosswalk width, W_E (ft) $W_E = W_T - W_o$	10	10	10	10	10	10
Peak 15-min flow rate (both directions), v_{15} (p/15-min)						
Pedestrian unit flow rate, v_p (p/min/ft), $v_p = v_{15}/15 * W_E$						
LOS (Exhibits 18-3, 18-4, 18-5, 18-6, or 18-7)						

Crossings at Signalized Intersection, Unsignalized Intersections, and Urban Street Facilities							
Pedestrian Delay at Signalized Intersections		1	2	5	6	7	8
Cycle Length, C (s)							
Effective green time for pedestrians, g (s)							
Average delay, $d_p = 0.5(C-g)^2/C$							
LOS at Signalized Intersections (Exhibit 18-9)							
Pedestrian Delay at TWSC Intersections		Smith Pl. at Concord Av. (West)	Smith Pl. at Concord Av. (North)	Smith Pl. at Fawcett st. (West)	Smith Pl. at Fawcett St (East)	Smith Pl. at Fawcett St (North)	Smith Pl. at Fawcett St (South)
Peak 60-min pedestrian flow rate (both directions)		22	22	7	15	15	3
Pedestrian Flow Rate, $v_p = 60 \text{ min ped flow rate}/3600 \text{ sec}$		0.00611	0.00611	0.00194	0.00417	0.00417	0.00083
Vehicular flow rate, veh/h		1365	416	71	121	135	223
Pedestrian walking speed, S_p (ft/s)		3.5	3.5	3.5	3.5	3.5	3.5
Pedestrian start-up time, t_s (s)		3	3	3	3	3	3
Length of crosswalk, L (ft)		44	28	24	30	30	25
Single pedestrian critical gap, $t_c = (L/S_p) + t_s$		15.5714286	11	9.85714286	11.5714286	11.5714286	10.1428571
Typical pedestrian number in crossing platoon, N_c^3		6.71	1.07	1	1.01	1.01	1
Spatial pedestrian distribution, ² N_p (p), $N_p = \text{INT} [8.0 (N_c - 1)/W_E] + 1$		5	1	1	1	1	1
Group critical gap, t_G (s), $t_G = t_c + 2(N_p - 1)$		23.5714286	11	9.85714286	11.5714286	11.5714286	10.1428571
Vehicular flow rate, v (veh/s)		0.3792	0.1156	0.0197	0.0336	0.0375	0.0619
Average pedestrian delay, d_p (s), $d_p = (1/v)(e^{v t_G} - v t_G - 1)$		20049.8	11.2	1.0	2.6	2.9	4.0
LOS at unsignalized intersections (Exhibit 18-13)		F	C	A	A	A	A

Notes

^a Based on Pedestrians Worksheet from HCM 2000, Chapter 18, Appendix A

¹ Includes curb width, street furniture, window shops, building protrusions, inside clearance, and all other field-observed obstructions.

² If there is no platoon crossing, assume $N_p = 1$.

$$N_c = (v_p e^{v t_c} + v e^{-v t_c}) / (v_p + v) e^{(v_p - v) t_c}$$

Paths:

Draft Parking and Transportation Demand Management Plan

180 Fawcett Street
Cambridge, Massachusetts

Prepared for:

CCF Fawcett Street Property Company, LLC
Cambridge, Massachusetts

July 2021

Prepared by:

 **Vanasse &
Associates inc**
Transportation Engineers & Planners

35 New England Business Center Drive
Suite 140
Andover, MA 01810

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PROJECT DESCRIPTION

Vanasse & Associates (VAI) has prepared this Parking and Transportation Demand Management (PTDM) Plan on behalf of CCF Fawcett Street Property Company, LLC for a proposed 57,434 square feet (sf) of gross floor area (GFA) (68,993 gross square feet (gsf)) of research and development (R&D)/laboratory space with a 55-space below-grade parking garage to be located at 180 Fawcett Street in Cambridge, Massachusetts (the “Project”). The Project site is bounded by Smith Place to the west, Fawcett Street to the south, and commercial private property to the north. The Project would consist of the demolition of the existing buildings and construction of the facility as described above. Access for the parking garage and building loading is proposed from two curb-cuts onto Fawcett Street. It is important to note that only persons who work in the proposed building will have access to the parking garage. Long-term bicycle parking for 14 bicycles will be provided in a separated bicycle parking room on the first floor. Access to this room will be provided from a dedicated building entrance onto Smith Place. In addition, 8 short-term bicycle parking spaces will be provided along site frontage off of Smith Place, within a 50-foot radius of the pedestrian main building entrance.

Project Name:	180 Fawcett Street
Address:	180 Fawcett Street
Owner/Developer Name	CCF Fawcett Street Property Company, LLC
Contact Person/Address	Matt D’Amico Cabot, Cabot & Forbes 185 Dartmouth Street Boston, MA 02110 (617) 603-4000 MDAmico@ccfne.com

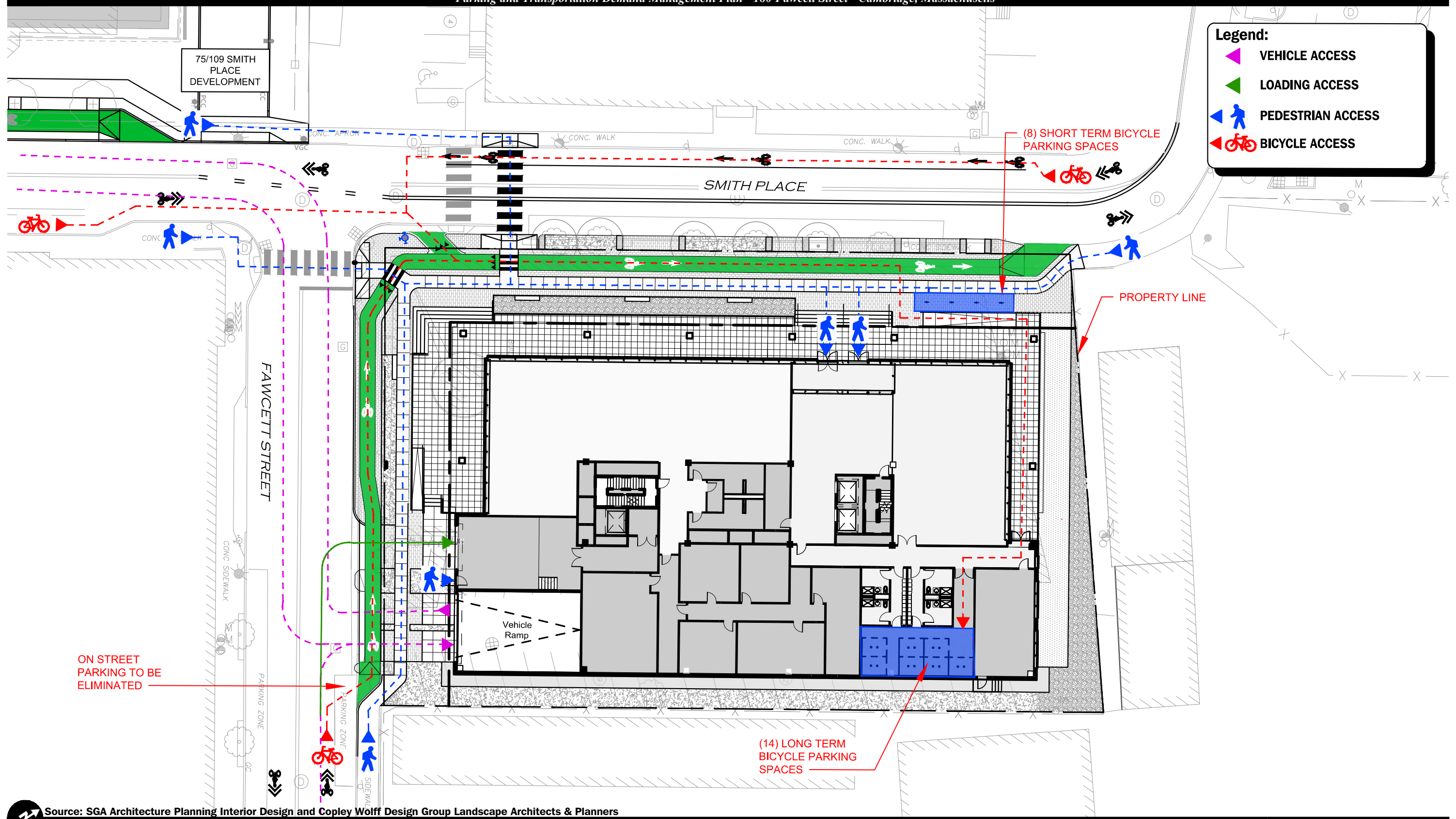
Land Use	Square Feet	Car Parking Spaces	Long-Term Bike Parking Spaces Required/Provided	Short-Term Bike Parking Spaces Required/Provided	Workers On-Site
R&D	62,050	55 total	14/14	4/8	124

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

All people who are eligible to park in the parking facility are subject to PTDM requirements. They will be surveyed annually and are the recipients of TDM measures. This PTDM Plan covers all those who work in the building.

The City's definition of employee includes anyone engaged in the business of the entity that occupies the site but not people who come in to provide service at the site. Therefore, any contract employees who work at the building will be subject to PTDM but a cleaning crew that services the facility will not be subject to PTDM.

Figure 1 presents the location of the site in Cambridge, Massachusetts. Access paths for the various transportation modes expected to be used to visit the site are shown on Figure 2.



Legend:

- VEHICLE ACCESS
- LOADING ACCESS
- PEDESTRIAN ACCESS
- BICYCLE ACCESS

ON STREET PARKING TO BE ELIMINATED

(14) LONG TERM BICYCLE PARKING SPACES

(8) SHORT TERM BICYCLE PARKING SPACES

PROPERTY LINE

Vehicle Ramp

Source: SGA Architecture Planning Interior Design and Copley Wolff Design Group Landscape Architects & Planners
 0 15 30 Scale in Feet



Figure 2
 Proposed Site - Day one
 Vehicles, Bicycles and
 Pedestrian Access

TRANSIT CONDITIONS

The Site is located 1.5 miles from Alewife Station via Concord Avenue and Alewife Brook Parkway. Alewife Station is a terminating stop on the Massachusetts Bay Transit Authority (MBTA) Red Line subway system. The MBTA operates two bus routes in the immediate area of the Quadrangle, both within reasonable walking distance to the Project site:

- ***Bus Route 74 - Belmont Center - Harvard Station, via Concord Avenue*** - Route 74 connects Belmont Center with Harvard Square (Cambridge) via Concord Avenue. The closest stop is located at the intersection of Concord Avenue and Smith Place, approximately 0.2 miles (less than a 5-minute walk) south of the Project site. The bus runs from 5:20 AM until 1:27 AM on weekdays, 5:45 AM to 7:10 PM on Saturdays, and no service on Sundays. On weekdays, Route 74 operates with infrequent service throughout the day – headways range from 25 to 90 minutes.
- ***Bus Route 78: Arlmont Village – Harvard Station via Park Circle*** - Route 78 connects Arlmont Village (Arlington) to Harvard Square (Cambridge) via Frontage Road, Brighton Street, and Concord Avenue. The closest stop is located at the intersection of Concord Avenue and Smith Place, approximately 0.2 miles (less than a 5- minute walk) south of the Project site. The bus runs from 5:42 AM until 12:53 AM on weekdays, 6:27 AM to 12:58 AM on Saturdays, and 6:10 AM to 1:04 AM on Sundays. Weekday service frequencies are as follows:
 - Every 15 to 35 minutes from the beginning of service through 9:00 AM, but mostly every 23 to 27 minutes.
 - Every 35 minutes between 9:00 AM and 4:00 PM.
 - Every 7 to 40 minutes during the evening peak period, but mostly every 24minutes.
- ***Red Line: Alewife Station*** - The site is located 1.2 miles (approximately a 25-minute walk) of Alewife Station on the MBTA Red Line. The Red Line subway service links Cambridge to to Braintree tot the north and Ashmont to the south, via the downtown area of the City of Boston. The Red Line connects with the Green Line at Park Street and the Orange Line and Silver Line (Washington Street branches) at Downtown Crossing. At South Station, Red Line riders can connect to the Worcester/Framingham and all southern commuter rail lines and the Silver Line (Airport, Seaport, and Chelsea). At Porter Square station in Cambridge, the Red Line connects with the Fitchburg commuter rail line. At Alewife Station, there are addition bus lines available, including:

- Route 62: Bedford V.A. Hospital, Alewife Station via Lexington Center, and Arlington Heights
- Route 67: Turkey Hill, Alewife Station via Arlington Center
- Route 76: Hanscom/Lincoln Labs, Alewife Station via Lexington Center and Civil Air Terminal
- Route 79: Arlington Heights, Alewife Station via Massachusetts Avenue
- Route 84: Arlmont Village to Alewife Station
- Route 350: North Burlington, Alewife Station via Burlington Mall
- Route 351: Oak Park/Bedford Woods, Alewife Station via Middlesex Turnpike

It is important to note that due to COVID-19 some of the above-mentioned routes were suspended or combined. In order to provide a typical non COVID-19 scenario, the transit analysis was conducted for all the existing lines including the suspended line.

- ***Alewife TMA Shuttle*** - Alewife Station is a long walking distance to/from the Quadrangle; thus, the Alewife Transportation Management Association (TMA), operates a shared shuttle service (“Alewife Connect” or the Alewife TMA Loop Shuttle1) between Alewife Station and the Quadrangle for participating member companies and employers. The service includes stops at 10 Fawcett Street, 80 Fawcett Street, 110 Fawcett Street, 10 Moulton Street, 45 Moulton Street, 75 Moulton Street, 733 Concord Street, and 767 Concord/Fayerweather Street. The shuttle runs weekday service every 30 minutes, between 7:00 and 10:00 AM and 3:30 to 7:30 PM.
- ***128 Business Council Shuttles*** - 128 Business Council Shuttles to Alewife Station, The 128 Business Council operates six public shuttles that provide service to and from the Alewife MBTA Station2: Alewife Route A North, Alewife Route A South, Alewife Route B, Alewife Route C, Alewife Route D, and REV Bus-Hartwell Area (including Lexington Center).

A map of the current transit facilities is provided on Figure 3.

Parking and Transportation Demand Management Plan - 180 Fawcett Street - Cambridge, Massachusetts

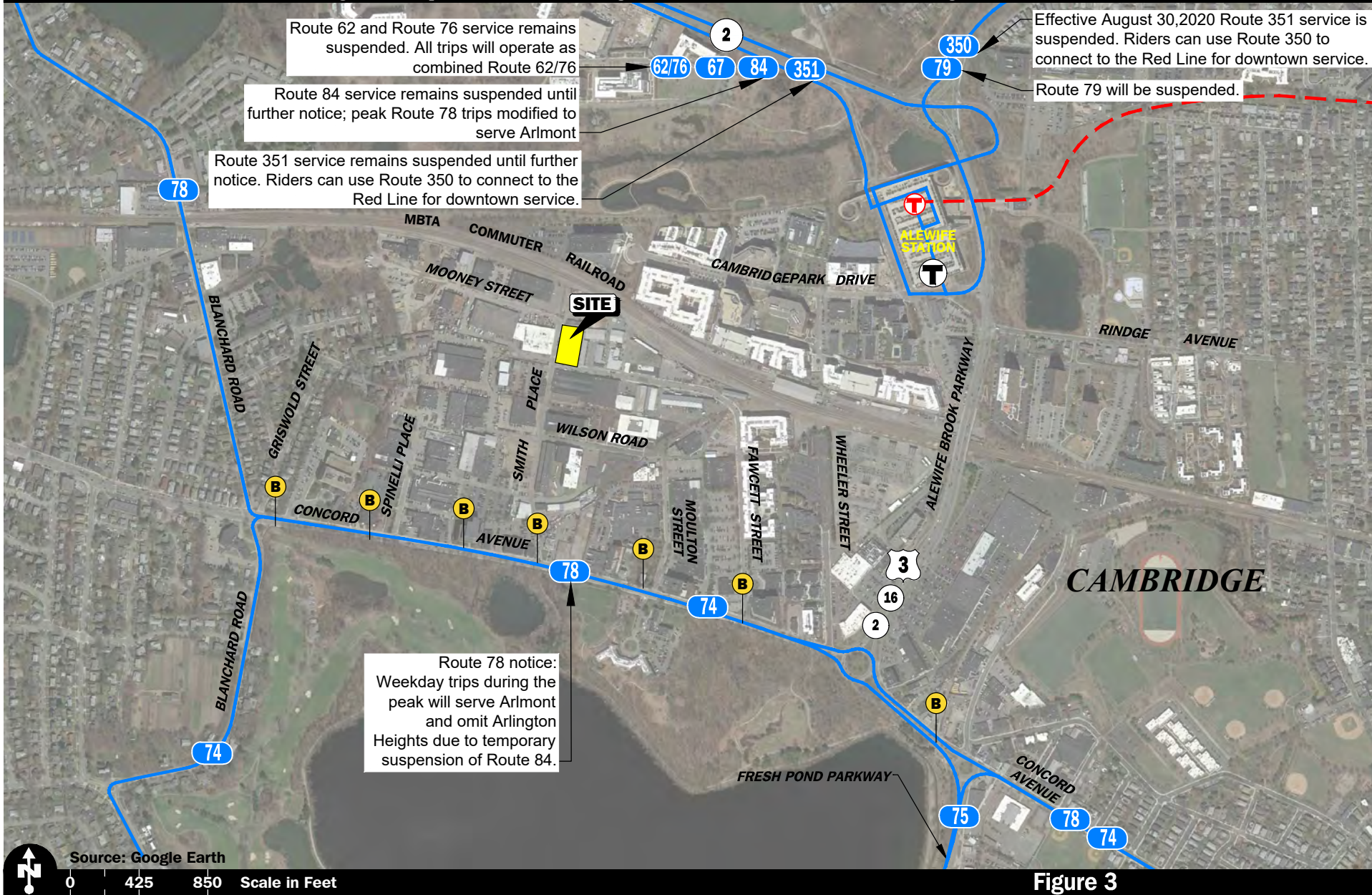


Figure 3
Public Transit Map

PROJECT CHARACTERISTICS

A detailed Transportation Impact Study (TIS) was prepared for the Project. Details on the Project using the characteristics identified in the TIS are provided in Table 1 below.

Table 1
PROJECT CHARACTERISTICS

Characteristics	Existing Site	Project
Leasable Retail (Health Club)	19,014 sf	--
Leasable Office Space/R&D Space (GFA)	--	57,434 sf
Parking Spaces	14 registered	55
Bicycle Spaces		
Long Term	0	14
Short Term	0	8

Source: Site survey.

The TIS for the Project documented vehicle trips expected with the development of the site. As identified in the City of Cambridge Guidelines for TISs, the traffic volumes expected to be generated by the R&D component of the Project were determined using trip-generation rates that were empirically derived from monitoring reports for other R&D facilities in the Project area.

PTDM studies from 2017 through 2018 for three R&D buildings in the vicinity of the Project were used to determine an empirical trip-generation rate for R&D uses in this area of Cambridge. The resulting empirical rates were approved by the Traffic, Parking, and Transportation (TP&T) Department in their Scoping Letter of May 5, 2021, which also contained combined mode-split data for three office/R&D developments in this area of Cambridge obtained from PTDM reports. These mode split values are provided in Table 2.

Table 2
MODE SPLIT SUMMARY^a

Mode Split	R&D Building
Single Occupancy Vehicle (SOV)	54.0
High Occupancy Vehicle (HOV)	10.0
Transit	16.0
Bicycle	10.0
Pedestrian	4.0
<u>Other</u>	<u>6.0</u>
TOTAL	100

^aTDM monitoring reports from 10 Wilson Road (2017), 767 Concord Avenue (2019), and 75 Moulton Street (2019) PTDM report.

Table 3 provides the empirically derived vehicle-trip rates and expected number of vehicle trips for the R&D portion of the development.

Table 3
EMPIRICAL R&D VEHICLE TRIP GENERATION RATES

Time Period	Empirical R&D Vehicle Trip Rates ^a	Proposed R&D (SOV+HOV) Vehicle Trips (62,050 GFA) ^b
<i>Weekday Daily:</i>		
Entering	2.83	176
<u>Exiting</u>	<u>2.90</u>	<u>180</u>
Total	5.73	356
<i>Weekday Morning Peak Hour:</i>		
Entering	0.57	35
<u>Exiting</u>	<u>0.16</u>	<u>10</u>
Total	0.73	45
<i>Weekday Evening Peak Hour:</i>		
Entering	0.14	9
<u>Exiting</u>	<u>0.48</u>	<u>30</u>
Total	0.62	39

^aBased on average trip rates from 10 Wilson Av 2017 PTDM report, and 75 Moulton Street 2019 PTDM report.

^bBased on trip rates multiplied by 62,050.

Note: Since completion of the traffic study, development size was decreased to 57,434 sf

MODE SPLIT COMMITMENT

Single-occupant vehicle (SOV) Employee Mode-Split Commitment for those who work at the proposed building: 49 percent. This represents a 10 percent reduction from the mode split used in the TIS. The following pages identify measures that the Project will use to maintain a low SOV percentage.

MANAGEMENT

A comprehensive program designed to minimize the amount of SOVs entering the site will be implemented. The Project proponent will become a member of the Alewife TMA which works with property owners to provide services as part of the proposed TDM measures.

The Project proponent will promote the location and convenience of access to public transportation. This information will be available on brochures, the company website (internet), and other materials.

The Project proponent will designate an On-Site Employee Transportation Coordinator (ETC) to assist with marketing and promotion of sustainable transportation. At this time, contact information is not known as a tenant has not been identified, but this information will be provided when available.

The ETC will be available to assist employees during business hours. Email and phone information for the ETC will be posted in a central location and also included on the company intranet and in New Employee packets. The ETC will compile and distribute up-to-date transportation packets explaining all commute options to all new employees as part of their orientation package. The packets will contain information on both the range of options available for the commute trip and the Project proponent programs to support use of these options. The ETC will be the liaison between the employees and transportation organizations, such as the TMA, MBTA, and the City of Cambridge. The ETC will develop and maintain transportation information compiled onto the company intranet that includes:

- MBTA maps, schedules, and fares
- Alewife TMA shuttle map and schedule
- “Getting Around in Cambridge” map
- Bicycle parking and regional routes
- Pedestrian routes
- Ride-matching
- Other pertinent transportation information

The ETC will also assist in the implementation of various survey instruments to identify transportation characteristics of the employees and monitor/evaluate results of the PTDM Plan Monitoring program. The ETC will participate in any PTDM or Transportation Coordinator trainings offered by the City of Cambridge or the TMA.

ALTERNATIVE MODE PROMOTION PROGRAMS

The Project proponent will actively promote the use of transportation options through promotional and public awareness programs that will focus on the following factors to maintain the low SOV rate identified through the mode split surveys conducted for the PTDM monitoring reports.

PUBLIC TRANSPORTATION

The following services will be provided to encourage the use of public transportation:

- Accurate real-time information for the shuttles will be provide on-site in a central location.
- Tenants will be encouraged to provide a 100 percent subsidy towards an MBTA pass via a pre-tax deduction program. The pass covers bus, subway, and commuter rail services.

SHUTTLE BUS SERVICE

The owners (or subsequent owners) will explore membership with the Alewife TMA. The Alewife TMA is a public/private partnership focused on reducing traffic congestion and improving air quality in the Alewife area. Should the owners (or subsequent owners) become members of the TMA, the TMA benefits will be extended to all employees of property tenants, including use of the Alewife Shuttle.

The Alewife TMA already operates a Shuttle Loop service through the Quad, with service along Fawcett Street, Smith Place, Wilson Road, and Moulton Street, connecting to the MBTA's Alewife Red Line Station.

EMERGENCY RIDE HOME

Via the Alewife TMA, the owners (or subsequent owners) can provide tenants with an Emergency Ride Home program for all employees who commute by non-SOV mode at least three days a week.

RIDESHARING

Carpool and vanpool groups will be informally organized by individual teams and lab groups on an as need basis. In addition, the TMA membership entitles the Project proponent to ride-matching services, which will be advertised to all employees. The Project proponent will provide 5 carpool/high-occupancy vehicle (HOV) parking spaces in preferential locations in the parking garage.

BICYCLE/PEDESTRIAN OPTIONS

As proposed, the Project will provide 8 short-term bicycle spaces on the premise. There is pedestrian access to the building from Smith Place. The short-term bicycle spaces will be located along the site frontage off Smith Place, within a 50-foot radius of the pedestrian main building entrance. An indoor bicycle parking room will be provided on-site with access from Smith Place. This room has been designed according to City bicycle parking guidelines and is shown on Figure 4.

Indoor bicycle parking will meet design requirements of Article 6 of the Cambridge Zoning Ordinance and the City of Cambridge Bicycle Parking Guide. Long-term bicycle parking spaces are required to be provided at the rate of 0.22 bicycle parking space per 1,000 sf of building area. The site will contain 57,434 sf which requires 14 long-term bicycle parking spaces. As shown on Figure 4, 14 spaces are provided for a total of 22 bicycle parking spaces. In addition, showers and lockers will be provided on-site for employee use.

The Project proponent will provide a Gold-Level BluebikesSM membership to employees to encourage commuting by bicycle. A bike repair stand with air supply will be provided in the bike parking area.

WORK SCHEDULE

The Project proponent will provide flexible work schedules. This will encourage employees to access the site during off-peak times. In addition, the Project proponent will provide telecommuting options for employees to further reduce the Project impact on commuting traffic.

ANNUAL TRANSPORTATION FAIR

In order to further encourage non-SOV transportation, the Project proponent will hold a weeklong Annual Transportation Fair to be held on or about the third week in May or such other date that coincides with National Bike to Work Day. Information on sustainable transportation choices will be provided for the building employees. A bicycle tune-up day will also be conducted during the Fair.

OFFICE OF WORKFORCE DEVELOPMENT

To encourage the use of alternative transportation, the Project proponent will continue to work with the Cambridge Office of Workforce Development (OWD) to expand employment opportunities for Cambridge residents.

Bicycle Parking Criteria

Use/Category:

- Technical Offices, Research Facilities (Long-Term - N1)
- Laboratories and Research Facilities (Short-Term - N2)

Required Parking:

- Long-Term - N1: 0.22 Space per 1,000 SF
- Short-Term - N2: 0.06 Space per 1,000 SF

Calculation:

62,050 GFA *(0.22 Space / 1,000 SF) = 14 Spaces
 62,050 GFA *(0.06 Space / 1,000 SF) = 4 Spaces

Total Required Spaces: 18 Spaces

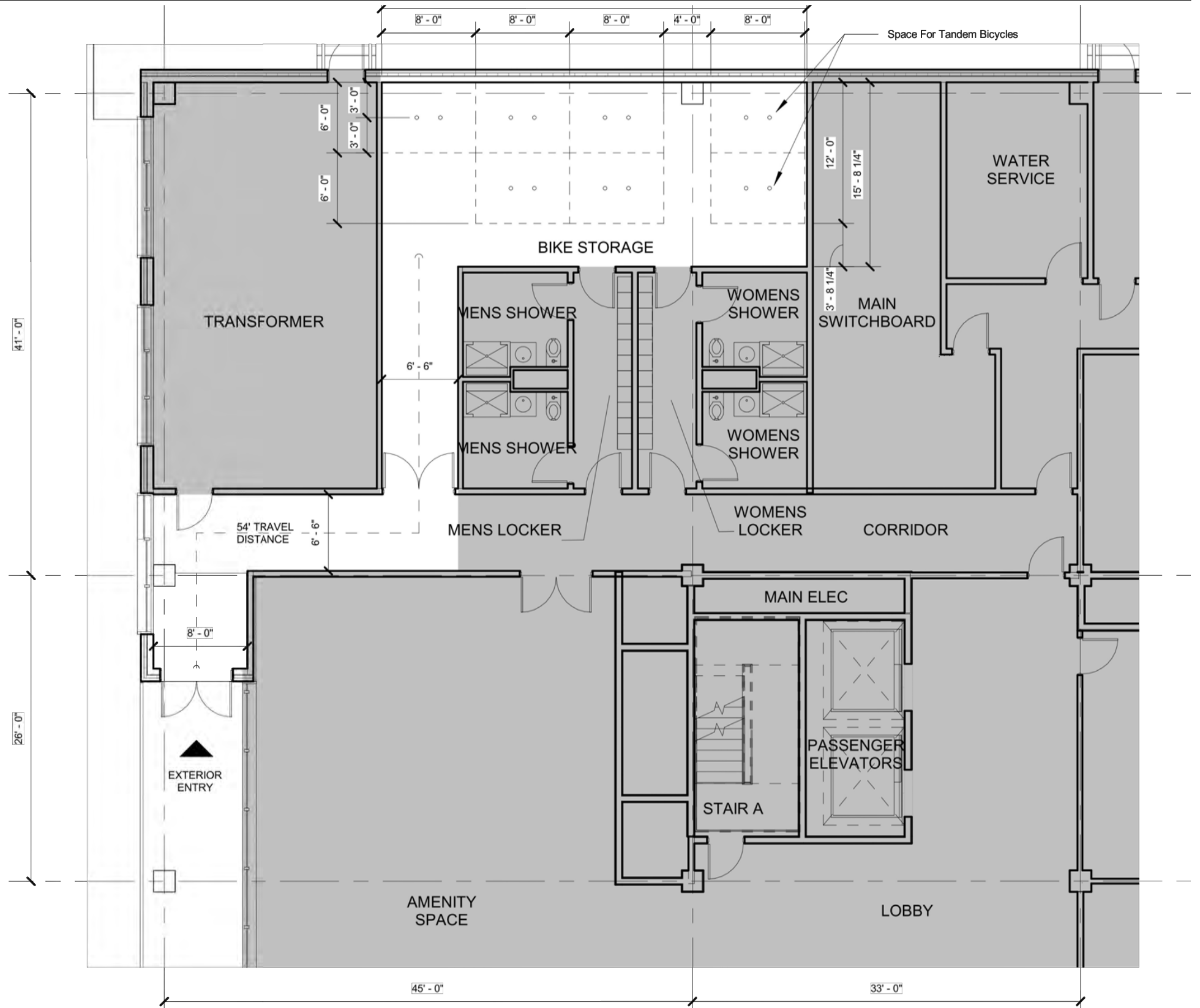
Total Long-Term Spaces Provided: 14 Spaces



Ultrasite Inverted U-Rack, Model # 5801DSM, Powdercoated Black

Note 1: The floor area of an underground parking garage and the floor area of the underground portion of a structure devoted in whole or in part to parking automobiles, shall not be counted as gross floor area and shall be exempt from the requirements as to floor area but shall conform to all other requirements of the district in which it is located.

Note 2: Long-term bicycle parking on a private lot shall be located within the building containing the use that it is intended to serve, or within a structure whose pedestrian entrance is no more than two hundred (200) feet from a pedestrian entrance to such a building.



Source: SGA Architecture Planning Interior Design
 0 5 10 Scale in Feet



Figure 4

Proposed Site Plan Long-Term Bicycle Parking

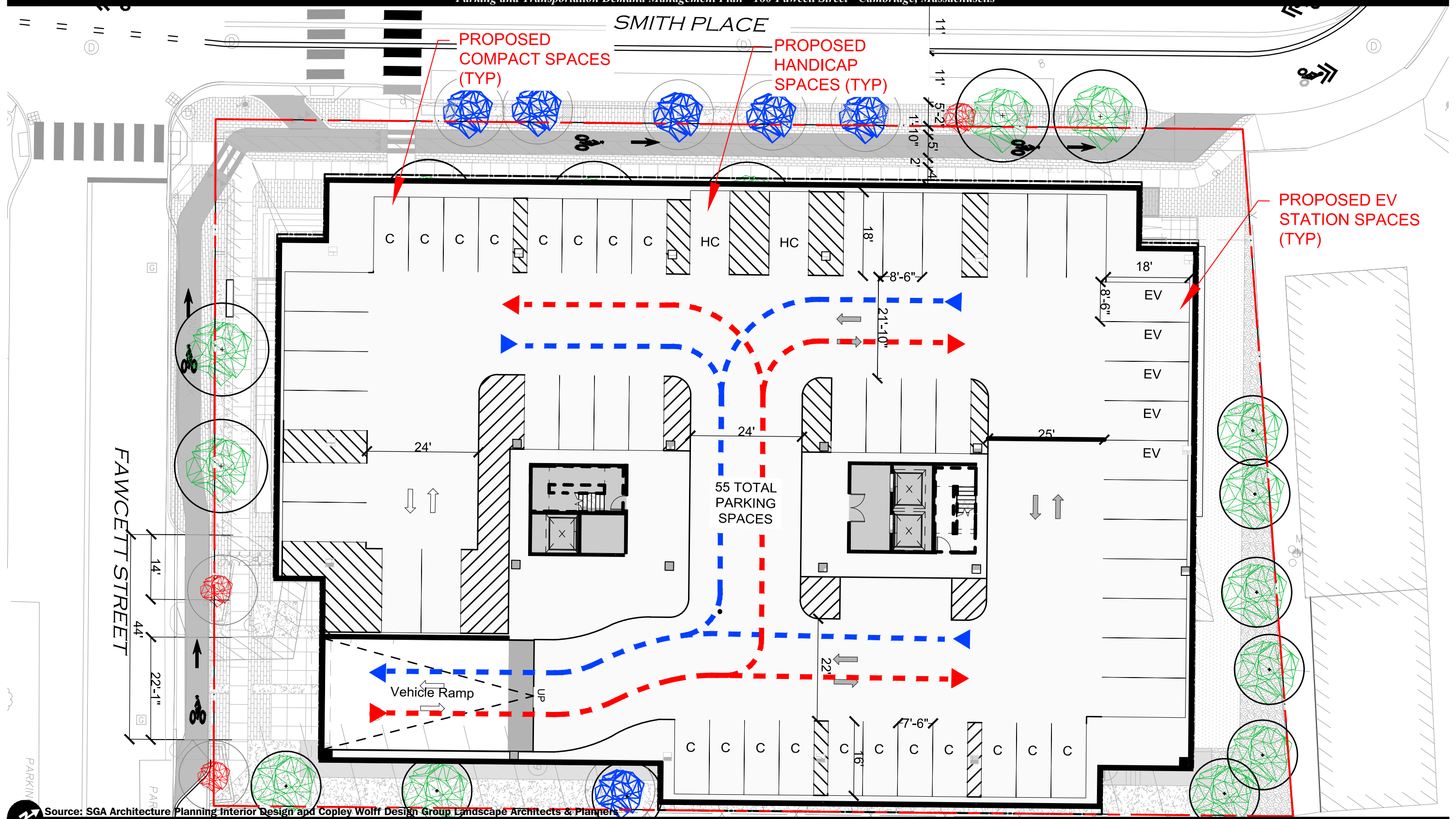
PARKING MANAGEMENT

PARKING SUPPLY/DEMAND

The below-grade parking garage on-site will provide 55 striped parking spaces, which is expected to provide sufficient parking supply for the proposed Project. The 55 spaces are for those who work in the building. Public parking will not be permitted on-site.

The proposed garage will have a minimum of 5 electric vehicle (EV) charging stations serving parking spaces located as shown in the garage floor plans on Figure 5. The EV parking spaces are also shown on Figure 5.

The proposed garage will also have 10 percent of the parking supply reserved for carpool/HOV vehicles. These will be located in preferential locations near elevators or stairway entrances.



Source: SGA Architecture Planning Interior Design and Copley Wolf Design Group Landscape Architects & Planners

Figure 5
Proposed Site - Day One
Parking Level Plan



R:\8779\0 - 8779 - Fig C - Proposod plan C.2 - garage.dwg, 7/15/2021 8:52:20 AM

MONITORING AND REPORTING PLAN

To ensure compliance with the City of Cambridge Vehicle-Trip Reduction Ordinance as well as utilization of the TDM programs, a traffic monitoring program for the site will be implemented. The details of the program are provided below.

MONITORING AND REPORTING

The Project proponent will conduct annual employee surveys to determine the mode share for the Project, which will be used to determine if the mode split commitment is being met. The survey will be distributed to all employees. Employees will be sent an e-mail containing an html link to a website where the survey can be taken online with each employee provided a unique identifier to prevent duplication of entries.

The Project proponent will file an annual monitoring report based on employee survey data and in the format provided by the PTDM Officer. Every two years, the report will include automobile and bicycle parking utilization reports and driveway counts. The report includes:

- Annual mode split surveys.
- Biennial entry and exit counts at the garage driveway, taken during weekday morning, weekday evening, and daily time periods.
- Biennial counts of parking space utilization.
- Reporting on implementation of TDM measures.

Depending on when the first Certificate of Occupancy is issued, monitoring would take place for a one-week period during the months of April, May, September, or October, during a non-holiday week when schools are in session. Reports will be submitted to the PTDM Planning Officer by the stated deadline, usually June 30 or November 30, depending on date of Certificate of Occupancy.

CORPORATE OFFICER CERTIFICATION

I hereby certify that a commercial parking permit has been obtained for each space being used for commercial parking. None of the proposed parking spaces at this parking facility have been or will be available as commercial parking spaces until a commercial parking permit therefore has been obtained.

Signed

(Officer of CCF Fawcett Street Property Company,
LLC)

Date:



**VOLUME III -
APPENDIX**

180 FAWCETT ST –
5138.00

CAMBRIDGE, MA

10.08.2021

ARCHITECTURE | PLANNING
INTERIOR DESIGN | VDC
BRANDED ENVIRONMENTS

BOSTON
200 HIGH ST, FLOOR 2
BOSTON, MA 02110

NEW YORK
54 W 21ST ST, SUITE 804
NEW YORK, NY 10010

SGA-ARCH.COM
857.300.2610

EARLY COMMUNITY ENGAGEMENT REPORT

The Applicant has engaged in public participation for this Special Permit Application in accordance with Section 5 of the Rules of the Cambridge Planning Board. To date, the Applicant has held two meetings with the public in association with this Special Permit Application.

On August 5, 2021 at 7:00pm, the Applicant held a meeting at 180 Fawcett Street and invited the Project's abutters two weeks prior to the meeting. Copies of the invitation and abutters list are attached below. Two abutters joined the Applicant at this meeting and details of the Project were discussed including the Project's proposed use, massing, public realm improvements, timing, and much more. No questions or concerns were aired about the Project. No changes to the Project proposal were made as a result of this meeting.

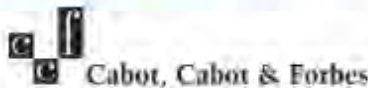
In a separate meeting on July 7, 2021 at 6:00pm, the Applicant held a meeting at 180 Fawcett Street with three representatives from the Cambridge Highlands Neighborhood. After discussing details of the Project, questions and comments were solicited. Questions primarily revolved around sustainability measures being taken for the Project and proposed massing. As a result of this meeting, the Applicant increased the number of EV parking spaces included in the Project proposal.

160-180 Fawcett Street Community Meeting 8/5/2021

Please join us for a Community Meeting on Thursday August 5, 2021, from 7:00pm to 8:00pm at 160-180 Fawcett Street, Cambridge, MA. The on-site conference room can be best accessed from the parking lot at the rear of the site.

We will discuss the proposed Planning Board Special Permits for 160-180 Fawcett Street which contemplates a 4 story research & development office (CZO 4.34) with parking below grade.

For questions, please contact the Project Manager at mdamico@ccfne.com or (617) 603-4015





**VOLUME III -
APPENDIX**

180 FAWCETT ST –
5138.00

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LEED NARRATIVE

1. Rating System Narrative

1.1 Introduction

In compliance with Article 22, the following narrative details the LEED certification goal for the Project and strategies implemented to meet the required and targeted credits based on the current stage of design. The Project is applying LEED BD+C for Core & Shell v4 rating system, with specific v4.1 credit substitution as noted, to demonstrate compliance with Article 22 of the Zoning Code. LEED v4 BD+C rating system tracks the sustainable features of the Project by assigning points in the following categories: Integrative Process (IP), Location and Transportation (LT); Sustainable Sites (SS); Water Efficiency (WE); Energy & Atmosphere (EA); Materials and Resources (MR); Indoor Environmental Quality (IEQ); Innovation (IN); and Regional Priority (RP). An evaluation of the Project's current design has identified 60 anticipated points, which meets Gold certification level, as referenced in the accompanying LEED checklist. As the Project design advances, all anticipated credits will continue to be evaluated and documented in LEED Online. As noted in the checklist, design credits will be confirmed by the end of 100% Design Development and construction credits by 100% Construction Documentation. Credits are indicated in the checklist with a D or C, respectively.

1.2 Article 22 Conformance

1.2.1 Integrative Process (IP)

Integrative Process – (1 point)

As part of the Concept phase, the Project team conducted a multidisciplinary team meeting to identify the Project's sustainability goals and synergies across disciplines that would support these goals. Prior to completion of the Schematic Design phase, the Project team will perform a preliminary energy modeling analysis to assess building configuration, orientation, and early ideas around building systems and how to reduce energy loads. The Project will also produce a preliminary water budget that identifies non-potable water supply sources and explores how to reduce potable water loads in the building. This assessment will provide guidance to the team and inform the Project's Owner's Project Requirements (OPR) and Basis of Design (BOD) documents.

Location and Transportation (LT)

The Project will pursue twelve points within Location and Transportation. These credits will be achieved based on the project's location in an urban area with access to numerous services and amenities. The Project will also provide bicycle facilities and amenities on site as well as below-grade parking. The approach to achieving the credit requirements is detailed below.

Sensitive Land Protection – Option 1. (2 points)

The site selected for the Project is a previously developed property and therefore, the Project is minimizing the impact of its physical footprint.

High Priority Site – Option 3. (3 points)

The site is located on a former landfill and it is anticipated that site investigation will reveal soil contamination. If contamination is found, remediation will be performed.

Surrounding Density and Diverse Uses – Options 1 & 2. (4 points)

The Project Site is located within a ½ mile walk of eight or more basic services, including restaurants, medical services, financial services, and places of worship.

Bicycle Facilities (LEED v4.1) – Case 1. (1 point)



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857.300.2610

The Project will provide 21 secured and covered long term bike storage spaces and nine short term bike storage spaces, exceeding the LEED v4.1 credit criteria of bike storage for at least 5% of regular occupants and for 2.5% of peak visitors. Two male and two female showers will be provided for the use of all occupants. The Project entrance is located in proximity of a bike network that connects to diverse services within three miles of the Project Site.

Reduced Parking Footprint (LEED v4.1) – Case 1. (1 point)

The Project will provide 55 parking spaces which is below the 30% reduction of the Institute of Transportation Engineers (ITE) baseline. Exemplary Performance of 60% below baseline will be met.

Green Vehicles – Option 1. (1 point)

The Project will provide Electric Vehicle Charging Stations in 2% of all parking spaces. Based on 55 parking spaces, at least 2 charging stations will be provided.

1.2.3 Sustainable Sites (SS)

The Project will pursue seven points within Sustainable Sites by targeting credits related to the redevelopment of the Project Site from a mostly impervious, paved condition, to a condition with more permeability and landscaping. Design features will consider the environment surrounding the building and aim to minimize effects on microclimates and existing habitats. The descriptions below outline the Project's approach to achieving the credit requirements.

Construction Activity Pollution Prevention (Prerequisite)

Contractor will establish and implement an Erosion and Sedimentation Control Plan in compliance with the EPA 2012 Construction General Permit for demolition and construction activities to be undertaken for the Project as detailed in the Division 1 Sustainable Design Requirements specifications.

Site Assessment – (1 point)

As part of Design Development, the Project team will complete a comprehensive site survey including a study of the topography, hydrology, climate, vegetation, soils, human use, and human health effects.

Site Development- Protect or Restore Habitat – Option 2. (1 point)

The Project will make a one-time donation to a land trust organization in the amount of \$0.40/SF of site area. Based on the site area, this donation is estimated to be \$13,372.

Open Space (LEED v4.1) – (1 point)

Over 30% of the Project site will be physically accessible outdoor space and at least 25% of the outdoor space will be vegetated. There will be an accessible green roof located at level four and the ground level will include open space as well as landscaping.

Heat Island Reduction (LEED v4.1) – Options 1 & 2. (2 points)

The Project will utilize high albedo materials for all hardscapes, including both non-roof and roof installations. All installed materials will meet LEED requirements for either initial or three-year Solar Reflectance Index values. Heat island effect will be mitigated through the installation of the level four green roof. In addition, 100% of parking spaces are located under the building. Exemplary Performance is met by achieving both credit options.

Light Pollution Reduction – (1 point)

Exterior lighting will comply with Illuminating Engineering Society (IES) levels for backlight, uplight, and glare to address light trespass and minimize uplighting. The Project does not anticipate utilization of uplighting in the landscape lighting design.

Tenant Design and Construction Guidelines – (1 point)

The Project will provide tenants with Tenant Design and Construction Guidelines to educate occupants about the sustainable features of the building.



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1.2.4 Water Efficiency (WE)

The Project team will target nine points in Water Efficiency through the use of water efficient plumbing fixtures and reduced potable water for irrigation for landscaping. The Project anticipates meeting additional water metering requirements beyond the Prerequisite. The descriptions below detail the Project's approach to achieving the credit requirements.

Outdoor Water Use Reduction (Prerequisite) – Option 2.

The Project will use native and adaptive vegetation in the areas of new landscaping and on the green roof area to enable the reduction of potable water used for irrigation by over 30%.

Indoor Water Use Reduction (Prerequisite)

The Project will specify and install high efficiency plumbing fixtures to reduce annual indoor potable water consumption by over 20%. Toilets, urinals, lavatory faucets, and showerheads will have a WaterSense label. The Project will also meet process and appliance requirements. No once-through cooling with potable water will be used for any equipment that rejects heat and cooling towers will be supplied with makeup water meters, conductivity controllers and drift eliminators.

Building-Level Water Metering (Prerequisite)

The Project will include a permanent whole building water meter and share usage data with the USGBC for a period of five years post occupancy.

Outdoor Water Use Reduction (LEED v4.1) – Option 2. (2 points)

The Project will use regionally appropriate and low water plantings. The irrigation system is designed to reduce potable water usage by 75% through native and adaptive plantings.

Indoor Water Use Reduction – (4 points)

The Project will specify and install high efficiency plumbing fixtures to reduce the annual demand for potable water over the LEED baseline. The following flow rates are targeted to meet a 40% reduction
Toilets: 1.1 gpf, Urinals: 0.125 gpf, Showers: 1.5 gpm, Lavatory Faucets: 0.35 gpm, Pantry Faucets: 1.5 gpm.

Optimize Process Water Use (LEED v4.1) – Option 1. (2 points)

The cooling tower subcontractor will perform a one-time potable water analysis and design the cooling tower to maximize the number of cycles and water treatment without exceeding water parameters.

Water Metering – (1 point)

In addition to a whole building water meter, the Project will install permanent water meters for irrigation and domestic hot water.

1.2.5 Energy and Atmosphere (EA)

The Project will target 14 points for the Energy and Atmosphere category through the implementation of energy-saving strategies such as high-efficiency building envelope systems and components, high efficiency HVAC systems, and energy recovery units. Enhanced commissioning will be implemented in addition to the Fundamental commissioning required for the Prerequisite. Strategies for achieving credit requirements are detailed below.

Fundamental Commissioning and Verification (Prerequisite)

The Owner will engage a Commissioning Agent to provide Fundamental Commissioning Services including document review and verification that the building systems are installed and perform as designed and intended. Building systems include HVAC, lighting and daylight controls, and domestic hot water. The Owner will develop an Owner's Project Requirements (OPR) document detailing the building energy system goals and targets. The MEP Engineer and Architect will develop a Basis of Design (BOD)



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document describing the design of energy systems meeting these goals. The OPR and BOD documents will include the building envelope.

Minimum Energy Performance (Prerequisite) – Option 1.

The Project will be designed to meet the mandatory provisions of ASHRAE 90.1-2010. The team's Energy Analyst will perform a whole building energy analysis to demonstrate an annual energy cost reduction of over 5% compared to an ASHRAE 90.1-2010 Appendix G baseline.

Building-Level Energy Metering (Prerequisite)

The Project will include new whole building level gas and electric energy meters that measure total building energy consumption and commit to sharing the data with the USGBC for a period of five years post occupancy.

Fundamental Refrigerant Management (Prerequisite)

The Project design documents will specify refrigerants that are chlorofluorocarbon (CFC) free. Federal law also prohibits these refrigerants.

Enhanced Commissioning – Option 1, Path 2. (4 points)

The owner will engage a Commissioning Agent to provide Enhanced and Monitoring Based Commissioning Services for mechanical, electrical, and plumbing systems and assemblies. Advanced commissioning of building systems will include a review of progress construction documents, creation of an ongoing commissioning plan and a return to the building to evaluate systems ten months after occupancy.

Optimize Energy Performance – Option 1. (5 points)

The Project is designed to be a high performance and low energy building. To achieve this goal, the Project team is applying an integrated systems approach to determine building performance throughout design. The building systems include energy conservation measures such as high-performance building envelope, high efficiency mechanical and ventilation equipment, energy recovery units, low flow plumbing fixtures and reduced lighting power density to reduce building loads. Based on the preliminary energy model, the building is projected to achieve 11.5% energy cost savings compared to ASHRAE 90.1-2010, Appendix G. Iterative energy modeling analysis will inform the design and confirm progress toward the targeted reductions.

Advanced Energy Metering – (1 point)

The Project will provide advanced meters on all base building energy uses and sub-meters to enable tenant spaces to meter energy consumption of all systems dedicated to their space, with a minimum of one meter per energy source per floor. The basis of design includes floor by floor electrical metering.

Enhanced Refrigerant Management – Option 2. (1 point)

HVAC&R systems will utilize refrigerants with Low Ozone Depleting Potential and Global Warming Potential; fire suppression systems will not contain CFCs, Hydrochlorofluorocarbons (HCFCs), or halons. The Project engineer will design the chilled water and fan coil unit design to meet the credit requirements.

Green Power and Carbon Offsets – (2 points)

The Project will engage in a one-time green power purchase to offset the carbon impact equivalent of 100% of the building's energy demand over a five-year period.

1.2.6 Materials and Resources (MR)

The Project will target three points in the Materials and Resources category by carefully selecting materials that support a life-cycle approach that improves performance and promotes resource efficiency and human health. A construction waste management plan will be implemented to establish



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protocol for how the waste management provider collects and manages site-generated waste. The descriptions below detail the Project’s approach to achieving the credit requirements.

Storage and Collection of Recyclables (Prerequisite)

The Project will provide easily accessible, centrally located areas in the building for the storage of collected glass, plastic, paper/cardboard, and metal recyclables for residents. In addition, the Project will commit to recycling e-waste and batteries.

Construction and Demolition Waste Management Planning (Prerequisite)

Contractor will develop and implement a Construction Waste Management Plan in order to track demolition and construction waste removed from the Project. The Plan will include a minimum of five materials targeted for recycling and the process for sorting and preparing materials on site.

Environmental Product Declarations (LEED v4.1) – Option 1. (1 point)

The Project design documents will specify the installation of at least 10 products sourced from three different manufacturers that have environmentally, economically, and socially preferable life-cycle impacts. Products with life-cycle assessments or industry-wide or product-specific Environmental Product Declarations are valued for this credit.

Material Ingredients (LEED v4.1) – Option 1. (1 point)

The Project design documents will specify the use of at least 10 products sourced from three different manufacturers that demonstrate the chemical inventory of the products, including: Health Product Declarations, Cradle to Cradle certification, Declare label, or American National Standards Institute (ANSI).

Construction and Demolition Waste Management – Option 1, Path 1. (1 point)

The Project will track construction and demolition waste removed over the course of construction with the goal of diverting a minimum of 50% of the demolition and construction waste from landfill disposal. At least three material streams will be diverted separately, such as metal, concrete, or commingled waste. Materials utilized for Alternative Daily Cover will be considered waste material in the diversion calculations.

1.2.7 Indoor Environmental Quality (IEQ)

The Project will pursue seven points related to the implementation of indoor air quality measures, including but not limited to: monitoring outdoor air delivery to interior spaces to counter high concentrations of indoor air pollutants, increasing ventilation rates to spaces throughout the building, and managing indoor air quality during construction for the construction team as well as future occupants. The Project will seek to further provide a high-quality indoor environment through quality views for occupants. The descriptions below detail the Project’s approach to achieving the credit requirements.



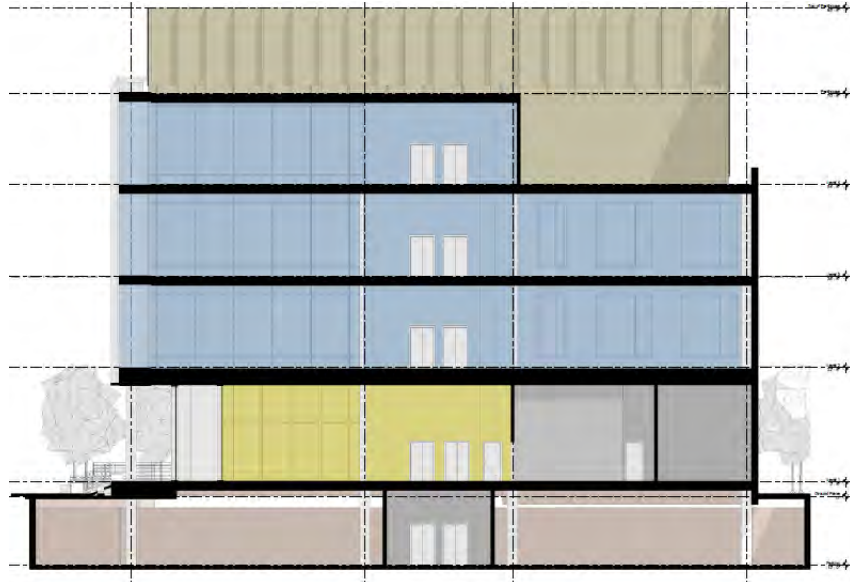
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Minimum Indoor Air Quality Performance (Prerequisite) – Option 1.

The Project team will ensure all ventilation systems meet the minimum requirements of Sections four through seven of the ASHRAE 62.1-2010 Standard for Acceptable Indoor Air Quality. The Project will install air flow monitors as required to satisfy the monitoring requirements.

Environmental Tobacco Smoke Control (Prerequisite, LEED v4.1) – Option 1.

Smoking of tobacco, e-cigarette and controlled substances will be prohibited inside the building and within 25 feet of all entries, outdoor air intakes, and operable windows. Signage will be posted at regularly used entrances to communicate the policy.

Enhanced Indoor Air Quality Strategies – Options 1 & 2. (2 points)

The Project will include permanent entryway systems at least 10 feet long in the primary direction of travel, direct exhaust of all chemical storage areas, and MERV 13 filtration on all ventilation systems. Chemical storage areas will be provided with self-closing doors and deck-to-deck partitions or hard-lid ceilings.

Low-Emitting Materials (LEED v4.1) – (3 points)

The Project team will specify low-VOC paints, coatings, flooring, composite wood, ceiling tile, and insulation that comply with the appropriate testing and/or emissions requirements.

Construction Indoor Air Quality Management Plan – (1 point)

The Contractor will provide and implement a Construction Indoor Air Quality (IAQ) Management Plan that addresses HVAC protection, pathway interruption, housekeeping and scheduling measures that will maintain air quality during construction. Absorbent materials will be protected from moisture prior to installation. This Plan will be verified by site inspections.

Quality Views – (1 point)

The Project will provide direct views to the exterior that meet at least two of the LEED requirements for quality views for 75% or more of the regularly occupied spaces.



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1.2.8 Innovation (IN)

Innovation – (5 points)

The Project team will seek to achieve at least five innovation points; potential credits include: Exemplary Performance for Reduced Parking, Exemplary Performance for Heat Island Reduction, Innovation: Project Walkable Site, and Innovation: Green Building Education. The Project team will continue to evaluate pilot credits to determine feasibility.

LEED Accredited Professional – (1 point)

At least one LEED AP BD+C professional is part of the Project team.

1.2.9 Regional Priority (RP)

Regional Priority Credits (RPCs) are established LEED credits designated by the USGBC as having priority for a particular location. When a project team achieves one of the designated RPCs, an additional point is awarded to the project. The four points available in this category are contingent upon meeting certain thresholds for credits in other categories. RPCs applicable to the Project Site in Cambridge include High Priority Site, Indoor Water Use Reduction, Optimize Energy Performance, Building Life-Cycle Impact Reduction, Rainwater Management, and Renewable Energy Production. The Project is currently targeting High Priority Site and Indoor Water Use Reduction in this category and will evaluate the potential to achieve additional credits as the design advances.



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TREE STUDY

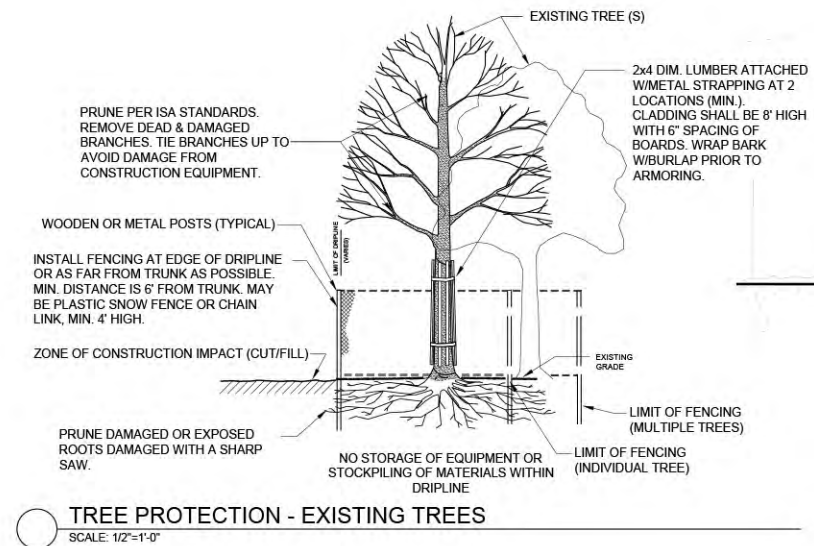
There are no Significant Trees (as defined in CZO 8.66.030) at 180 Fawcett Street. The Superintendent of Urban Forestry & Landscapes informed the Applicant on 7/16/2021 that the Tree Study for the Project is complete and meets all the requirements needed for certification by the City Arborist.

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TREE PROTECTION AND REMOVAL NOTES

- THIS SHEET DESCRIBES EXISTING TREE PRESERVATION AND REMOVAL WORK ONLY. REFER TO CIVIL ENGINEER'S DRAWINGS FOR COMPLETE SITE PREP AND DEMO REQUIREMENTS.
- TREE REMOVAL SCOPE SHALL INCLUDE THE FELLING, CUTTING, AND SATISFACTORY DISPOSAL OF ALL TREES, STUMPS AND VEGETATIVE DEBRIS PRODUCED THROUGH THE CLEARING OPERATIONS.
- FELL TREES IN SUCH A WAY AS TO NOT INJURE TREES TO BE SAVED. EXCAVATION OR GRADING WITHIN THE BRANCH SPREAD OF TREES TO BE SAVED SHALL BE PERFORMED ONLY UNDER THE DIRECTION OF THE OWNER'S REPRESENTATIVE UNLESS OTHERWISE DIRECTED.
- STUMPS TO BE REMOVED OUTSIDE THE TREE PRESERVATION AREA SHALL BE GRUBBED TO THEIR FULL DEPTH. ROOTS 3 INCHES AND LARGER SHALL BE REMOVED TO A DEPTH OF 2 FEET BELOW FINISHED GRADE. STUMPS SHALL BE LEGALLY DISPOSED OF OFF-SITE.
- STUMPS TO BE REMOVED WITHIN THE TREE PRESERVATION AREA SHALL BE GROUND DOWN USING A MECHANICAL STUMP GRINDER TO A DEPTH OF 2 FEET BELOW FINISHED GRADE.
- TREE PROTECTION FENCING SHALL BE INSTALLED AS SHOWN ON THIS PLAN AND REMAIN THROUGHOUT THE TIME OF CONSTRUCTION AS SPECIFIED AND DIRECTED BY THE OWNER'S REPRESENTATIVE.
- CONTRACTOR SHALL TAG ALL TREES TO BE REMOVED AND VERIFY WITH OWNER'S REPRESENTATIVE PRIOR TO THE START OF DEMOLITION.
- FOR ALL SITE PREP AND DEMO WORK OUTSIDE TREE PROTECTION AREA, SEE CIVIL ENGINEER'S DRAWINGS.
- NO STORAGE OF ANY TYPE OF MATERIAL, CHEMICAL OR EQUIPMENT SHALL BE ALLOWED IN THE PROTECTED FENCED IN AREA.
- BEFORE THE START OF ANY WORK ON THE SITE, PRECEDING THE ARRIVAL OF EQUIPMENT, MATERIALS OR VEHICLES TO THE SITE, AND PRIOR TO THE COMMENCEMENT OF ANY CLEARING ON THE SITE, THE CONTRACTOR SHALL ARRANGE A PRE-CONSTRUCTION CONFERENCE ON THE SITE WITH THE OWNER'S REPRESENTATIVE AND THE LANDSCAPE ARCHITECT TO IDENTIFY TREES AND SHRUBS THAT ARE TO BE PROTECTED OR REMOVED. DO NO CLEARING WITHOUT A CLEAR UNDERSTANDING OF EXISTING CONDITIONS TO BE PRESERVED. REFER TO SPECIFICATION SECTION 01 56 39 FOR MORE INFORMATION.
- REMOVE AND DISPOSE OF DEBRIS AS DIRECTED BY THE OWNER.
- ALL EXCAVATION WITHIN THE TREE PROTECTION ZONE TO BE DONE BY HAND TO MINIMIZE DISTURBANCE TO ROOT ZONES.

TREE MITIGATION LEGEND

- EXISTING DECIDUOUS TREE
- TREE TO BE REMOVED
- TREE TO BE PROTECTED, TYP.
- PROPOSED TREE

EXISTING TREE SCHEDULE

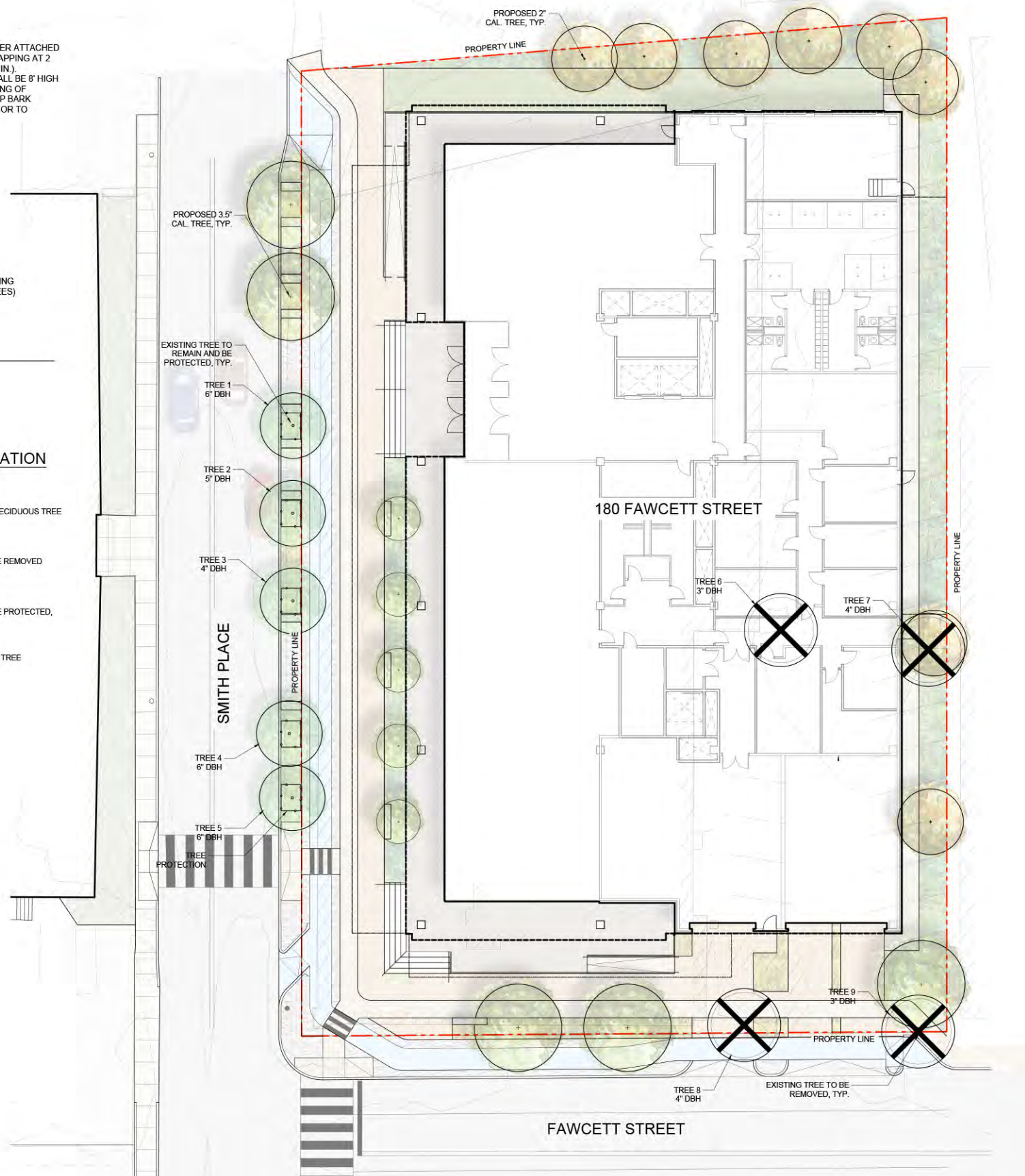
Reference	Species	DBH	CONDITION	STATUS
TREE 1	Zelkova serrata	6"	GOOD	PROTECT
TREE 2	Zelkova serrata	5"	GOOD	PROTECT
TREE 3	Zelkova serrata	4"	GOOD	PROTECT
TREE 4	Zelkova serrata	6"	GOOD	PROTECT
TREE 5	Zelkova serrata	6"	GOOD	PROTECT
TREE 6	Syringa reticulata	3"	POOR	REMOVE
TREE 7	Syringa reticulata	4"	FAIR	REMOVE
TREE 8	Prunus sp.	4"	FAIR	REMOVE
TREE 9	Prunus sp.	3"	FAIR	REMOVE

EXISTING TREE CALIPER TO BE REMOVED

Quantity of Trees	Size	Subtotal Caliper
2	3"	6"
2	4"	8"
Total Caliper: 14" inches of existing tree caliper removed		

PROPOSED TREE CALIPER

Quantity of Trees	Size	Subtotal Caliper
8	3.5" cal.	28"
8	2" cal.	16"
Total Caliper: 34 inches of tree caliper proposed		



LANDSCAPE TREE MITIGATION PLAN





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SEWER SERVICE INFRASTRUCTURE NARRATIVE

1.1 Existing Sanitary Sewer System

Based on initial site visits and record mapping, sanitary sewer mains are present within both Smith Place and Fawcett Street. The City of Cambridge owns, operates, and maintains the sanitary sewer mains near the Project Site. Additionally, the sanitary sewer system is separate from the storm drainage system in the proximity of the Project Site based on a review of the site conditions, survey and available mapping.

A City of Cambridge-owned 12-inch vitrified concrete sanitary sewer main is located on the center of Fawcett Street and flows east from a sewer manhole located in the intersection with Smith Place down Fawcett Street. In addition, a City of Cambridge-owned 12-inch vitrified concrete sanitary sewer main also exists in Smith Place on the western side of the street and flows south to the intersection with Fawcett Street per the City’s CityViewer GIS mapping service.

1.2 Estimated Proposed Sanitary Flow

MassDEP establishes sewer generation rates for various types of establishments in a section of the State Environmental Code Title V (“Title 5”), 310 CMR 15.203. The Project will generate more wastewater flow than the business that currently operates in the building that occupies the Site. Based on an estimate of the Project’s building program, **Table 1-2** gives the estimated proposed sanitary sewer flows expected to be generated by the Project. Based on these Title V sewer generation rates, the Project is expected to produce approximately 4,430 gallons per day (GPD) of sewer flow. The existing building and use generates approximately 1,195 GPD, which produces a net increase of 3,235 GPD. The threshold for a MADEP Sewer Connection Permit is 50,000 GPD, so a state permit will not be required. The proposed sewer generation calculation will be refined as final sewer generation flows are coordinated with City’s Public Works Department as design progresses and tenants are identified.

Table 1-1 Existing Sewer Generation

	Unit Type	Program	Sewer Generation Rate	Sewer Flow (GPD)
Gymnasium Space	Gymnasium	40 Participants	25 GPD / Participant	1,000
Gymnasium Space	Gymnasium	15 Spectators	3 GPD / Spectator	45
Office Space	Office	2,000 SF	75 GPD / 1,000 SF	150
Existing Sewer Generation				1,195

Table 1-2 Proposed Sewer Generation

	Unit Type	Program	Sewer Generation Rate	Sewer Flow (GPD)
Office Space	Office	8,415 SF	75 GPD / 1,000 SF	632
Lab Space	Factory, Industrial	37,977 SF	15 GPD / Person	3,798*
Total New Sewer Generation				4,430
Total Net New Sewer Generation				3,235
Proposed Water Demand				4,873**

*Assumed 150 SF per person for lab space sewer generation calculation using 310 CMR 15.203 System Sewage Flow Design Criteria for Factory, Industrial Plant, Warehouse or Dry Storage Space without a cafeteria.



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***Proposed water demand is based on total new sewer generation multiplied by a factor of 1.1.*

Based on preliminary calculations and discussions with the City's Public Works Department, there are no known sewer capacity problems near the Project Site. The Project's engineer will coordinate final, proposed sewer flows and available capacity with City during Project design to ensure Project needs are met without disruption of service to the surrounding area.

1.3 Proposed Sanitary Sewer Connections

The service connection is anticipated to occur in Fawcett Street. The size and location of the service connection(s) will be coordinated between the Project's plumbing engineer and the City's Public Works Department. Floor drains from the underground level of the subsurface parking garage will be collected and routed through an approved oil/grease separator and sump pump prior to discharge into the City's sanitary sewer system. Additionally, a precast concrete sanitary sewer storage tank is proposed to provide control of the influent flow from the proposed building uses such that the mainline system does not surcharge in larger storm events. The tank will be designed such that storage can be provided for up to 24 hours prior to discharge into the City's mainline system via the existing main in Fawcett Street to achieve influent control. Inline backwater valves will also be installed to prevent sanitary sewer backups through the building's fixtures and will be installed by a licensed plumber according with the City's Wastewater and Stormwater Drainage Use Regulations.

Sewer connections will be constructed to minimize effects on adjacent streets, sidewalks, and other areas within the public right-of-way, and sewer service connections will be kept separate from storm drain connections in accordance with the City's standard requirements.

1.4 Sewer System Mitigation

The sanitary sewer connections are subject to approval by the municipal sewer system owner, City of Cambridge, as part of the Special Permit Project Review process. The City's inflow/infiltration (I/I) mitigation requirements will not apply to this Project because mitigation is only required within the Alewife Overlay District when the threshold of 15,000 GPD of net new sewer discharges is reached.

Proposed Stormwater Management

The proposed stormwater management system has been designed to comply with the City of Cambridge standards and the MADEP Stormwater Management Standards. Since the Project results in a reduction in overall impervious area, it falls under the category of a redevelopment project. The stormwater runoff from the Project will be collected by a combination of green roof areas or roof drains, and area/landscape drains and trench drains. The stormwater collected will be treated, retained and, contingent on environmental and geotechnical testing and site conditions, infiltrated utilizing subsurface stormwater systems. These systems retain a portion of the stormwater to reduce the peak rate of stormwater to the City's stormwater system. The post-project discharge hydrograph for the 25-year 24-hour rainfall event must be less than or equal to the 2-year 24-hour rainfall event pre-project discharge hydrograph, such that the total volume of runoff generated between the pre-project 2-year 24-hour storm discharge and the post-project 25-year 24-hour storm discharge must be retained or recharged on site per the City's Land Disturbance Regulations and stormwater Control Requirements. The stormwater system is anticipated to consist of a subsurface detention system located beneath the garage entry ramp and a crushed stone and perforated pipe infiltration system.



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WATER SERVICE INFRASTRUCTURE NARRATIVE

2.1 Existing Water Service

The City of Cambridge owns, operates, and maintains the water distribution systems near the Site. Based on initial site visits, survey and record mapping, water mains are present within both Fawcett Street and Smith Place. An existing fire hydrant is located on the eastern side of Smith Place, near the intersection with Fawcett Street, and another existing fire hydrant is located on the eastern side of Smith Place, near where the street transitions to become Mooney Street. There are no known issues with the existing water distribution system within the Project's vicinity, but hydrant flow testing will be performed prior to filing for a building permit. Survey mapping shows a 10-inch ductile iron (DI) main is located on the eastern side of Smith Place and a 10-inch ductile iron (DI) main is located on the southern side of Fawcett Street.

2.2 Estimated Proposed Water Demand

The estimated proposed water demand for the Project is based on the estimated sanitary sewer flow (see **Table 1-2**), with a factor of 1.1 applied to account for consumption, system losses and other usages. Based on this formula, the Project's estimated peak water demand for domestic uses is approximately 4,873 GPD. The domestic water will be supplied by the City of Cambridge water system.

Based on discussions with the City of Cambridge's Water Department (CWD), there are no expected water capacity issues near the Site. Prior to final design and Building Permit filing, this will be confirmed by hydrant flow testing in coordination with the City of Cambridge Water Department.

2.3 Proposed Water Service

It is anticipated that the Project's domestic and fire protection services will connect to the 10-inch main in Fawcett Street. Final service locations will be coordinated closely with CWD. If required, the Project will include internal booster pumps to ensure adequate water pressure to all standpipes and sprinkler systems. Appropriate gate valves and backflow prevention devices will also be installed on each side of the service connection point at the main to allow for the services to be shut off and to prevent potential backflow of non-potable water or other contaminants into the public water supply.

The Project will include new domestic and fire protection services. The Project proposes to connect to the existing 10-inch water main in Fawcett Street with the appropriate tee structures for the fire protection and domestic services. Following discussions with CWD, an additional redundant domestic service will also be proposed per the City's standard requirements for this type of building use. The layout and sizing of these service connections will be closely coordinated with CWD throughout the permitting and construction processes.

The existing hydrants are proposed to remain in their current location and will continue to be in service throughout the entirety of construction of the proposed building and associated site improvements. Fire pumps are not anticipated to be required, but will be evaluated as the design progresses.



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NOISE MITIGATION NARRATIVE

1.0 Applicable noise regulation

1.1.1 Massachusetts

The Massachusetts Department of Environmental Protection (MassDEP) noise policy defines noise pollution by the condition resulting when:

- The equipment increases broadband sound level by more than 10 dBA above ambient, or
- The equipment produces a “pure tone” condition - when any octave band center frequency sound pressure level exceeds the two adjacent bands by 3 dB or more.

The ambient sound level is defined as “the background A-weighted sound level that is exceeded 90% of the time measured during equipment operating hours”.

For this Project, the existing background sound levels are assumed to be high enough in the Project area that meeting the City of Cambridge Noise Regulation would be the more stringent criteria. New generators, depending on the operation of the generators, may need to comply with the MassDEP policy.

1.1.2 City of Cambridge

The City of Cambridge Noise Regulation has fixed sound emissions level limits for daytime and nighttime hours. There are different limits based on the zoning district. Per the latest version of the City of Cambridge Zoning Map, based on its location the equipment of the Project should meet all land use categories (residential, commercial, and industrial).

Daytime is defined by the City as the period between 7AM and 6PM except Sunday and holidays.

Table 1. City of Cambridge Maximum Allowable Octave Band Pressure Levels

Octave Band Center Frequency of Measurement (Hz)	Residential Area (Daytime) dB	Residential Area (Nighttime) dB	Industrial (All Times) dB
31.5	76	68	83
63	75	67	82
125	69	61	77
250	62	52	73
500	56	46	67
1000	50	40	61
2000	45	33	57
4000	40	28	53
8000	38	26	50
Single Number Equivalent	60 dBA	50 dBA	70 dBA

2.0

New equipment evaluation

Based on the noise ordinance requirements, the Project’s acoustic consultant examined equipment units located on the penthouse level of 180 Fawcett and at a lower roof level. A preliminary roof plan with equipment location is attached in Appendix A of this report. The analysis assumed that for nighttime conditions, the rooftop mechanical equipment in this study will operate at full capacity in the worst-case scenario.

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APPENDIX**

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Figure 1.

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200 HIGH ST, FLOOR 2
BOSTON, MA 02110

NEW YORK
54 W 21ST ST, SUITE 804
NEW YORK, NY 10010

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The list below shows the list of outdoor mechanical and electrical equipment for the Project:

- A new Skyplume G1-ELLV-SC-49 exhaust air handling system containing three lab exhaust fans with discharge nozzle silencers, 90,000 cfm. Sound power level of the combined fans / EAHU with silencers should have a sound power level of 97 dBA or less.
- Two 45,000 cfm Trane air handling units with 2 inch double wall foam casing, mounted on spring isolators. Each unit should have a sound power level of 89 dBA or less.
- Two Baltimore Aircoil Company cooling towers, model PT2-1212A-2N2. 50.00 BHP/unit, whisper quiet fans. Each unit should have a sound power level of 96 dBA or less.
- One Caterpillar 400kw standby generator, Package C13DE51 with Canopy SA Level 2. The generator canopy should have a sound pressure level of 70 dBA or less at 23 feet. The exhaust, if separate from the sound enclosure, should be provided with a Silex Critical Grade Silencer ESGA Class-4 or equal. Without the silencer, the generator exhaust should have a sound pressure level of 122 dBA or less at 3 feet, with the silencer, the exhaust should have a sound pressure level of 95 dBA or less at 3 feet.

2.1.1 Predicted Equipment Sound Levels

Based on the equipment sound data and the noise control measures described above, the acoustical analysis predicted the project rooftop equipment sound emission levels to residential Receivers R1, R2, and R3, and property line receivers P1, P2 and P3.



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Table 2. Predicted sound pressure levels to the receivers with all noise control measures provided as described in this report.

Receiver Location	Overall project sound levels with generator	Overall project sound levels without generator	Sound Limits (dBA)
R1	46	36	60 dBA (day) / 50 dBA (night)
R2	51	44	60 dBA (day) / 50 dBA (night)
R3	51	46	60 dBA (day) / 50 dBA (night)
P1	63	38	70 (anytime)
P2	54	53	70 (anytime)
P3	52	51	70 (anytime)

The analysis also reviewed the spectral levels at all locations and confirmed the Project does not contribute any tones as defined by MassDEP.

3.0 Conclusion

Based on an analysis of the proposed equipment, the Project will meet the City of Cambridge noise regulation and the MassDEP noise policy.