55 Wheeler Street Development

Cambridge, Massachusetts

PREPARED FOR

55-9 Wheels Owner, LLC
10 Avery Street
Boston, MA 02111

PREPARED BY

99 High Street
Boston, MA 02110
617.728.7777

January 24, 2017

UNDER THE DIRECTION OF

Selma Mandzo-Preldzic, P.E., LEED AP
Massachusetts Registration No. 49895

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Introduction & Project Overview

On behalf of 55-9 Wheels Owner, LLC (the Owner), VHB, Inc. has conducted a Transportation Impact Study (TIS) for the proposed 55 Wheeler Street residential development (the Project Site) for 550 residential units in two buildings within the Quadrangle/Alewife area (the Proposed Project).

The TIS responds to the scope dated October 19, 2016 defined by the City of Cambridge Traffic, Parking and Transportation (TP&T) Department in response to VHB's Request for Scoping dated August 23, 2016. Copies of the City's scoping letter and VHB's Request for Scoping are included in the Appendix. The TIS has been prepared in conformance with the current City of Cambridge Guidelines for Transportation Impact Studies, as required under the Article 19 Special Permit Project Review. This document is comprised of three components, as follows:

- Introduction and Project Overview – describing the framework in which the transportation component of this Project was evaluated;
- Transportation Impact Study (TIS) – presenting the technical information and analysis results as required under the guidelines; and,
- Planning Board Special Permit Criteria – summarizing the evaluation of the proposed Project as defined under the guidelines.

The required TIS Summary Sheets and Planning Board Criteria Performance Summary are included. Supplementary data and analysis worksheets are provided in the Appendix. Electronic files for Automatic Traffic Recorder (ATR) counts, Turning Movement Counts (TMC), and Synchro analyses are included on an accompanying CD.

Project Overview

The Proposed Project will consider the development of up to approximately 500,000 gross square feet of residential space (up to 550 units) distributed over 2 new buildings that will be supported by approximately 495 new parking spaces contained in below grade parking, as well as approximately 577 long term bicycle parking spaces and 55 short term bicycle parking spaces, in accordance with the City's Bicycle Parking Guidelines.

As part of the project, a roadway connecting Wheeler Street to Fawcett Street will be constructed as a continuation of the roadway completed as part of the Atmark Residential project.

Figures listed below illustrate details of the proposed project program.

- **Figure A** presents a site location map.
- **Figure B** presents a regional context map.
- **Figure C** presents the existing conditions of the proposed sites.
- **Figure D** presents the proposed site plan.
- **Figure E** presents the TIS study area.
- **Figure F.1 – F.2** presents the proposed on-site parking layout
- **Figure G.1 – G.8** presents the proposed bicycle parking layout
- **Figure H** Future Planned Bike/Pedestrian Facilities (By Others)

As shown in Figures A and B, the Project consists of a 5.73+/- acre site on Wheeler Street in Cambridge, Massachusetts. This site will contain two new residential buildings, with supporting vehicle and bicycle parking as well as parks and green spaces.

The Proposed Project consists of 550 residential units and approximately 500,000 gross square-feet of buildings of various heights, using 5 over 2 podium construction. The podium construction consists of 5 levels of Type III wood construction over 2 levels of non-combustible Type I construction. The project will include affordable units per City of Cambridge requirements and will also have common lobby and amenity spaces for its residents on the first two floors. The ground floor will also house main MEP rooms, meters, bike parking, trash, storage and similar back of house spaces, but there will also be additional mechanical allocation at the roof of the buildings and MEP closets on each floor. Above the first level, the units will generally stack vertically, but it is expected that there may be some unique units in places that may take advantage of the views, corners or the façade composition. There may also be some townhouse style units to provide stoops on the street as desired by Cambridge. The vehicular parking is primarily below grade with additional parking in a portion of the at grade level of the podium. The current building massing is broken into 2 buildings, one smaller building with an elevated courtyard and a second building that is further broken into two wings containing 2 at grade courtyards that are part of a series of outdoor spaces that terminate with a park at the end of Wheeler Street.

As shown in Figure C, the site currently contains a two story office building of approximately 126,000 square feet that will be demolished as part of the project. The surface parking lot currently supporting the office building will also be demolished.

TABLE A EXISTING SITE CONDITIONS AND USES

Existing Building	Size / Quantity
Square Footage	126,149 SF
Land Use	Office
Percent Occupancy	100 %
# of Employees	290 Full Time
	40 Part-time
# of Parking Spaces	Approx. 270 Vehicle Spaces
	Approx. 30 Bike Spaces

Figure D presents the proposed 55 Wheeler Street Development site plan as well as proposed Connector Road including sidewalk and roadway dimensions. As previously noted, the site will include approximately 550 residential units in two buildings. Building 1 will provide 130 units, while Building 2 will provide 420 units. No retail is proposed as part of this project.

It is currently envisioned that 495 parking spaces will be provided as residential parking for both buildings, in a combination of garage parking and surface parking. The parking will be shared by all building users.

The Proposed Project program is summarized in Table B below.

TABLE B PROPOSED DEVELOPMENT PROGRAM

Project Component	Size / Quantity
Residential	
Building 1	130 units (130,000 GSF)
Building 2	420 units (370,000 GSF)
Total both buildings	550 units (500,000 GSF)
Vehicle Parking	
Total both buildings	495 spaces (0.9 spaces/ unit) shared by all users
Bicycle Parking	
Total both buildings	577 long term spaces, and 55 short-term spaces shared by all users

The redevelopment of this Site includes plans to extend the "Connector Road" between Fawcett Street and Wheeler Street. The Project envisions the new Connector Road (Wheeler Street Extension) as a shared use street, providing a crucial transportation link between Fawcett and Wheeler and allowing for future access to the Pedestrian/Bicycle Bridge that is proposed as part of the City's 2005 Concord-Alewife Plan.

Consistency with Area Planning

The Concord-Alewife region of Cambridge is bounded by the Alewife Reservation to the north, Concord Avenue to the south, Blanchard Street to the west and Danehy Park to the east. The region includes four distinct neighborhoods: Triangle, Quadrangle, Cambridge Highlands and 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 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.

For the purposes of the 55 Wheeler Project TIS development, and as suggested through the TP&T Scoping Letter, a review of the Concord-Alewife Plan (CAP) was undertaken with the intention to show and discuss how the proposed Project is consistent with the substance of the CAP.

The CAP provides recommendation for each of the four neighborhoods. The recommendations relevant to the Quadrangle (55 Wheeler Site neighborhood) include:

- Proposed pedestrian/bicycle Bridge over the rail road tracks connecting the Quadrangle to the Triangle. The CAP stated that this is the single most important element for improving transit access to/from the Quadrangle and Cambridge Highlands because it would reduce auto mode share and positively impact traffic in the study area. The City of Cambridge is currently conducting a feasibility study for a pedestrian/bicycle bridge over the railroad tracks and commuter rail station. The City has also secured commitments for potential bridge landing sites from property owners on the north side of the tracks.
    - The Proposed Project will provide a 40,000 SF park at the end of Wheeler Street approximately 200'x200' and will set aside an area for the future proposed pedestrian/bicycle Bridge over the rail road tracks. The park will feature landscaping and bicycle path connections to accommodate and facilitate this Bridge landing area. Figure H shows diagrammatically potential pedestrian/bridge landing options, that are explored by others.
- Another recommendation in the Concord-Alewife Plan is the creation of east-west roadways.
    - The 55 Wheeler Project proposes to construct a roadway connector between Wheeler Street and Fawcett Street, which is consistent with the CAP. The Connector Road (Wheeler Street Extension) will provide better connectivity for vehicles, pedestrians and bicycles in the area. As, requested by the TP&T Department, a supplemental analysis was conducted to evaluate the impact to traffic operations stemming from possible re-allocation of traffic patterns with the construction of the Connector Road (Wheeler Street Extension). Section 6 of this report summarizes the findings of that analysis.

- The CAP shows a proposed pedestrian/bicycle connection located adjacent to the railroad tracks and electrical substations between the Project site and Terminal Road and Shopping Areas (i.e. Fresh Pond Mall).
    - The Proposed Project will provide a 40,000 SF park at the end of Wheeler Street approximately 200'x200'. The park will feature landscaping and bicycle path connections to accommodate and facilitate this future proposed Pedestrian and Bicycle connection adjacent to the railroad tracks, as illustrated diagrammatically in Figure H. Furthermore, Figure I was developed to show basic parcel ownership information, to support the City's feasibility assessments of this connection. The Proponent has no ownership or access rights to the land on the east or north side of the Project Site, however based on online research, the rail lines to the north of the project site appear to be under MBTA ownership, while land to the east of the project site appears to be owned by Boston Edison Company c/o Nstar Electric, as noted on Figure I. Review of aerial imagery and Google Earth street view layers appear to indicate that the general area of the proposed bicycle/pedestrian connection is relatively flat with approximate slopes showing up between 2 and 5 percent. Depending on the availability of the MBTA spur rail line (south most rail as shown in the aerials looking north), the City's proposed pedestrian/bicycle connection may require taking from both the MBTA as well as the electric company. Photos and approximate dimensional layouts of a pedestrian/bicycle path, are included in the Appendix. All graphics and research is based on publically available aerial imagery, and detailed survey data and a full feasibility analysis with MBTA and electric company input is needed to confirm feasibility of this pedestrian/bicycle connection as proposed by the City of Cambridge.

TIS Study Area

The TIS study area for the Proposed Project, as defined by the City of Cambridge, is shown in Figure E. The study intersections include the following:

1. Concord Avenue / Blanchard Road / Griswold Street (signalized)
2. Concord Avenue / Spinelli Place
3. Concord Avenue / Smith Place
4. Concord Avenue / Moulton Street / Neville Manor (signalized)
5. Concord Avenue / Fawcett Street
6. Concord Avenue / Wheeler Street
7. Site Driveway (s) on Wheeler Street
8. Concord Avenue pedestrian/bicyclist traffic signal between Wheeler Street and Fawcett Street
9. Fawcett Street / Connecting Roadway
10. Concord Avenue / Alewife Brook Parkway (Fresh Pond Rotary)
11. Concord Avenue / Fresh Pond parkway / New Street (Sozio Rotary)
12. Midblock crossing between Fresh Pond Rotary and Sozio Rotary
13. Alewife Brook Parkway / Terminal Road

Planning Board Criteria Summary

Based on the TIS analysis, the Project has been evaluated within the context of the Planning Board Criteria to determine if the Project has any potential adverse transportation impacts. Exceeding one or more of the Criteria is indicative of a potentially adverse impact on the City's transportation network. However, the Planning Board will consider mitigation efforts, their anticipated effectiveness, and other information that identifies a reduction in adverse transportation impacts.

The Planning Board Criteria consider the Project's vehicular trip generation, impact to intersection level of service and queuing, as well as increase of volume on residential streets. In addition, pedestrian and bicycle conditions are considered. A discussion of the Criteria set forth by the Planning Board is presented in the final section of the TIS, and the Planning Board Criteria Performance Summary is presented below.

The Project has an estimated 20 exceedances out of 148 data entries. Most exceedances are due to existing pedestrian and bicycle infrastructure.

CITY OF CAMBRIDGE
Special Permit – Transportation Impact Study (TIS)
Planning Board Criteria Performance Summary
55 Wheeler Street Development Planning Board Permit Number: _____TBD_____

PROJECT

Project Name:	55 Wheeler Street Development
Project Address:	55 Wheeler Street Cambridge, MA 02138
Owner/Developer Name:	55-9 Wheels Owner, LLC
Contact Person:	Reid Joseph
Contact Address:	10 Avery Street Boston, MA 02111
Contact Phone Number:	212-849-8884

SIZE

ITE sq. ft. :	500,000 GSF – 550 residential units
Land Use Type:	Residential

PARKING

Existing Parking Spaces*:	271	Use: Office
New Parking Spaces:	495	Use: Residential
Net New Parking Spaces:	+224	

*1990 City of Cambridge Parking Inventory

TRIP GENERATION:

	Daily	Morning Peak Hour	Evening Peak Hour
Total Trips	4,121	243	309
Vehicle	1,477	40*	63*
Transit	1,942	149	181
Pedestrian	310	24	29
Bicycle	166	13	15
Other	226	17	21

*Net-New Project Generated Trips based on field observed trip rates, as approved by TP&T

MODE SPLIT (Person Trips)

	Residential
Auto	36%
Transit	47%
Walk	7.5%
Bike	4%
Other	5.5%

TRANSPORTATION CONSULTANT

Company Name:	VHB
Contact Name:	Susan Sloan-Rossiter / Selma Mandzo-Preldzic, PE
Contact Phone Number:	617-728-7777

CITY OF CAMBRIDGE
Special Permit – Transportation Impact Study (TIS)
Planning Board Criteria Performance Summary
55 Wheeler Street Development Planning Board Permit Number: _____TBD_____

Date of Building Permit Approval: _____

Total Data Entries = 148 **Total Number of Criteria Exceedances = 20**

Criteria A –Project Vehicle Trip Generation

Time Period	Criteria (trips)	Build	Exceeds Criteria?
Weekday Daily	2,000	1,477	No
Weekday Moring Peak Hour	240	40	No
Weekday Evening Peak Hour	240	63	No

Criteria B – Vehicular LOS

	Morning Peak Hour				Evening Peak Hour			
Intersection	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion?	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion?
Concord Avenue/ Blanchard Road/ Griswold Street	F	F	-0.9%	No	F	F	-1.4%	No
Concord Avenue/ Spinelli Place	F	F	-1.1%	No	F	F	-2.2%	No
Concord Avenue/ Smith Place	F	F	-1.1%	No	F	F	-2.1%	No
Concord Avenue/ Moulton Street/ Neville Manor	B	B	-1.1%	No	C	C	-2.1%	No
Concord Avenue/ Fawcett Street	E	F	1.7%	No	C	C	1.6%	No
Concord Avenue/ Wheeler Street	E	F	1.8%	No	E	E	3.7%	No
Site Driveway on Wheeler Street	-	-	-23.7%	No	-	-	-7.6%	No
Ped Crossing at Concord Avenue	A	A	1.4%	No	A	A	1.1%	No
Ped Crossing Between Rotaries	A	A	1.5%	No	C	D	2.4%	No
Fawcett Street/ Connecting Roadway	B	B	30.5%	No	B	B	40.7%	No
Alewife Brook Parkway/ Terminal Road	B	B	0.2%	No	C	C	0.5%	No
Fresh Pond Rotary	F	F	1.5%	No	F	F	2.6%	No
Sozio Rotary	F	F	1.4%	No	F	F	2.6%	No

Criteria C – Traffic on Residential Streets

			Morning Peak Hour			Evening Peak Hour		
Roadway	**Segment**	**Amount of Residential**	**Existing[1]**	**Increase[2]**	**Exceeds Criteria?**	**Existing[1]**	**Increase[2]**	**Exceeds Criteria?**
Blanchard Road	Colby St to Concord Ave	1/2 or more	955	-8	No	1160	-14	No
	Mannix Cir to Concord Ave	>1/3 but <1/2	940	-3	No	1010	-4	No
Griswold Street	Sunset Rd to Concord Ave	1/2 or more	40	0	No	30	-1	No
Concord Avenue	Blanchard Rd to Spinelli Pl	1/3 or less	1630	-19	No	1270	-29	No
	Spinelli Pl to Smith Pl	1/3 or less	1610	-19	No	1248	-29	No
	Smith Pl to Moulton St	1/2 or more	1550	-19	No	1185	-29	No
	Moulton St to Fawcett St	1/3 or less	1640	-19	No	1303	-29	No
	Fawcett St to Wheeler St	1/3 or less	1800	25	No	1415	16	No
	Between Fresh Pond and Sozio Rotaries	1/3 or less	3580	53	No	3040	74	No
Spinelli Place	Parking Lot to Concord Ave	1/3 or less	190	0	No	120	0	No
Smith Place	Adley Rd to Concord Ave	1/3 or less	270	0	No	285	0	No
Moulton Street	Wilson St to Concord Ave	1/3 or less	160	0	No	175	0	No
Fawcett Street	Connecting Rd to Concord Ave	>1/3 but <1/2	290	58	Yes	195	61	Yes
Wheeler Street	Site Drive to Concord Ave	1/3 or less	225	-18	No	270	2	No
Alewife Brook Parkway	Terminal Rd to Fresh Pond Rotary	1/3 or less	2910	8	No	2775	18	No
Fresh Pond Parkway	Sozio Rotary to Vassal Ln	1/3 or less	2445	38	No	2065	49	No

Criteria D – Lane Queue (for signalized intersections)

		Morning Peak Hour			Evening Peak Hour		
Intersection	**Lane**	2016 Existing	2016 Build	Exceeds Criteria?	2016 Existing	2016 Build	Exceeds Criteria?
Blanchard Rd St at Concord Ave	Blanchard NB Left/Thru	8	8	No	15	15	No
	Blanchard NB Right	0	0	No	0	0	No
	Concord EB Left/Thru/Right	15	14	No	10	10	No
	Concord WB Left	6	6	No	7	7	No
	Concord WB Thru	8	8	No	12	11	No
	Concord WB Right	5	5	No	10	10	No
	Blanchard SB Left/Thru/Right	18	18	No	19	19	No
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	1	1	No	2	2	No
	Concord EB Left/Thru/Right	3	3	No	6	6	No
	Concord WB Left/Thru/Right	6	6	No	15	13	No
	Moulton SB Left/Right	1	1	No	6	6	No
Ped Crossing at Concord Ave	Concord Ave EB Thru	4	5	No	4	3	No
	Concord Ave WB Thru	8	11	No	7	7	No
Ped Crossing between Rotaries	Concord Ave EB Thru	17	22	No	22	23	No
	Concord Ave WB Thru	13	13	No	6	6	No
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	13	13	No	10	10	No
	Alewife NB Right	2	2	No	2	2	No
	Terminal EB Right	2	2	No	4	4	No
	Fresh Pond Mall WB Right	2	2	No	7	7	No
	Alewife SB Thru	20	19	No	21	22	No
	Alewife SB Right	4	4	No	4	4	No

Criteria E – Pedestrian Delay

Intersection	Crosswalk	Morning Peak Hour Existing	Morning Peak Hour Build	Morning Peak Hour Exceeds Criteria?	Evening Peak Hour Existing	Evening Peak Hour Build	Evening Peak Hour Exceeds Criteria?
Concord Avenue at Blanchard Road/Griswold Street	East	E	E	Yes	E	E	Yes
	West	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
	South	E	E	Yes	E	E	Yes
Concord Avenue at Moulton Street/Neville Manor	East	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Pedestrian Crosswalk on Concord Avenue between Wheeler Street and Fawcett Street	East	C	C	No	C	C	No
Midblock Crosswalk between Fresh Pond rotary and Sozio Rotary	East	C	C	No	C	C	No
Alewife Brook Parkway at Terminal Road	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
Concord Avenue at Spinelli Place	East	F	F	Yes	F	F	Yes
	North	A	A	No	A	A	No
Concord Avenue at Smith Place	West	F	F	Yes	F	F	Yes
	North	B	B	No	B	B	No
Concord Avenue at Fawcett Street	West	F	F	Yes	F	F	Yes
	North	C	C	No	B	B	No
Concord Avenue at Wheeler Street	West	F	F	Yes	F	F	Yes
	North	C	C	No	C	C	No
Site Driveway at Wheeler Street	North	A	A	No	A	A	No
Fawcett Street at Connecting Road	East	A	A	No	A	A	No

Criteria E – Pedestrian and Bicycle Facilities

Adjacent Street	Link (between)	Sidewalk or Walkway Present	Exceeds Criteria?	Bicycle Facilities or Right of Ways Present	Exceeds Criteria?
Wheeler Street	Site Driveway and Concord Avenue	Yes	No	No	Yes
Concord Avenue	Fawcett Street and Wheeler Street	Yes	No	Yes	No
Fawcett Street	Concord Avenue and Connector Road	Yes	No	No	Yes

Transportation Impact Study

This Transportation Impact Study for the proposed 55 Wheeler Street Development (the Project) describes existing and future transportation conditions in the study area in accordance with the City of Cambridge Sixth Revision (November 28, 2011) of the Transportation Impact Study Guidelines. The study area for the TIS includes 5 signalized intersections and 8 unsignalized intersections as previously shown in Figure E.

This section includes inventories of physical and operational conditions in the study area including roadways, intersections, crosswalks, sidewalks, on-street and off-street parking, transit facilities, and land uses in the study area. Transportation data that were collected and compiled are presented, including automatic traffic recorder counts, intersection turning movement counts, pedestrian and bicycle counts, vehicle crash data, and transit service data.

1 Inventory of Existing Conditions

1.a Roadways

The Project Site is located on Wheeler Street, north of Concord Avenue, on the block between Fawcett Street and Wheeler Street in the "Quadrangle" neighborhood of Cambridge. Figure E, shows the roadway layout near the project site.

Concord Avenue is an east-west roadway just south of the Project Site that connects the Belmont Commuter Rail Station area and Harvard Square in Cambridge. Fawcett Street is a north-south roadway just west of the Project Site that connects the heart of the "Quadrangle" area to Concord Avenue. Wheeler Street is a north-south roadway just east of the Project Site that connects the parking lot for the existing office building to Concord Avenue. Figures 1.a.1 through 1.a.3 provide detailed plans of the main roadways surrounding the Project Site.

1.b Intersections

The project study area included the following twelve study intersections which were presented previously in Figure E and illustrated in Figures 1.b.1 through 1.b.13.

1. Concord Avenue / Blanchard Road / Griswold Street
2. Concord Avenue / Spinelli Place
3. Concord Avenue / Smith Place
4. Concord Avenue / Moulton Street / Neville Manor
5. Concord Avenue / Fawcett Street
6. Concord Avenue / Wheeler Street

7. Concord Avenue pedestrian/bicycle traffic signal between Wheeler Street and Fawcett Street
8. Fawcett Street / Connecting Roadway
9. Concord Avenue / Alewife Brook Parkway (Fresh Pond Rotary)
10. Concord Avenue / Fresh Pond Parkway / New Street (Sozio Rotary)
11. Midblock crosswalk between Fresh Pond Rotary and Sozio Rotary
12. Alewife Brook Parkway / Terminal Road

1.c Parking

According to the City's 1990 parking inventory, 55 Wheeler Street was reported as having 271 employee parking spaces. The existing office building and all supporting parking spaces will be demolished as part of this project. Based on field observations, the parking lot has approximately 274 spaces available for employees. A parking lot utilization study was completed, and the results are shown in Section 2.f.

Figure 1.c.1 presents existing on-street parking regulations in the area. On-street parking in the vicinity of the site is prohibited on the east side of Wheeler Street by No Parking or No Stopping regulations. On one portion of the west side of Wheeler Street, Resident Permit and 2 Hour Parking is permitted.

1.d Transit Services

Public Transit Services

Figure 1.d.1 illustrates existing Massachusetts Bay Transportation Authority (MBTA) services in the study area. The site is directly served by two MBTA bus routes, routes 74 and 78. Both routes stop on Concord Avenue near the Project Ste. The eastbound stop is to the west of the signalized pedestrian crossing across Concord Avenue and provides a convenient protected crossing for bus users.

Routes 74 and 78 provide services to Harvard Square from Belmont Center and Arlmont Village, respectively. Transit connections at Harvard Square include routes: 1, 66, 68, 69, 71, 72, 73, 74, 75, 77, 78, 86, and 96 in addition to the MBTA Red Line service. Travel time from the project site to Harvard Square via bus routes 74 and 78 is approximately fifteen minutes (based on MBTA travel times) but varies based on traffic and time of day.

Route 74 and 78 operate on approximately 17-25 minute headways during peak times and varies during off-peak periods.

Alewife Station, the terminal for the MBTA Red Line, is an approximately 0.6 mile walk from the project site along Alewife Brook Parkway. With the proposed pedestrian connection proposed by the City, Alewife Station will be within an approximate quarter mile walk from the site. Buses that service Alewife Station include routes: 62, 67, 76, 79, 84, 350, and 351. A combined

Braintree/Ashmont Red Line services is provided every 4.5 minutes during the peak rush hours and every 6-7 minutes off-peak.

Private Transit Services

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 corresponding membership fee according to the size of the development. The Alewife TMA provides emergency ride home, carpool, vanpool, and shuttle services. The Alewife Shuttle conveniently connects the developments along Concord Avenue to Alewife Station with the use of 18-passenger, ADA equipped vehicles. The Alewife Shuttle route is shown with the shuttle stop locations in Figure 1.d.2.

Additionally, Hubway and Zipcar are available in the surrounding area with varying bicycles/vehicles supplied. There locations are shown in Figure 1.d.3.

1.e Land Use

Figure 1.e.1 illustrates land uses in the area surrounding the Project sites. The neighborhood is largely characterized by business, office and Industrial uses.

2 Data Collection

2.a ATR Counts

48-hour Automatic Traffic Recorder (ATR) counts were conducted on Wednesday, October 5th and Thursday, October 6th, 2016, to capture existing daily vehicle volumes within the Project study area. ATR counts were collected at the following locations, as requested in the TP&T Scoping Letter:

- Wheeler Street, north of Concord Avenue
- Concord Avenue, between Alewife Brook Parkway and Fawcett Street
- Fawcett Street, north of Concord Avenue
- Alewife Brook Parkway, north of Concord Avenue

A traffic volume summary for the ATRs is presented in Tables 2.a.1 and 2.a.2. Detailed count data sheets are included in the Appendix.

TABLE 2.A.1 EXISTING TRAFFIC VOLUME SUMMARY (OCTOBER 2016)

Location	Daily[a]	Morning Peak Hour			Evening Peak Hour		
		Volume[b]	K[c]	Peak Dir	Volume	K	Peak Dir
Wheeler Street *north of Concord Avenue*	613	108	18%	94% NB	85	14%	93% SB
Concord Avenue *west of wheeler St*	21,802	1,766	8%	50% EB	1,477	7%	52% EB
Fawcett Street *north of Concord Avenue*	3855	315	8%	59% NB	245	6%	53% NB
Alewife Brook Parkway *north of Concord Avenue*	50,738	3,314	7%	55% SB	3,068	6%	58% SB

a vehicles per day
b vehicles per peak hour
c percentage of daily traffic that occurs during the peak hour

TABLE 2.A.2 EXISTING AVERAGE DAILY TRAFFIC SUMMARY (OCTOBER 2016)

	Wheeler Street *north of Concord Avenue*			Concord Avenue *west of Wheeler Street*			Fawcett Street *north of Concord Avenue*			Alewife Brook Parkway *north of Concord Avenue*		
Start Time	**NB**	**SB**	**Total**	**EB**	**WB**	**Total**	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**
12:00 AM	0	1	1	50	60	110	12	7	19	274	145	419
1:00 AM	0	0	0	33	34	67	7	6	13	135	91	226
2:00 AM	0	0	0	26	28	54	16	12	28	67	52	119
3:00 AM	1	1	2	17	18	35	8	5	13	52	63	115
4:00 AM	1	1	2	41	44	85	14	6	20	73	196	269
5:00 AM	5	1	6	98	144	242	40	23	63	230	1,004	1,234
6:00 AM	10	2	12	335	447	782	121	48	169	654	2,044	2,698
7:00 AM	34	4	38	730	683	1,413	153	121	274	1,482	1,832	3,314
8:00 AM	67	5	72	880	886	1,766	172	106	278	1,267	1,567	2,834
9:00 AM	77	8	85	775	704	1,479	183	127	310	1,282	1,725	3,007
10:00 AM	20	6	26	646	667	1,313	154	123	277	1,288	1,799	3,087
11:00 AM	10	9	19	692	688	1,380	141	114	255	1,387	1,716	3,103
12:00 PM	15	12	27	723	718	1,441	152	127	279	1,574	1,612	3,186
1:00 PM	8	11	19	638	686	1,324	134	111	245	1,547	1,556	3,103
2:00 PM	8	16	24	657	727	1,384	112	112	224	1,470	1,550	3,020
3:00 PM	11	32	43	763	714	1,477	131	114	245	1,288	1,781	3,069
4:00 PM	14	54	68	761	648	1,409	114	104	218	1,066	1,755	2,821
5:00 PM	6	79	85	745	639	1,384	102	101	203	917	1,733	2,650
6:00 PM	2	46	48	705	628	1,333	114	81	195	999	1,693	2,692
7:00 PM	2	21	23	533	621	1,154	107	78	185	1,328	1,482	2,810
8:00 PM	0	5	5	430	462	892	78	66	144	1,339	1,049	2,388
9:00 PM	0	2	2	295	348	643	58	45	103	1,278	867	2,145
10:00 PM	1	2	3	182	227	409	34	26	60	968	597	1,565
11:00 PM	2	2	4	115	120	235	24	16	40	551	322	873
Total	294	320	614	10,870	10,941	21,811	2,181	1,679	3,860	22,516	28,231	50,747

2.b Pedestrian and Bicycle Counts

Twelve-hour pedestrian and bicycle counts were performed on Wednesday, October 5, 2016, between 7:30AM and 7:30PM along Concord Avenue and Wheeler Street, near the Project site, Pedestrian count data is summarized in Table 2.b.1 and Bicycle count data is presented in Table 2.b.2. The bicycle counts on Concord Avenue 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 EXISTING 12-HOUR PEDESTRIAN VOLUMES (OCTOBER 2016)

	Wheeler Street *north of Concord Avenue*						Alewife Brook Parkway *between Fresh Pond Rotary and Sozio Rotary*						Concord Avenue *west of Wheeler Street*					
Start	**East Sidewalk**		**West Sidewalk**		**Crosswalk**		**North Sidewalk**		**South Sidewalk**		**Crosswalk**		**North Sidewalk**		**South Sidewalk**		**Crosswalk**	
Time	**NB**	**SB**	**NB**	**SB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**NB**	**SB**	**EB**	**WB**	**EB**	**WB**	**NB**	**SB**
7:30 AM	5	3	5	8	0	7	20	21	20	1	19	17	42	26	5	10	20	20
8:30 AM	2	0	17	12	0	10	28	36	28	2	17	24	23	29	10	19	15	15
9:30 AM	2	1	6	6	2	2	11	21	11	8	14	20	28	22	8	20	17	19
10:30 AM	4	1	3	8	0	1	16	16	16	4	22	14	19	23	10	13	16	14
11:30 AM	4	3	14	11	2	0	27	23	27	6	13	5	59	44	21	21	18	24
12:30 PM	2	3	18	8	1	0	16	12	16	4	13	10	65	48	21	2	24	19
1:30 PM	2	4	6	5	0	3	18	30	18	0	21	25	27	43	16	18	17	25
2:30 PM	2	5	10	4	2	3	25	33	25	5	23	20	15	27	10	3	25	22
3:30 PM	0	2	10	2	0	0	19	23	19	20	24	18	25	28	15	11	10	16
4:30 PM	1	11	13	4	13	1	16	33	16	2	18	25	46	23	21	19	25	28
5:30 PM	3	1	15	9	8	1	27	49	27	4	32	38	44	59	25	40	29	31
6:30 PM	2	3	1	0	1	0	23	20	23	11	29	8	20	25	13	4	14	14
Total	**29**	**37**	**118**	**77**	**29**	**28**	**246**	**317**	**246**	**67**	**245**	**224**	**413**	**397**	**175**	**180**	**230**	**247**

TABLE 2.B.2 EXISTING 12-HOUR BICYCLE VOLUMES (OCTOBER 2016)

	Wheeler Street *north of Concord Avenue*						Alewife Brook Parkway *between Fresh Pond Rotary and Sozio Rotary*						Concord Avenue *west of Wheeler Street*					
Start	**East Sidewalk**		**West Sidewalk**		**Crosswalk**		**North Sidewalk**		**South Sidewalk**		**Crosswalk**		**North Sidewalk**		**South Sidewalk**		**Crosswalk**	
Time	**NB**	**SB**	**NB**	**SB**	**EB**	**WB**	**EB**	**WB**	**EB**	**WB**	**NB**	**SB**	**EB**	**WB**	**EB**	**WB**	**NB**	**SB**
7:30 AM	0	0	0	0	0	0	15	14	15	7	23	13	8	21	32	7	7	20
8:30 AM	1	0	0	0	0	0	33	19	33	0	24	14	3	11	20	22	18	8
9:30 AM	0	3	0	0	0	0	3	8	3	0	11	6	4	10	14	5	5	5
10:30 AM	0	0	0	0	0	0	3	6	3	0	7	5	2	6	11	6	4	7
11:30 AM	0	0	0	0	0	0	7	10	8	0	5	8	3	4	5	5	6	5
12:30 PM	0	0	1	0	0	0	3	5	3	0	4	3	3	3	8	1	5	3
1:30 PM	0	0	0	0	0	0	3	8	3	0	8	6	2	1	9	2	6	1
2:30 PM	0	0	0	0	0	0	8	9	8	0	4	8	0	1	6	4	8	3
3:30 PM	0	0	0	0	0	0	4	21	4	0	10	13	4	4	12	18	7	7
4:30 PM	2	0	0	0	0	0	4	22	4	1	21	9	11	3	27	18	18	8
5:30 PM	1	0	0	0	0	0	10	44	10	1	22	22	19	8	28	32	27	8
6:30 PM	0	1	0	0	0	0	8	17	8	0	4	16	8	7	18	12	16	5
Total	**4**	**4**	**1**	**0**	**0**	**0**	**101**	**183**	**102**	**9**	**143**	**123**	**67**	**79**	**190**	**132**	**127**	**80**

2.c Intersection Turning Movement Counts and Queues

Turning movement counts, including vehicles, pedestrians, and bicycles, were conducted at all study area intersections on Wednesday, October 5, 2016. As requested in the Scoping Letter, AM and PM peak hour bicycle and pedestrian counts were also collected on the Alewife Brook Parkway Bridge on top of the MBTA Commuter rail tracks, near the Project Site.

The results of these counts indicated that the peak hours for vehicular traffic in the study area are:

- Morning Peak Hour – 8:00AM – 9:00AM
- Evening Peak Hour – 4:30PM – 5:30PM

The existing morning and evening peak hour vehicle, pedestrian, and bicycle turning movement volumes are presented in Figures 2.c.1 through 2.c.6. The raw count data is included in the Appendix.

VHB staff also conducted queue observations during the morning and evening peak hours at the signalized intersections on October 5th, 2016 while TMC were being captured. Table 2.c.1 presents the existing queue observations for the signalized study area intersections. A detailed queue analysis is provided in Section 7 of this report.

TABLE 2.C.1 SIGNALIZED INTERSECTION QUEUE OBSERVATIONS (# OF CARS)

Intersection	Lane	# of observed cars Morning Peak Hour	# of observed cars Evening Peak Hour
Blanchard Rd St at Concord Ave	Blanchard NB Left/Thru	20	10
	Blanchard NB Right	0	0
	Concord EB Left/Thru/Right	10	7
	Concord WB Left	6	8
	Concord WB Thru	5	15
	Concord WB Right	3	5
	Blanchard SB Left/Thru/Right	20	15
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	1	2
	Concord EB Left/Thru/Right	2	7
	Concord WB Left/Thru/Right	6	6
	Moulton SB Left/Right	1	2
Ped Crossing at Concord Ave	Concord Ave EB Thru	15	4
	Concord Ave WB Thru	6	4
Ped Crossing between Rotaries	Concord Ave EB Thru	12	16
	Concord Ave WB Thru	7	17
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	10	~
	Alewife NB Right	-	~
	Terminal EB Right	1	4
	Fresh Pond Mall WB Right	2	6
	Alewife SB Thru	20	17
	Alewife SB Right	2	2

2.d Crash Analysis

Study area crash data was obtained from MassDOT's records for the most recent three-year period available, January 2012 through December 2014. Analysis of the crash data is summarized in Table 2.d.1 and includes the calculated crash rates (number of reported crashes per million entering vehicles) based on the evening peak traffic volumes. A detailed summary by crash type is presented in the Appendix.

TABLE 2.D.1 MASSDOT CRASH ANALYSIS (JANUARY 2012 – DECEMBER 2014)

Location	Total Crashes (3-year period)	Crashes Involving Pedestrians	Crashes Involving Bicycles	Calculated Crash Rate
Concord Avenue/ Blanchard Road/ Griswold Street	12	0	0	0.47
Concord Avenue/ Spinelli Place	4	0	0	0.25
Concord Avenue/ Smith Place	9	0	2	0.54
Concord Avenue/ Moulton Street/ Neville Manor	8	0	0	0.48
Concord Avenue/ Fawcett Street	11	1	1	0.62
Concord Avenue/ Wheeler Street	4	0	1	0.22
Site Driveway on Wheeler Street	0	0	0	0
Concord Avenue Pedestrian/Bicycle Signal	0	0	0	0
Fawcett Street/ Connecting Roadway	0	0	0	0
Concord Avenue/ Alewife Brook Parkway (Fresh Pond Rotary)	56	0	1	1.28
Concord Avenue/ Fresh Pond Parkway/ New Street (Sozio Rotary)	32	0	0	0.82
Midblock Crosswalk between Fresh Pond Rotary and Sozio Rotary	3	0	0	0.08
Alewife Brook Parkway/ Terminal Road	10	1	0	0.25

Source: MassDOT data

MassDOT has 6 districts within Massachusetts, and Cambridge falls under the jurisdiction of District 6. The average crash rate per million entering vehicles for District 6 is 0.70 for signalized intersections and 0.53 for unsignalized intersections. Nine of the thirteen study area intersections fall under the District 6 average for signalized/unsignalized intersections. Four of the study area intersections have calculated crash rate greater than the District 6 average, and all four intersections are unsignalized. These intersections are the following: Concord Avenue/Smith Place, Concord Avenue/Fawcett Street, Concord Avenue/Alewife Brook Parkway (Fresh Pond Rotary), and Concord Avenue/Fresh Pond Parkway/New Street (Sozio Rotary).

The intersection of Concord Avenue/Smith Place had nine crashes occur from 2012-2014. Approximately half of the crashes were angle collisions and half where rear-end crashes. Four of the crashes happened during weekday evening peak hour, and the rest occurred during the

weekday at an off-peak time. The pavement conditions for seven of the crashes were dry, one was wet pavement, and one occurred while snow was present. Two of the nine crashes involved a non-motorist.

The Concord Avenue/Fawcett Street intersection experienced eleven crashes over the three-year period. The two most prevalent collision types were angle and rear-end crashes, and half of the crashes caused property damage only. Two occurred during the weekday morning peak hour and evening peak hour, and six occurred during the weekday during an off-peak time (one also occurred during the weekend off-peak). Nine of the eleven crashes happened with dry pavement conditions, one occurred with wet pavement, and one was not reported. Two crashes involved a non-motorist.

Concord Avenue/Alewife Brook Parkway (the Fresh Pond Rotary) had 56 reported crashes from 2012-2014. The majority of these crashes were either angel collisions or sideswipe same direction. 42 out of the 56 crashes resulted in property damage only, and 32 of these crashes occurred on a weekday during the off-peak hours. 50 of the crashes occurred with dry pavement conditions, and six experienced wet roadway conditions. One crash involved a non-motorist.

The Sozio Rotary (Concord Avenue/Fresh Pond Parkway/New Street) had 32 crashes during the three-year period. 20 of the 32 crashes were sideswipe same direction collisions. 23 crashes resulted in property damage only with the remaining nine crashes resulting in non-fatal injury or not reported. The majority of the crashes, except for three, occurred during dry pavement conditions. None of the crashes involved a non-motorist.

2.e Public Transit

Transit stops and stations closest to the site were shown previously in Figure 1.d.1. Daily weekday ridership as well as operating hours and peak-hour headway data are provided in Table 2.e.1 for bus routes accessible from the site and for the Red Line. A more detailed transit analysis is provided in Section 10 of this report.

TABLE 2.E.1 MBTA SERVICES

Route	Origin/Destination	Hours of Operation	Weekday Ridership[1]	Peak Hour Headways
Route 62	Bedford V.A. Hospital – Alewife Station	5:47AM – 9:04PM	1,644	~ 30 minutes
Route 67	Turkey Hill – Alewife Station	5:53AM – 8:32PM	588	~ 23-34 minutes
Route 74	Belmont Center/Harvard Station via Concord Ave.	5:20AM – 1:27AM	1,096	~ 20-56 minutes
Route 76	Hanscom/Lincoln Lab – Alewife Station	6:00AM – 10:39PM	991	~ 25-36 minutes
Route 78	Arlmont Village/Harvard Station via Park Circle	5:42AM – 12:56AM	1,488	~ 18-25 minutes
Route 79	Arlington Heights – Alewife Station	6:40AM – 10:03PM	1,261	~ 20-25 minutes
Route 84	Arlmont Village – Alewife Station	6:44AM – 6:58PM	356	~ 17-38 minutes
Route 350	North Burlington – Alewife Station	6:04AM – 11:00PM	1,653	~ 20-39 minutes
Route 351	EMD Serono/Bedford Woods – Alewife Station	6:15AM – 9:30AM & 3:20PM – 7:01PM	190	~ 50-60 minutes
Red Line[2]	Alewife/Ashmont-Braintree Combined	5:05AM - 1:05AM	272,684	4.5 minutes

Sources: MBTA Schedule Fall 2016
[1] MBTA Bluebook 2014 14th Edition
[2] Ashmont/Braintree Ridership Data is combined

2.f Parking

The existing office building on the proposed Project Site, is currently active (open for business) and is supported by approximately 274 parking spaces.

The building and parking lot will be demolished as part of the Project, however per TIS Scoping Letter, a parking utilization study was conducted for the existing building. The parking utilization study was based on count data collected near the parking gate in October 2016 and the results are presented in Table 2.f.1. The lot reached its peak occupancy at 12:30 PM with 186 spaces occupied (68 percent occupied).

TABLE 2.F.1 PARKING OCCUPANCY FOR EXISTING OFFICE USE (WEDNESDAY, OCTOBER 5, 2016)

Time Period	Vehicles In	Vehicles Out	Occupied Spaces	% Occupied
7:00 – 7:30 AM	11	3	19	7%
7:30 – 8:00 AM	21	1	39	15%
8:00 – 8:30 AM	22	3	58	21%
8:30 – 9:00 AM	49	3	104	38%
9:00 – 9:30 AM	55	6	153	56%
9:30 – 10:00 AM	19	2	170	62%
10:00 – 10:30 AM	15	4	181	66%
10:30 – 11:00 AM	6	2	185	68%
11:00 – 11:30 AM	2	6	181	66%
11:30 – 12:00 PM	4	2	183	67%
12:00 – 12:30 PM	7	8	182	66%
12:30 – 1:00 PM	10	6	186	68%
1:00 – 1:30 PM	5	8	183	67%
1:30 – 2:00 PM	2	5	180	66%
2:00 – 2:30 PM	3	8	175	64%
2:30 – 3:00 PM	6	7	174	64%
3:00 – 3:30 PM	5	8	171	62%
3:30 – 4:00 PM	4	25	150	55%
4:00 – 4:30 PM	10	30	130	47%
4:30 – 5:00 PM	7	30	107	39%
5:00 – 5:30 PM	2	31	78	28%
5:30 – 6:00 PM	0	38	40	15%
6:00 – 6:30 PM	2	27	15	5%
6:30 – 7:00 PM	8	17	6	2%

3 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 based on surveys conducted at 603 Concord Avenue and Residences at Route II (VoxI). Table 3.a.1 presents the TP&T approved mode share rates for this analysis.

TABLE 3.A.1 MODE SHARE

Mode	603 Concord Avenue Survey*	Residences at Route II (VoxI) Survey	**Average Mode Share Used for the Project**
Drive Alone	31%	35%	**33%**
Rideshare	2%	4%	**3%**
Transit	49%	45%	**47%**
Bike	4%	4%	**4%**
Walk	7%	8%	**7.5%**
Other	0%	4%	**2%**
Work at Home	7%	-	**3.5%**
Total	100%	100%	**100%**

Source:
*603 Concord Avenue Project Survey (September 2016)
**Residences at Route II (VoxI) Survey (2016)- provided by TP&T

3.b Trip Generation and Trip Credit for Existing Use on Site

Per the City's scoping letter, instead of using the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) rates for Apartments (LUC 220), the trip generation analysis is based on observed trip rates from other comparable residential buildings in the area.

In coordination with the TP&T, a methodology for vehicle trip generation was developed using a combination of trip rates from ITE for Apartments (LUC 220) adjusted for local mode split of 33% SOV and 3% HOV, and observations of trip rates from other comparable residential projects in the area.

Table 3.b.1 presents the TP&T approved trip rates for this analysis.

TABLE 3.B.1 TRIP RATES

	ITE Adjusted (LUC 220)	25-39 Wheeler Street (Nov. 2016)	80/90 Fawcett Street (Oct. 2015)	Vox I (June 2016)	**Trip Rates Used for the Project**
Morning Peak Hour					
In	0.04	0.00	0.01	0.07	**0.04**
Out	0.16	0.17	0.16	0.17	**0.17**
Evening Peak Hour					
In	0.16	0.13	0.11	0.10	**0.13**
Out	0.09	0.03	0.04	0.09	**0.09**

ITE 9th Edition LUC 220 – Apartment
Rates for 80/90 Fawcett and Vox I were provided by TP&T staff.
Rates for 25-39 Wheeler Street are based on VHB field counts conducted in November 2016

For other travel modes (transit, walk, and bike), the ITE unadjusted trip generation numbers were used. Table 3.b.3 below shows the total project generated trips (before existing use credit) using the proposed trip rates shown above for vehicle trips, and unadjusted ITE rates for all other modes.

TABLE 3.B.2 TOTAL PROJECT GENERATED TRIPS (BEFORE EXISTING USE CREDIT)

	Vehicle Trips			Transit Trips			Bicycle Trips			Walk Trips		
	Morning Peak	Evening Peak	Daily	Morning Peak	Evening Peak	Daily	Morning Peak	Evening Peak	Daily	Morning Peak	Evening Peak
Entering	22	72	971	30	118	83	3	10	155	5	19
Exiting	94	50	971	119	63	83	10	5	155	19	10
Total	116	122	1,942	149	181	166	13	15	310	24	29

Source: Trip Generation, 9th Edition; Institute of Transportation Engineers – LUC 220 (transit, bicycle, and walk trips) and City approved vehicle trip rates (Table 3.b.1 of this TIS)

As approved by TP&T, the analysis includes a vehicle trip generation credit for existing on-site uses. The existing approximately 126,000 square foot office buildings will be demolished as part of the project. Accordingly, vehicle trips associated with the existing buildings will be removed from the roadway network. The vehicle trip credit was determined from actual driveway counts that were conducted on October 5, 2016. Trip credits (i.e. trips to be removed from roadway network due to removal of office building form existing site) are presented in Table 3.b.3 and the resulting "Net-New" trips used for this analysis are graphically illustrated in Figures 3.c.4 and 3.c.5 for the morning and evening peak hours, respectively.

TABLE 3.B.3 NET-NEW PROJECT GENERATED TRIPS

	Project Generated Trips	Credits (Negative Trips) *	Net New
Morning Peak Hour			
In	22	-69	-47
Out	94	-7	87
Evening Peak Hour			
In	72	-1	71
Out	50	-58	-8

*negative trips or credits are vehicles currently on the roadways that are generated by the existing office building on site – these trips will be removed from roadways with the demolition of the office building

3.c Trip Distribution and Assignment

Journey-to-work census data from the American Community Survey (2006-2010) was used to determine distribution of project vehicle trips onto the roadway network, as directed by the TP&T. The distribution of project trips exiting the site assumes a 50/50 percent split between Wheeler Street and Fawcett Street, also a TP&T directive. The build and future conditions assume a roadway connection between Fawcett Street and Wheeler Street, as proposed by the project. Table 3.c.1 and Figure 3.c.1 summarize the residential trip distribution.

TABLE 3.C.1 SUMMARY OF VEHICLE TRIP DISTRIBUTION

		Distribution	
Trip Assignment	Direction	Inbound	Outbound
Route 2	To/From Northwest	8%	7%
Route 16	To/from Northeast	9%	9%
Route 16 (Fresh Pond Parkway)	To/from South	52%	44%
Concord Avenue	To/From East	19%	25%
Concord Avenue	To/From West	7%	7%
Blanchard Street	To/From South	4%	5%
Blanchard Street	To/From North	1%	1%

Source: American Community Survey 2006-2010

Vehicle trips were assigned to the roadway network according to this distribution and are presented in the Project Generated network figured. Due to the nature of the site (having an active existing use) both "Total" Project Generated Trips as well as "Net-New" Project Generated Trips, are presented graphically in Figures 3.c.2 through 3.c.5.

3.d Service and Loading

The larger building (Building 2) has a centrally located trash room and move in lobby at the rear of the property accessible by a private driveway connected to the Connector Road (Wheeler Street Extension) which is dedicated to trash removal as well as move-in/move-out operations. There will be approximately 5 trash pickups per week, typically on weekdays, times of day to be agreed upon with the selected trash vendor. The move-in/move-out lobby will be accessed by moving trucks and personal vehicles only during moves which will be more frequent in the initial 12 months of building occupancy and taper off after that time period. Once or twice per month, the leasing office and maintenance staff will receive larger deliveries in the move-in lobby. Daily mail and package delivery will be most likely be handled in this area as well, but is subject to agreement with the USPS and delivery vendors.

At the smaller Building 1, trash and deliveries will be handled on Wheeler Street near the parking garage entrance. There will be approximately 2-3 trash pickups per week, typically on weekdays, times of day to be agreed upon with the selected trash vendor. Move-ins are expected to be more frequent in the first 12 months of building occupancy, and taper off after that time period.

Figure 3.d.1 highlights loading and servicing areas for the Project.

4 Background Traffic

In accordance with the City's Scoping Letter and TIS Guidelines, a general background traffic growth of 0.5% per year for five years to the 2021 Future Condition, was included in the Future condition analysis.

In addition, trips associated with specific planned projects in the area of the Project site have been incorporated into the 2021 Future Condition analysis. These specific projects include:

- 605 Concord Avenue
- 87-95 Fawcett Street
- 75 New Street
- 130 Cambridgepark Drive
- 88 Cambridgepark Drive
- 35 Cambridgepark Drive renovation project

5 Traffic Analysis

Traffic networks were developed in accordance with the TIS Guidelines, for the 2016 Existing, 2016 Build and 2021 Future Condition scenarios for both the Morning and Evening Peak Hours.

To support the development of traffic analysis, the Build and Future Conditions both assume that the Connector Road (Wheeler Street Extension) between Fawcett Street and Wheeler Street is in place.

5.a 2016 Existing Condition

The 2016 Existing Condition analysis is based on existing vehicle, bicycle, and pedestrian counts at the study area intersections (see Section 2). The Existing Condition networks are shown in Figures 2.c.1 and 2.c.2.

5.b 2016 Build Condition

The 2016 Build Condition assumes full occupancy of the 550 residential units. Since the counts for the Existing Condition were completed while 55 Wheeler St was still occupied as offices, these driveway trips were subtracted from the network before the project-generated trips were added to the network. Therefore, the resulting 2016 Build network consists of the 2016 Existing volumes plus the net-new project generated trips. These networks are shown in Figures 5.b.1 and 5.b.2.

5.c 2021 Future Condition

Background traffic growth was assumed to occur at 0.5 percent per year for five years to the 2021 Future Condition. Additionally, volumes generated from background projects that are planned to come on-line during this five-year period were added to the network. The 2021 Future Condition networks are shown in Figures 5.c.1 and 5.c.2.

6 Vehicle Capacity Analysis

6.a Capacity Analysis

Synchro 8 software was used to determine the vehicle level of service (VLOS) for the ten signalized and unsignalized study area intersection. Synchro software is based on the 2000 Highway Capacity Manual. Because of Synchro's limitations when analyzing rotaries, for the Fresh Pond Rotary and the Sozio Rotary, SIDRA 7 software was used to determine the vehicle level of service. SIDRA software is based on the 2010 Highway Capacity Manual.

Results for the 2016 Existing, 2016 Build, and 2021 Future conditions are presented in Table 6.a.1 and Table 6.a.2 for signalized intersections, Table 6.a.3 and Table 6.a.4 for unsignalized intersections, and Table 6.a.5 and Table 6.a.6 for the rotaries. The tables also show the difference in delay between the Existing and Build conditions (delay due to project impact) and between the Existing and Future delay (total delay from project and other background growth). Figures 6.a.1 and 6.a.2 illustrate the overall VLOS for each intersection for the morning and evening peak hour respectively. A summary of the analysis results follows.

TABLE 6.A.1 SIGNALIZED INTERSECTION LEVEL OF SERVICE RESULTS – MORING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Movement**	v/c	Delay	VLOS	v/c	Delay	VLOS	Difference in Delay	v/c	Delay	VLOS	Difference in Delay
Blanchard Rd/ Griswold St at Concord Ave	Blanchard NB Left/Thru	0.86	70.3	E	0.86	69.1	E	-1.2	0.88	72.8	E	2.5
	Blanchard NB Right	0.19	0.3	A	0.19	0.3	A	0	0.19	0.3	A	0
	Concord EB Left/Thru/Right	1.59	328.7	F	1.55	308.6	F	-20.1	1.66	358.6	F	29.9
	Concord WB Left	1.09	161.1	F	1.10	161.9	F	0.8	1.19	193.6	F	32.5
	Concord WB Thru	0.58	37.2	D	0.58	36.9	D	-0.3	0.63	39.4	D	2.2
	Concord WB Right	0.46	34.8	C	0.45	34.2	C	-0.6	0.48	35.9	D	1.1
	Blanchard SB Left/Thru/Right	0.91	50.4	D	0.91	49.7	D	-0.7	0.92	50.9	D	0.5
	Griswold SWB Right *unsignalized*	0.00	13.5	B	0.00	13.5	B	0	0.00	14.1	B	0.6
	Overall	**1.06**	**121.9**	**F**	**1.05**	**115.9**	**F**	**-6.0**	**1.09**	**131.8**	**F**	**9.9**
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	0.12	32.0	C	0.12	32.0	C	0	0.12	32.0	C	0
	Concord EB Left/Thru/Right	0.54	8.1	A	0.53	7.9	A	-1.2	0.55	8.1	A	0
	Concord WB Left/Thru/Right	0.81	16.7	B	0.82	17.0	B	0.3	0.85	19.3	B	2.6
	Moulton SB Left/Right	0.63	47.1	D	0.63	47.1	D	0	0.64	48.9	D	1.8
	Overall	**0.71**	**13.0**	**B**	**0.71**	**13.1**	**B**	**0.1**	**0.74**	**14.3**	**B**	**1.3**
Ped Crossing and Concord Ave	Concord Ave EB Thru	0.40	3.2	A	0.43	3.3	A	0.1	0.40	3.2	A	0
	Concord Ave WB Thru	0.60	5.6	A	0.71	7.5	A	1.9	0.60	5.6	A	0
	Overall	**0.52**	**4.2**	**A**	**0.61**	**5.3**	**A**	**1.1**	**0.52**	**4.2**	**A**	**0**
Ped Crossing between Rotaries	Concord Ave EB Thru	0.87	9.9	A	0.90	11.6	B	1.7	0.95	17.2	B	7.3
	Concord Ave WB Thru	0.77	6.9	A	0.77	6.8	A	-0.1	0.80	7.6	A	0.7
	Overall	**0.71**	**8.5**	**A**	**0.74**	**9.4**	**A**	**0.9**	**0.78**	**12.8**	**B**	**4.3**
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	0.67	12.5	B	0.68	12.1	B	-0.4	0.71	13.3	B	0.8
	Alewife NB Right	0.17	7.2	A	0.17	7.2	A	0	0.18	7.3	A	0.1
	Terminal EB Right	0.15	27.7	C	0.15	27.7	C	0	0.15	27.7	C	0
	Fresh Pond Mall WB Right	0.25	28.7	C	0.25	28.7	C	0	0.26	28.6	C	-0.1
	Alewife SB Thru	0.84	17.8	B	0.84	17.6	B	-0.2	0.89	20.9	C	3.1
	Alewife SB Right	0.34	9.0	A	0.34	9.0	A	0	0.35	9.1	A	0.1
	Overall	**0.67**	**15.2**	**B**	**0.67**	**15.2**	**B**	**0**	**0.71**	**17.0**	**B**	**1.8**

v/c = volume-to-capacity ratio; Delay = average delay expressed in seconds per vehicle; VLOS = vehicular level of service

TABLE 6.A.2 SIGNALIZED INTERSECTION LEVEL OF SERVICE RESULTS - EVENING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Movement**	v/c	Delay	VLOS	v/c	Delay	VLOS	Difference in Delay	v/c	Delay	VLOS	Difference in Delay
Blanchard Rd/ Griswold St at Concord Ave	Blanchard NB Left/Thru	0.96	82.2	F	0.96	82.2	F	0	0.98	85.5	F	3.2
	Blanchard NB Right	0.08	0.1	A	0.08	0.1	A	0	0.08	0.1	A	0
	Concord EB Left/Thru/Right	1.38	248.7	F	1.39	253.1	F	4.4	1.48	290.1	F	41.4
	Concord WB Left	0.93	100.6	F	0.89	90.7	F	-9.9	0.92	97.1	F	-3.5
	Concord WB Thru	0.71	43.2	D	0.67	41.7	D	-1.5	0.70	43.4	D	1.2
	Concord WB Right	0.77	48.9	D	0.73	46.0	D	-2.9	0.75	47.8	D	-1.1
	Blanchard SB Left/Thru/Right	1.02	91.5	F	1.02	91.5	F	0	1.06	103.2	F	11.7
	Griswold SWB Right *unsignalized*	0.04	19.5	C	0.04	18.8	C	-0.7	0.04	19.1	C	-0.4
	Overall	**1.05**	**99.2**	**F**	**1.05**	**99.6**	**F**	**0.4**	**1.09**	**111.0**	**F**	**11.8**
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	0.22	26.6	C	0.22	26.6	C	0	0.23	26.6	C	0
	Concord EB Left/Thru/Right	0.46	15.4	B	0.47	15.4	B	0	0.49	16.1	B	0.7
	Concord WB Left/Thru/Right	0.85	30.5	C	0.80	26.7	C	-3.8	0.83	29.5	C	-1.0
	Moulton SB Left/Right	0.90	62.2	E	0.90	62.2	E	0	0.88	57.3	E	-4.9
	Overall	**0.74**	**28.9**	**C**	**0.70**	**27.4**	**C**	**-1.5**	**0.72**	**27.9**	**C**	**-1.0**
Ped Crossing and Concord Ave	Concord Ave EB Thru	0.34	2.8	A	0.34	2.8	A	0	0.36	3.0	A	0.2
	Concord Ave WB Thru	0.55	5.0	A	0.55	5.0	A	0	0.57	5.1	A	0.1
	Overall	**0.48**	**3.8**	**A**	**0.48**	**3.8**	**A**	**0**	**0.49**	**3.9**	**A**	**0.1**
Ped Crossing between Rotaries	Concord Ave EB Thru	1.05	45.8	D	1.06	50.5	D	4.7	1.10	67.3	E	21.5
	Concord Ave WB Thru	0.56	8.5	A	0.58	8.8	A	0.3	0.61	9.2	A	0.7
	Overall	**0.73**	**32.8**	**C**	**0.74**	**35.7**	**D**	**2.9**	**0.78**	**46.5**	**D**	**13.7**
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	0.63	13.9	B	0.64	13.5	B	-0.4	0.67	14.7	B	0.8
	Alewife NB Right	0.21	9.4	A	0.21	9.4	A	0	0.22	9.5	A	0.1
	Terminal EB Right	0.43	26.3	C	0.43	26.3	C	0	0.44	26.4	C	0.1
	Fresh Pond Mall WB Right	0.66	31.2	C	0.66	31.2	C	0	0.68	31.7	C	0.5
	Alewife SB Thru	0.95	29.0	C	0.95	29.9	C	0.9	1.00	35.6	D	6.6
	Alewife SB Right	0.46	12.9	B	0.46	12.9	B	0	0.47	13.2	B	0.3
	Overall	**0.85**	**22.6**	**C**	**0.85**	**23.0**	**C**	**0.4**	**0.89**	**27.5**	**C**	**4.9**

TABLE 6.A.3 UNSIGNALIZED INTERSECTION LEVEL OF SERVICE RESULTS – MORNING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Approach**	v/c	Delay	VLOS	v/c	Delay	VLOS	Difference in Delay	v/c	Delay	VLOS	Difference in Delay
Spinelli Pl at Concord Ave	Spinelli SB Left/Right	1.63	411.2	F	1.57	381.2	F	-30.0	1.80	487.8	F	76.6
Smith Pl at Concord Ave	Smith SB Left/Right	1.16	205.9	F	1.16	204.5	F	-1.4	1.41	313.1	F	107.2
Fawcett St at Concord Ave	Fawcett SB Left/Right	0.59	42.1	E	0.92	89.3	F	47.2	1.03	120.3	F	78.2
Wheeler St at Concord Ave	Wheeler SB Left/Right	0.58	46.9	E	0.92	105.2	F	58.3	1.06	149.3	F	102.4
Connecting Rd at Fawcett St	Connecting WB Left/Right	0.12	10.7	B	0.22	11.6	B	0.9	0.23	11.7	B	1.0

TABLE 6.A.4 UNSIGNALIZED INTERSECTION LEVEL OF SERVICE RESULTS – EVENING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Approach**	v/c	Delay	VLOS	v/c	Delay	VLOS	Difference in Delay	v/c	Delay	VLOS	Difference in Delay
Spinelli Pl at Concord Ave	Spinelli SB Left/Right	0.67	50.5	F	0.67	51.2	F	0.7	0.75	64.3	F	13.8
Smith Pl at Concord Ave	Smith SB Left/Right	1.06	113.9	F	0.98	86.9	F	-27.0	1.08	118.8	F	4.9
Fawcett St at Concord Ave	Fawcett SB Left/Right	0.28	20.7	C	0.35	21.8	C	1.1	0.37	22.7	C	2.0
Wheeler St at Concord Ave	Wheeler SB Left/Right	0.62	35.2	E	0.60	39.6	E	4.4	0.68	49.9	E	14.7
Connecting Rd at Fawcett St	Connecting WB Left/Right	0.04	10.2	B	0.10	10.7	B	0.5	0.10	10.8	B	0.6

TABLE 6.A.5 ROTARY LEVEL OF SERVICE RESULTS – MORNING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Approach**	Demand[1]	Delay	VLOS	Demand	Delay	VLOS	Difference in Delay	Demand	Delay	VLOS	Difference in Delay
Fresh Pond Rotary	Concord Ave EB	995	83.1	F	1,085	119.1	F	36.0	1,129	131.4	F	48.3
	Concord Ave WB	1,920	144.4	F	1,906	140.8	F	-3.6	1,986	156.6	F	12.2
	Alewife Brook Pkwy SB	1,566	168.3	F	1,558	159.5	F	-8.8	1,659	209.9	F	41.6
	Hotel Dwy SWB	80	19.0	C	80	18.6	C	-0.4	82	19.4	C	0.4
	Overall	**4,561**	**137.0**	**F**	**4,628**	**139.8**	**F**	**2.8**	**4,856**	**166.6**	**F**	**29.6**
Sozio Rotary	Concord Ave EB	1,969	40.2	E	2,038	48.4	E	8.2	2,165	66.8	F	26.6
	Concord Ave WB	585	155.3	F	584	141.0	F	-14.3	604	157.2	F	1.9
	New St SB	163	18.4	C	160	17.8	C	-0.6	183	19.6	C	1.2
	Fresh Pond Pkwy NB	1,443	480.6	F	1,431	503.8	F	23.2	1,479	541.1	F	60.5
	Gas Station Dwy NWB	20	13.5	B	20	13.6	B	0.1	27	13.9	B	0.4
	Overall	**4,179**	**207.4**	**F**	**4,233**	**213.8**	**F**	**6.4**	**4,457**	**234.2**	**F**	**26.8**

1 Approach volume in vehicles per hour

TABLE 6.A.6 ROTARY LEVEL OF SERVICE RESULTS – EVENING PEAK HOUR

		Existing (2016)			Build (2016)				Future (2021)			
Intersection	**Approach**	Demand[1]	Delay	VLOS	Demand	Delay	VLOS	Difference in Delay	Demand	Delay	VLOS	Difference in Delay
Fresh Pond Rotary	Concord Ave EB	778	79.3	F	810	74.6	F	-4.7	845	79.4	F	0.1
	Concord Ave WB	1,342	47.7	E	1,403	46.8	E	-0.9	1,471	57.0	F	9.3
	Alewife Brook Pkwy SB	1,828	96.3	F	1,842	120.4	F	24.1	1,922	154.4	F	58.1
	Hotel Dwy SWB	42	11.7	B	42	12.3	B	0.6	44	12.7	B	1.0
	Overall	**3,990**	**75.8**	**F**	**4,097**	**85.0**	**F**	**9.2**	**4,282**	**104.7**	**F**	**28.9**
Sozio Rotary	Concord Ave EB	2,130	49.7	E	2,158	53.2	F	3.5	2,247	66.6	F	16.9
	Concord Ave WB	422	44.4	E	443	53.4	F	9.0	467	63.5	F	19.1
	New St SB	151	15.5	C	151	16.2	C	0.7	160	17.1	C	1.6
	Fresh Pond Pkwy NB	958	175.0	F	995	191.6	F	16.6	1,043	218.9	F	43.9
	Gas Station Dwy NWB	8	13.0	B	8	13.0	B	0	8	13.0	B	0
	Overall	**3,668**	**80.3**	**F**	**3,755**	**88.4**	**F**	**8.1**	**3,926**	**104.6**	**F**	**24.3**

1 Approach volume in vehicles per hour

6.b Supplemental Capacity Analysis

As requested by the TP&T Department, a supplemental analysis was conducted to evaluate the impact to traffic operations stemming from possible re-allocation of traffic patterns with the construction of the Connector Road (Wheeler Street Extension). Specifically, the analysis looked at evaluating the impact from vehicles turning right off of Concord Avenue onto Wheeler Street instead of turning right onto Fawcett Street to enter the Quadrangle.

The analysis is based on the assumption that approximately 50 percent of current vehicles that are destined for locations on Fawcett Street north of the Connector Road, as well as the Atmark buildings, may choose to utilize Wheeler Street and the new Connector Road instead of Fawcett Street, to access those sites. Any vehicles destined to sites on Fawcett Street south between Concord Avenue and Connector Road, such as 10 Fawcett Street (Social Security Building) and Raytheon Parking Lots, were not included in this re-distribution.

Results of the supplemental analysis for impacted intersections of Concord Ave at Fawcett Street, Concord Ave at Wheeler Street and Fawcett Street at Connector Road (Wheeler Street Extension), for the 2016 Build, and 2021 Future conditions, are presented in Table 6.b.1.

The table columns, in addition to documenting the results of the supplemental re-distribution analysis, also indicate in parenthesis (*) the difference from original results, as presented in Section 6.a.

TABLE 6.B.1 INTERSECTION LEVEL OF SERVICE RESULTS – SUPPLEMENTAL RE-DISTRIBUTION ANALYSIS (SHOWING DIFFERENCE FROM ORIGINAL RESULTS)

		Build (2016)			Future (2021)		
Intersection	**Approach**	v/c	Delay	VLOS	v/c	Delay	VLOS
Fawcett St at Concord Ave	SB LT	0.88 (-0.04)	79.7 (-9.6)	Remains F	1.00 (-0.03)	108.7 (-11.6)	Remains F
Wheeler St at Concord Ave	SB LT/RT	0.90 (-0.02)	97.2 (-8.0)	Remains F	1.00 (-0.06)	127.4 (-21.9)	Remains F
Connecting Rd at Fawcett St	WB LT/RT	0.27 (+0.05)	11.4 (-0.2)	Remains B	0.27 (+0.04)	11.6 (-0.1)	Remains B
Fawcett St at Concord Ave	SB LT	0.34 (-0.01)	20.9 (-0.09)	Remains C	0.36 (-0.01)	21.7 (-1.0)	Remains C
Wheeler St at Concord Ave	SB LT/RT	0.58 (-0.02)	37.4 (-2.2)	Remains E	0.65 (-0.03)	46.0 (-3.9)	Remains E
Connecting Rd at Fawcett St	WB LT/RT	0.15 (+0.05)	10.3 (-0.4)	Remains B	0.16 (+0.06)	10.5 (-0.3)	Remains B

v/c = volume-to-capacity ratio; Delay = average delay expressed in seconds per vehicle; VLOS = vehicular level of service

As summarized in Table 6.b.1, the re-distribution of traffic patterns with the construction of the Wheeler Street Extension / Connector Road, is not expected to have a significant impact to the local roadways and intersection operations. The redistribution is shown to minimally decrease the delay at the intersections, but no change in LOS is expected.

Synchro reports for this supplemental analysis are included in the Appendix.

7 Queue Analysis

Queue analysis was performed in combination with the LOS analysis. Tables 7.a.1 and 7.a.2 show the results for the modeled average queues in the number of vehicles for each scenario for the morning and evening peak hour, respectively. VHB staff conducted queue observations during the morning and evening peak hours at the signalized intersections on October 5th, 2016 while TMC were being captured.

TABLE 7.A.1 SIGNALIZED INTERSECTION QUEUE ANALYSIS - MORNING PEAK HOUR

			Average Queue in Vehicles		
Intersection	**Lane**	2016 Observed	2016 Modeled	2016 Build	2021 Future
Blanchard Rd St at Concord Ave	Blanchard NB Left/Thru	20	8	8	9
	Blanchard NB Right	0	0	0	0
	Concord EB Left/Thru/Right	10	~15	~14	~16
	Concord WB Left	6	~6	~6	~7
	Concord WB Thru	5	8	8	9
	Concord WB Right	3	5	5	5
	Blanchard SB Left/Thru/Right	20	18	18	18
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	1	1	1	1
	Concord EB Left/Thru/Right	2	3	3	3
	Concord WB Left/Thru/Right	6	6	6	7
	Moulton SB Left/Right	1	1	1	1
Ped Crossing at Concord Ave	Concord Ave EB Thru	15	4	5	4
	Concord Ave WB Thru	6	8	11	8
Ped Crossing between Rotaries	Concord Ave EB Thru	12	17	~22	~24
	Concord Ave WB Thru	7	13	13	14
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	10	13	13	14
	Alewife NB Right	-	2	2	2
	Terminal EB Right	1	2	2	2
	Fresh Pond Mall WB Right	2	2	2	2
	Alewife SB Thru	20	20	19	22
	Alewife SB Right	2	4	4	4

Note: Synchro provides queue data in feet, the table presents queue data in number of vehicles. As directed by the TIS guidelines 1 vehicle = 25 ft
~Volume exceeds capacity; queue is theoretically infinite.

TABLE 7.A.2 SIGNALIZED INTERSECTION QUEUE ANALYSIS - EVENING PEAK HOUR

		Average Queue in Vehicles			
Intersection	**Lane**	2016 Observed	2016 Modeled	2016 Build	2021 Future
Blanchard Rd at Concord Ave	Blanchard NB Left/Thru	10	15	15	16
	Blanchard NB Right	0	0	0	0
	Concord EB Left/Thru/Right	7	~10	~10	~11
	Concord WB Left	8	7	7	7
	Concord WB Thru	15	12	11	12
	Concord WB Right	5	10	10	10
	Blanchard SB Left/Thru/Right	15	~19	~19	~20
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Right	2	2	2	2
	Concord EB Left/Thru/Right	7	6	6	7
	Concord WB Left/Thru/Right	6	15	13	14
	Moulton SB Left/Right	2	6	6	6
Ped Crossing at Concord Ave	Concord Ave EB Thru	4	4	3	4
	Concord Ave WB Thru	4	7	7	7
Ped Crossing between Rotaries	Concord Ave EB Thru	16	~22	~23	~25
	Concord Ave WB Thru	17	6	6	6
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	~	10	10	11
	Alewife NB Right	~	2	2	2
	Terminal EB Right	4	4	4	4
	Fresh Pond Mall WB Right	6	7	7	8
	Alewife SB Thru	17	21	22	~26
	Alewife SB Right	2	4	4	4

Notes: Synchro provides queue data in feet, the table presents queue data in number of vehicles. As directed by the TIS guidelines 1 vehicle = 25 ft

~Volume exceeds capacity; queue is theoretically infinite.

The queue analysis results presented in the tables above correspond to the level of service analyses conducted for the study area intersections.

8 Residential Street Volume Analysis

Roadway segments within the study area with residential street frontage were evaluated to understand Project impacts. The peak hour volumes (both directions) traveling the analyzed roadway segments are presented in Tables 8.a.1 and 8.a.2. For analyzed segments that are between study area intersections, the average volumes at these 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 and Build and Future volumes.

Of all of the roadway segments in the study area, a total of five of the ten segments identified are streets which have more than 1/3 of residential frontage, as determined by the existing first floor use. These segments are evaluated in the Planning Board Criteria for increased volume on residential streets.

TABLE 8.A.1 TRAFFIC ON STUDY AREA ROADWAYS – MORNING PEAK HOUR

Roadway	Segment	Amount of Residential	Existing[1]	Build	Increase[2]	Percent Increase	Future[3]	Increase	Percent Increase
Blanchard Road	Colby St to Concord Ave	1/2 or more	955	947	-8	-0.8%	975	20	2.1%
	Mannix Cir to Concord Ave	>1/3 but <1/2	940	937	-3	-0.3%	964	24	2.6%
Griswold Street	Sunset Rd to Concord Ave	1/2 or more	40	40	0	0	41	1	2.5%
Concord Avenue	Blanchard Rd to Spinelli Pl	1/3 or less	1630	1611	-19	-1.2%	1670	40	2.5%
	Spinelli Pl to Smith Pl	1/3 or less	1610	1591	-19	-1.2%	1650	40	2.5%
	Smith Pl to Moulton St	1/2 or more	1550	1531	-19	-1.2%	1589	24	1.5%
	Moulton St to Fawcett St	1/3 or less	1640	1621	-19	-1.2%	1681	41	2.5%
	Fawcett St to Wheeler St	1/3 or less	1800	1775	25	1.4%	1896	96	5.3%
	Between Fresh Pond and Sozio Rotaries	1/3 or less	3580	3527	53	1.5%	3826	246	6.9%
Spinelli Place	Parking Lot to Concord Ave	1/3 or less	190	190	0	0%	194	4	2.1%
Smith Place	Adley Rd to Concord Ave	1/3 or less	270	270	0	0%	276	6	2.2%
Moulton Street	Wilson St to Concord Ave	1/3 or less	160	160	0	0%	164	4	2.5%
Fawcett Street	Connecting Rd to Concord Ave	>1/3 but <1/2	290	232	58	20%	366	76	26.2%

Roadway	Segment	Amount of Residential	Existing[1]	Build	Increase[2]	Percent Increase	Future[3]	Increase	Percent Increase
Wheeler Street	Site Drive to Concord Ave	1/3 or less	225	207	-18	-8%	215	-10	-4.4%
Alewife Brook Parkway	Terminal Rd to Fresh Pond Rotary	1/3 or less	2910	2918	8	0.3%	3072	162	5.6%
Fresh Pond Parkway	Sozio Rotary to Vassal Ln	1/3 or less	2445	2483	38	1.6%	2593	148	6.1%

1 Where driveways/on-street parking created a segment inflow/outflow volume imbalance, an average was calculated per direction and added
2 Net new project trips after trip credits are applied
3 Future accounts for area background project volumes, Project generated volumes, and a background growth rate of 0.5%

TABLE 8.A.2 TRAFFIC ON STUDY AREA ROADWAYS – EVENING PEAK HOUR

Roadway	Segment	Amount of Residential	Existing[1]	Build	Increase[2]	Percent Increase	Future[2]	Increase	Percent Increase
Blanchard Road	Colby St to Concord Ave	1/2 or more	1160	1146	-14	-1.2%	1179	19	1.6%
	Mannix Cir to Concord Ave	>1/3 but <1/2	1010	1006	-4	-0.4%	1033	23	2.3%
Griswold Street	Sunset Rd to Concord Ave	1/2 or more	30	29	-1	-3.3%	29	-1	-3.3%
Concord Avenue	Blanchard Rd to Spinelli Pl	1/3 or less	1270	1241	-29	-2.3%	1293	23	1.8%
	Spinelli Pl to Smith Pl	1/3 or less	1248	1219	-29	-2.3%	1270	22	1.8%
	Smith Pl to Moulton St	1/2 or more	1185	1156	-29	-2.4%	1206	21	1.8%
	Moulton St to Fawcett St	1/3 or less	1303	1274	-29	-2.2%	1327	24	1.8%
	Fawcett St to Wheeler St	1/3 or less	1415	1431	16	1.1%	1497	82	5.8%
	Between Fresh Pond and Sozio Rotaries	1/3 or less	3040	3114	74	2.4%	3250	210	6.9%
Spinelli Place	Parking Lot to Concord Ave	1/3 or less	120	120	0	0	123	3	2.5%
Smith Place	Adley Rd to Concord Ave	1/3 or less	285	285	0	0	292	7	2.5%
Moulton Street	Wilson St to Concord Ave	1/3 or less	175	175	0	0	179	4	2.3%
Fawcett Street	Connecting Rd to Concord Ave	>1/3 but <1/2	195	256	61	31.3%	273	78	40%
Wheeler Street	Site Drive to Concord Ave	1/3 or less	270	272	2	0.7%	283	13	4.8%

Roadway	Segment	Amount of Residential	Existing[1]	Build	Increase[2]	Percent Increase	Future[2]	Increase	Percent Increase
Alewife Brook Parkway	Terminal Rd to Fresh Pond Rotary	1/3 or less	2775	2793	18	0.6%	2915	140	5.0%
Fresh Pond Parkway	Sozio Rotary to Vassal Ln	1/3 or less	2065	2114	49	2.4%	2204	139	6.7%

1 Where driveways/on-street parking created a segment inflow/outflow volume imbalance, an average was calculated per direction and added
2 Net new project trips after trip credits are applied
3 Future accounts for area background project volumes, Project generated volumes, and a background growth rate of 0.5%

9 Parking Analysis

9.a Vehicle Parking

According to the City's 1990 parking inventory, 55 Wheeler Street was reported as having 271 employee parking spaces. As previously noted in Section 2.f of this report, a parking utilization study was conducted for the existing building, and shows the parking facility as currently underutilized with a peak occupancy at 68 percent. The site is located within walking distance to the Alewife Train Station and several bus routes, which is an indicator of lower parking utilization rates due to higher numbers of car-free commuters.

As presented in the recent 605 Concord Avenue TIS (January 2016), the American Community Survey data for census tract 3546 for access to vehicles in rental properties suggests that approximately 21 percent of residential units do not have access to any vehicles. The remaining 79 percent of the units in the census tract have access to a minimum of one vehicles. The average number of vehicles per unit is calculated at less than 1 space per unit, for this census tract.

Observations at 29-31 Wheeler Street in November 2011 yielded night-time parking demand of approximately 86 to 90 percent with a parking ratio of 1 space per unit. Similar overnight occupancy was observed at the 87 New Street development and at 30 Cambridgepark Drive. Late morning to midday observations at these locations yield a demand of 44 to 51 percent. Translating utilization rates that were observed at the above referenced sites to the 55 Wheeler Street development, results in estimated parking demand between 473 and 495 spaces for night-time occupancy, and between 242 and 281 spaces for a daytime occupancy.

The Project is proposing to supply a total of 495 vehicle parking spaces for 550 residential units, at a parking ratio of approximately 0.9 spaces per unit. Buildings 1 and 2 will have reserved resident parking in the garage available for a monthly fee. Short-term loading and visitors will be accommodated by the on-street parking, no visitor parking is proposed in the garage. It is anticipated that between 30 and 40 additional on-street parking spaces will be constructed as part of the Connector Road (Wheeler Street Extension) completion.

Due to the location of the site, the majority of residents will likely use public transportation as their main mode of transportation. A transportation coordinator will be available to residents for parking and transportation information.

9.b Bicycle Parking

The Project will provide parking in accordance with the City of Cambridge's Bicycle Parking Zoning Ordinance, as shown in Table 9.b.1.

TABLE 9.B.1 BICYCLE PARKING

Type of Parking	Parking Rate	# of Bicycle Spaces
Long Term	1.05 spaces per dwelling[1]	577
Short Term	0.10 spaces per dwelling	55
	Total	632

Source: City of Cambridge Zoning Ordinance Article 6.0
[1] per city guide – 1.00 spaces per unit for the first 20 units for a residential building

The Project will provide 577 long term bicycle parking spaces in a combination of ground level bike rooms in both Building 1 and Building 2 and a below grade bike room inside the garage with access from both Wheeler Street and Connector Road (Wheeler Street Extension). The Project will also provide 55 short term spaces located near Building 1 and Building 2 entrances, to support visitors to the site. The total 632 spaces will result in the installation of approximately 316 bicycle racks (assuming each rack fits 2 bicycles).

Figures G.1 and G.2 illustrate the location and layout of the long-term and short term bicycle parking spaces.

10 Transit Analysis

As requested by the City's Scoping Letter, a transit analysis has been conducted to support this Project. The analysis included a review of existing Red Line and bus operations and assessed the impacts of project-generated transit trips and future transit trips.

The following sections summarize existing transit services availability in the study area and provide an assessment of transit utilization and capacity for key transit lines that are expected to be used by the proposed Project, specifically the Red Line accessed at Alewife Station, and MBTA Bus Lines 62, 67, 74, 76, 78, 79, 84, 350, and 351. The Route 74 and 78 buses have stops along Concord Ave and all other bus lines are accessed at Alewife Station.

This transit analysis was based on the following 8-step methodology:

1. Quantify the existing transit system capacity
2. Quantify the existing system ridership
3. Report on existing transit system utilization (ridership/capacity) – 2016 Existing Conditions
4. Develop and assign project-generated transit trips to the existing transit system
5. Report on project impacts to the transit system utilization - 2016 Build Conditions
6. Grow 2016 existing transit system ridership to year 2021
7. Compile area background project transit trips and assign to transit system network
8. Report on future transit system utilization (impacts from project as well as other background projects and general system growth) – 2021 Future Conditions

The V/C ratio (Volume to Capacity) 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 (or utilization rates) are presented for the Existing Condition (2016), Build Condition (Existing + Project trips), and Future Condition (Existing + Project trips + background growth).

10.a Existing Transit System Capacity – STEP 1

The capacity of a transit line depends on the number of trains (or buses) operating during a specified time period (frequency), the number of people that can be accommodated on a vehicle (a train car or bus), and the number of individual cars in each train.

The study period for this analysis includes the morning and evening transit peak hours defined as 8:00 AM to 9:00 AM and 4:30 PM to 5:30 PM, respectively.

Train and bus frequencies were compiled from latest published MBTA schedules[1] and MBTA Bus Ridecheck data from Fall 2015, as reported in Table 10.a.1.

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[2] and the MBTA Blue Book 14th Edition data (Red Line policy capacity of 167 passengers per car, with a standard operation of 6-car trains; MBTA Bus policy capacity of 54 passengers per vehicle).

The average Red Line on-time performance was adjusted by 89%, based on the 30-day average (October 14 to November 15, 2016) provided by the MBTA Dashboard. For the purposes of this study, the on-time performance adjustment of 89% reduced the number of available trains during peak hour to account for schedule irregularities and resulting wait times experienced by the passengers. The MBTA Bus service capacity was not adjusted for on-time performance.

[1] MBTA schedules, November 2016
[2] MBTA Service Delivery Policy, approved by the Board of Directors in June 2010

Table 10.a.1 shows the resulting system capacities for the Red Line and Bus Lines based on MBTA provided data.

TABLE 10.A.1 SYSTEM PEAK HOUR CAPACITY (PER MBTA DATA)

Mode	Frequency[(a)]	OTP Factor[(b)]	# Passengers / Vehicle[(c)]	# Cars / Train	Resulting Capacity[(d)] (# Passengers / Peak Hour)
Red Line at Alewife Station					
Inbound	13	0.89	167	6	11,593
Outbound	13	0.89	167	6	11,593
MBTA Bus					
Route 62 Inbound	3	n/a	54	n/a	162
Route 62 Outbound	1.5	n/a	54	n/a	81
Route 67 Inbound	2	n/a	54	n/a	108
Route 67 Outbound	2	n/a	54	n/a	108
Route 74 Inbound	1.5	n/a	54	n/a	81
Route 74 Outbound	1.5	n/a	54	n/a	81
Route 76 Inbound	1.5	n/a	54	n/a	81
Route 76 Outbound	2	n/a	54	n/a	108
Route 78 Inbound	3	n/a	54	n/a	162
Route 78 Outbound	2.5	n/a	54	n/a	135
Route 79 Inbound	3	n/a	54	n/a	162
Route 79 Outbound	3.5	n/a	54	n/a	189
Route 84 Inbound	2	n/a	54	n/a	108
Route 84 Outbound	2.5	n/a	54	n/a	135
Route 350 Inbound	2.5	n/a	54	n/a	135
Route 350 Outbound	2	n/a	54	n/a	108
Route 351 Inbound	0.5	n/a	54	n/a	27
Route 351 Outbound	0.5	n/a	54	n/a	27

Notes:
(a) Number of vehicles per hour, per MBTA published schedules (Red Line) and MBTA Ridership Fall 2015 (Buses); average number of buses assumed where not same during morning and evening period
(b) On-Time Performance Factor from MBTA Dashboard as of November 15, 2016
(c) Number of policy level capacity per MBTA Blue Book 14th Edition (Red Line and Buses)
(d) Calculated Capacity = # of Trains x OTP Factor x # pax per vehicle x # of cars – shown as number of passengers per peak hour

10.b Existing Transit System Ridership and Utilization – Step 2 & 3

The MBTA Ridership data from Fall 2015 was used to obtain peak hour passenger loads for bus routes that are expected to be utilized by the future Project employees and residents.

Red Line ridership for this analysis was based on data for Alewife Station from October 2015. 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. Since this is the end of the Red Line, passengers board the inbound line and exit the outbound line. Specific boarding and alighting volumes during the morning and evening peak hours are presented in the Appendix.

Combining the system capacity developed in Step 1 and the system ridership, the system's utilization rates were calculated and are presented in Table 10.b.1.

TABLE 10.B.1 EXISTING TRANSIT SERVICE UTILIZATION (PER MBTA DATA)

Route and Direction	Capacity	Morning Peak Hour Ridership	Evening Peak Hour Ridership	Morning Peak Hour V/C	Evening Peak Hour V/C
Red Line at Alewife Station					
Inbound Exiting Alewife	11,593	5,368	1,928	0.46	0.17
Outbound Entering Alewife	11,593	1,434	4,943	0.12	0.43
MBTA Bus					
Route 62 Inbound Entering	162	197	45	1.21	0.27
Route 62 Inbound Exiting	162	0	0	0.00	0.00
Route 62 Outbound Entering	81	0	0	0.00	0.00
Route 62 Outbound Exiting	81	49	25	0.60	0.31
Route 67 Inbound Entering	108	71	12	0.65	0.11
Route 67 Inbound Exiting	108	0	0	0.00	0.00
Route 67 Outbound Entering	108	0	0	0.00	0.00
Route 67 Outbound Exiting	108	5	49	0.05	0.46
Route 74 Inbound Entering	81	63	14	0.78	0.17
Route 74 Inbound Exiting	81	63	14	0.78	0.17
Route 74 Outbound Entering	81	36	23	0.45	0.28
Route 74 Outbound Exiting	81	30	22	0.38	0.27
Route 76 Inbound Entering	81	138	39	1.70	0.48
Route 76 Inbound Exiting	81	0	0	0.00	0.00
Route 76 Outbound Entering	108	0	0	0.00	0.00
Route 76 Outbound Exiting	108	57	59	0.53	0.54
Route 78 Inbound Entering	162	58	44	0.36	0.27
Route 78 Inbound Exiting	162	60	45	0.37	0.28

Route 78 Outbound Entering	135	27	88	0.20	0.65
Route 78 Outbound Exiting	135	24	80	0.18	0.60
Route 79 Inbound Entering	162	74	24	0.46	0.15
Route 79 Inbound Exiting	162	0	0	0.00	0.00
Route 79 Outbound Entering	189	0	0	0.00	0.00
Route 79 Outbound Exiting	189	15	83	0.08	0.44
Route 84 Inbound Entering	108	107	4	0.99	0.03
Route 84 Inbound Exiting	108	0	0	0.00	0.00
Route 84 Outbound Entering	135	0	0	0.00	0.00
Route 84 Outbound Exiting	135	2	58	0.01	0.43
Route 350 Inbound Entering	135	87	66	0.65	0.49
Route 350 Inbound Exiting	135	0	0	0.00	0.00
Route 350 Outbound Entering	108	0	0	0.00	0.00
Route 350 Outbound Exiting	108	59	37	0.54	0.34
Route 351 Inbound Entering	27	0	21	0.00	0.79
Route 351 Inbound Exiting	27	0	0	0.00	0.00
Route 351 Outbound Entering	27	0	0	0.00	0.00
Route 351 Outbound Exiting	27	23	0	0.86	0.00

As presented in Table 10.b.1, the existing Bus Routes are operating within MBTA capacity with V/C ratios below 1.0 except for the Route 62 Inbound entering Alewife Station (V/C = 1.21) and the Route 76 Inbound entering Alewife during the Morning peak hour (V/C = 1.70). Both of these routes begin to the west of Alewife Station in the Bedford/Lexington area near Interstate 95.

The existing Red Line at Alewife Station is operating with V/C ratios below 1.0 in the morning and evening inbound and outbound directions.

10.c Development of Transit Project Trips – Step 4

The Project is expected to generate 77 new transit trips (15 entering, 62 exiting) during the morning peak hour and 94 new transit trips (61 entering, 33 exiting) during the evening peak hour, according to the ITE trip generation calculations presented in Section 3 of this report.

Project transit trip distribution, split between Red Line and Bus Lines, was developed based on 603 Concord Ave residential commuter survey results, which indicated that approximately 75% of transit riders use the Red Line and 25% use buses. The bus trips were distributed onto bus routes proportionally using existing ridership levels. A detailed transit distribution by line, direction, and peak hour is presented in Table 10.c.2.

TABLE 10.C.1 TRANSIT TRIP DISTRIBUTION

Route and Direction	Morning Peak Hour		Evening Peak Hour	
	% OUT	% IN	% OUT	% IN
Red Line at Alewife Station				
Inbound	100%	0.0%	100%	0.0%
Outbound	0.0%	100%	0.0%	100%
MBTA Bus				
Route 62 Inbound	28.0%	0.0%	19.8%	0.0%
Route 62 Outbound	0.0%	23.0%	0.0%	7.9%
Route 67 Inbound	10.4%	0.0%	7.3%	0.0%
Route 67 Outbound	0.0%	2.5%	0.0%	15.8%
Route 74 Inbound	0.1%	0.4%	0.2%	0.1%
Route 74 Outbound	0.8%	0.1%	0.6%	0.1%
Route 76 Inbound	20.2%	0.0%	16.9%	0.0%
Route 76 Outbound	0.0%	26.8%	0.0%	18.7%
Route 78 Inbound	0.0%	0.7%	0.0%	0.2%
Route 78 Outbound	0.4%	0.0%	3.9%	0.4%
Route 79 Inbound	10.8%	0.0%	11.5%	0.0%
Route 79 Outbound	0.0%	7.0%	0.0%	26.6%
Route 84 Inbound	15.7%	0.0%	1.4%	0.0%
Route 84 Outbound	0.0%	0.9%	0.0%	18.4%
Route 350 Inbound	12.7%	0.0%	29.0%	0.0%
Route 350 Outbound	0.0%	27.6%	0.0%	11.8%
Route 351 Inbound	0.0%	0.0%	9.2%	0.0%
Route 351 Outbound	0.0%	10.9%	0.0%	0.0%
Total	100%	100%	100%	100%

Source: MBTA existing station ridership levels, Fall 2015

Transit distribution is then applied to the Project-generated transit trips in order to determine the Project-generated transit trips by line or route, as presented in Table 10.c.3.

TABLE 10.C.2 PROJECT-GENERATED TRANSIT TRIPS BY LINE

	Morning Peak Hour			Evening Peak Hour		
Route and Direction	Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total	Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total
Red Line at Alewife Station						
Inbound	47	0	47	25	0	25
Outbound	0	12	12	0	46	46
MBTA Bus						
Route 62 Inbound	0	1	1	0	3	3
Route 62 Outbound	4	0	4	1	0	1
Route 67 Inbound	0	0	0	0	1	1
Route 67 Outbound	0	0	0	1	0	1
Route 74 Inbound	0	0	0	0	0	0
Route 74 Outbound	0	0	0	0	0	0
Route 76 Inbound	0	1	1	0	3	3
Route 76 Outbound	4	0	4	2	0	2
Route 78 Inbound	0	0	0	0	0	0
Route 78 Outbound	0	0	0	0	1	1
Route 79 Inbound	0	0	0	0	2	2
Route 79 Outbound	1	0	1	2	0	2
Route 84 Inbound	0	1	1	0	0	0
Route 84 Outbound	0	0	0	1	0	1
Route 350 Inbound	0	1	1	0	4	4
Route 350 Outbound	4	0	4	1	0	1
Route 351 Inbound	0	0	0	0	1	1
Route 351 Outbound	2	0	2	0	0	0
Total	62	16	78	33	61	94

10.d Build Transit System Utilization – Step 5

The Project-generated transit trips by line or route from Step 4 above are added to the existing route volumes to develop the "Build Condition" utilization scenario, where Existing + Project trips are assumed to be on the transit lines. Resulting v/c ratios are presented in Table 10.d.1.

TABLE 10.D.1 BUILD CONDITION TRANSIT SERVICE UTILIZATION (PER MBTA DATA)

Route and Direction	Capacity Policy (from Step 1)	Morning Peak Hour Ridership (Existing + Project Trips)	Evening Peak Hour Ridership (Existing + Project Trips)	Morning Peak Hour V/C	Evening Peak Hour V/C
Red Line at Alewife Station					
Inbound Exiting Alewife	11,593	5,415	1,953	0.47	0.17
Outbound Entering Alewife	11,593	1,446	4,989	0.12	0.43
MBTA Bus					
Route 62 Inbound Entering	162	198	48	1.22	0.29
Route 62 Inbound Exiting	162	0	0	0.00	0.00
Route 62 Outbound Entering	81	0	0	0.00	0.00
Route 62 Outbound Exiting	81	53	26	0.65	0.32
Route 67 Inbound Entering	108	71	13	0.65	0.12
Route 67 Inbound Exiting	108	0	0	0.00	0.00
Route 67 Outbound Entering	108	0	0	0.00	0.00
Route 67 Outbound Exiting	108	5	50	0.05	0.47
Route 74 Inbound Entering	81	63	14	0.78	0.17
Route 74 Inbound Exiting	81	63	14	0.78	0.17
Route 74 Outbound Entering	81	36	23	0.45	0.28
Route 74 Outbound Exiting	81	31	22	0.38	0.27
Route 76 Inbound Entering	81	139	42	1.71	0.52
Route 76 Inbound Exiting	81	0	0	0.00	0.00
Route 76 Outbound Entering	108	0	0	0.00	0.00
Route 76 Outbound Exiting	108	61	61	0.56	0.56
Route 78 Inbound Entering	162	58	44	0.36	0.27
Route 78 Inbound Exiting	162	60	45	0.37	0.28
Route 78 Outbound Entering	135	27	89	0.20	0.66
Route 78 Outbound Exiting	135	25	81	0.18	0.60
Route 79 Inbound Entering	162	74	26	0.46	0.16

Route 79 Inbound Exiting	162	0	0	0.00	0.00
Route 79 Outbound Entering	189	0	0	0.00	0.00
Route 79 Outbound Exiting	189	16	85	0.08	0.45
Route 84 Inbound Entering	108	108	4	1.00	0.03
Route 84 Inbound Exiting	108	0	0	0.00	0.00
Route 84 Outbound Entering	135	0	0	0.00	0.00
Route 84 Outbound Exiting	135	2	59	0.01	0.43
Route 350 Inbound Entering	135	88	70	0.65	0.52
Route 350 Inbound Exiting	135	0	0	0.00	0.00
Route 350 Outbound Entering	108	0	0	0.00	0.00
Route 350 Outbound Exiting	108	63	38	0.58	0.35
Route 351 Inbound Entering	27	0	22	0.00	0.83
Route 351 Inbound Exiting	27	0	0	0.00	0.00
Route 351 Outbound Entering	27	0	0	0.00	0.00
Route 351 Outbound Exiting	27	25	0	0.93	0.00

As presented in Table 10.d.1, all of the bus routes are expected to operate within MBTA policy capacity (with V/C ratios below 1.0) in the Build Condition, again, with the exception of Route 62 Inbound entering Alewife Station (V/C = 1.22) and Route 76 Inbound entering Alewife Station (V/C = 1.71) during the morning peak hour. Additionally, in this Build Condition, the Route 84 Inbound entering Alewife Station V/C reaches 1.00 during the morning Peak Hour. This value increases by 0.01 from the Existing Condition to Build Condition due to the addition of one project-generated transit trip.

The table also indicates that the Red Line is expected to operate at similar levels in the Build Condition as under Existing Conditions with only minor increases, if any, in the V/C ratios.

10.e Development of Future Transit Trips – Step 6

To analyze the 2021 Future Condition for transit, the MBTA existing ridership was grown to year 2021 based on growth rates presented in the MIT Kendall Square TIS (July 2015), which included a 4% per year assumption for the Red Line and a 2% per year assumption for bus ridership. The 2021 Future ridership is presented in Table 10.e.1.

TABLE 10.E.1 2021 FUTURE GROWTH TRANSIT SERVICE UTILIZATION (PER MBTA DATA)

Route and Direction	Capacity Policy	Morning Peak Hour Ridership	Evening Peak Hour Ridership	Morning Peak Hour V/C	Evening Peak Hour V/C
Red Line at Alewife Station					
Inbound Exiting Alewife	11,593	6,792	2,440	0.59	0.21
Outbound Entering Alewife	11,593	1,814	6,254	0.16	0.54
MBTA Bus					
Route 62 Inbound Entering	162	222	50	1.37	0.31
Route 62 Inbound Exiting	162	0	0	0.00	0.00
Route 62 Outbound Entering	81	0	0	0.00	0.00
Route 62 Outbound Exiting	81	55	28	0.68	0.35
Route 67 Inbound Entering	108	79	13	0.73	0.12
Route 67 Inbound Exiting	108	0	0	0.00	0.00
Route 67 Outbound Entering	108	0	0	0.00	0.00
Route 67 Outbound Exiting	108	6	56	0.06	0.52
Route 74 Inbound Entering	81	71	16	0.88	0.20
Route 74 Inbound Exiting	81	71	15	0.88	0.19
Route 74 Outbound Entering	81	41	26	0.51	0.32
Route 74 Outbound Exiting	81	34	24	0.42	0.30
Route 76 Inbound Entering	81	155	44	1.91	0.54
Route 76 Inbound Exiting	81	0	0	0.00	0.00
Route 76 Outbound Entering	108	0	0	0.00	0.00
Route 76 Outbound Exiting	108	64	66	0.59	0.61
Route 78 Inbound Entering	162	66	50	0.41	0.31
Route 78 Inbound Exiting	162	68	51	0.42	0.31
Route 78 Outbound Entering	135	31	99	0.23	0.73
Route 78 Outbound Exiting	135	28	91	0.21	0.67
Route 79 Inbound Entering	162	83	27	0.51	0.17
Route 79 Inbound Exiting	162	0	0	0.00	0.00
Route 79 Outbound Entering	189	0	0	0.00	0.00
Route 79 Outbound Exiting	189	17	94	0.09	0.50
Route 84 Inbound Entering	108	120	4	1.11	0.04
Route 84 Inbound Exiting	108	0	0	0.00	0.00
Route 84 Outbound Entering	135	0	0	0.00	0.00
Route 84 Outbound Exiting	135	2	65	0.01	0.48
Route 350 Inbound Entering	135	98	74	0.73	0.55

Route 350 Inbound Exiting	135	0	0	0.00	0.00
Route 350 Outbound Entering	108	0	0	0.00	0.00
Route 350 Outbound Exiting	108	66	42	0.61	0.39
Route 351 Inbound Entering	27	0	24	0.00	0.89
Route 351 Inbound Exiting	27	0	0	0.00	0.00
Route 351 Outbound Entering	27	0	0	0.00	0.00
Route 351 Outbound Exiting	27	26	0	0.96	0.00

Notes: All 2021 Future ridership counts were calculated using the 2015 MBTA data and were grown by 2% per year (bus) and 4% per year (Red Line) for 6 years

As presented in Table 10.e.1, all of the bus routes are expected to operate within MBTA policy capacity (with V/C ratios below 1.0) in the Build Condition, again, with the exception of Route 62 Inbound entering Alewife Station (V/C = 1.37), Route 76 Inbound entering Alewife Station (V/C = 1.91), and the Route 84 Inbound entering Alewife Station (V/C = 1.11) during the morning peak hour. All future ridership numbers were developed with the assumption that the bus routes would remain the same, and no additional buses would be added to the existing Fall 2016 schedule.

The table also indicates that the Red Line is expected to operate at similar levels in the Build Condition as under Existing Conditions with only minor increases, if any, in the V/C ratios.

10.f Compile and Assign Area Background Project Transit Trips – Step 7

In addition to growing the transit trips to 2021 Future Conditions, it is necessary to add transit trips from area projects that have not yet come on-line. The same projects listed in the traffic analysis were also used in this transit analysis. Transit trips for each background project, as presented in Table 10.f.1 below, were included in the Future analysis.

TABLE 10.F .1 BACKGROUND PROJECT TRANSIT TRIPS

	Morning Peak Hour			Evening Peak Hour		
Project	In	Out	Total	In	Out	Total
605 Concord Ave	2	7	9	14	7	21
87-95 Fawcett Street	2	7	9	7	4	11
75 New Street	3	12	15	12	6	18
130 Cambridgepark Drive	9	36	45	35	19	54
88 Cambridgepark Drive	20	89	109	109	59	168
35 Cambridgepark Drive	13	2	15	5	13	18
TOTAL	**49**	**153**	**202**	**182**	**108**	**290**

Similarly, to the project generated transit trips, 75% of the background transit trips were assigned to the Red Line and 25% were assigned to bus routes. For a detailed description of the transit distribution, refer to Table 10.d.2.

10.g Future Transit System Utilization – Step 8

The 2021 Future transit scenario is based on grown ridership levels, combined with background project transit trips and Project-generated transit trips. The resulting transit ridership and calculated V/C ratios for morning and evening peak hours for 2021 Future Condition is shown in Table 10.g.1.

TABLE 10.G.1 2021 FUTURE CONDITION TRANSIT SERVICE UTILIZATION

Route and Direction	Capacity Policy (from Step 1)	Morning Peak Hour Ridership (2021 Future + Background Project Trips)	Evening Peak Hour Ridership (2021 Future + Background Project Trips)	Morning Peak Hour V/C (a)	Evening Peak Hour V/C (a)
Red Line at Alewife Station					
Inbound Exiting Alewife	11,593	6,954	2,602	0.60	0.22
Outbound Entering Alewife	11,593	1,863	6,381	0.16	0.55
MBTA Bus					
Route 62 Inbound Entering	162	226	62	1.40	0.38
Route 62 Inbound Exiting	162	0	0	0.00	0.00
Route 62 Outbound Entering	81	0	0	0.00	0.00
Route 62 Outbound Exiting	81	68	31	0.84	0.38
Route 67 Inbound Entering	108	80	17	0.74	0.16
Route 67 Inbound Exiting	108	0	0	0.00	0.00
Route 67 Outbound Entering	108	0	0	0.00	0.00
Route 67 Outbound Exiting	108	7	61	0.06	0.56
Route 74 Inbound Entering	81	71	16	0.88	0.20
Route 74 Inbound Exiting	81	71	15	0.88	0.19
Route 74 Outbound Entering	81	41	26	0.51	0.32
Route 74 Outbound Exiting	81	34	24	0.42	0.30
Route 76 Inbound Entering	81	159	55	1.96	0.68
Route 76 Inbound Exiting	81	0	0	0.00	0.00
Route 76 Outbound Entering	108	0	0	0.00	0.00
Route 76 Outbound Exiting	108	78	74	0.72	0.69
Route 78 Inbound Entering	162	66	50	0.41	0.31
Route 78 Inbound Exiting	162	68	51	0.42	0.31

Route 78 Outbound Entering	135	31	102	0.23	0.76
Route 78 Outbound Exiting	135	28	91	0.21	0.67
Route 79 Inbound Entering	162	84	34	0.52	0.21
Route 79 Inbound Exiting	162	0	0	0.00	0.00
Route 79 Outbound Entering	189	0	0	0.00	0.00
Route 79 Outbound Exiting	189	21	103	0.11	0.54
Route 84 Inbound Entering	108	123	5	1.14	0.05
Route 84 Inbound Exiting	108	0	0	0.00	0.00
Route 84 Outbound Entering	135	0	0	0.00	0.00
Route 84 Outbound Exiting	135	2	71	0.01	0.53
Route 350 Inbound Entering	135	101	92	0.75	0.68
Route 350 Inbound Exiting	135	0	0	0.00	0.00
Route 350 Outbound Entering	108	0	0	0.00	0.00
Route 350 Outbound Exiting	108	81	46	0.75	0.43
Route 351 Inbound Entering	27	0	29	0.00	1.07
Route 351 Inbound Exiting	27	0	0	0.00	0.00
Route 351 Outbound Entering	27	0	0	0.00	0.00
Route 351 Outbound Exiting	27	32	0	1.19	0.00

As presented in Table 10.g.1, all of the bus routes are expected to operate within MBTA policy capacity (with V/C ratios below 1.0) in the Build Condition, again, with the exception of Route 62 Inbound entering Alewife Station (V/C = 1.40), Route 76 Inbound entering Alewife Station (V/C = 1.96), the Route 84 Inbound entering Alewife Station (V/C = 1.14), and the Route 351 Outbound exiting Alewife Station (V/C = 1.19). In this scenario, The Route 351 Inbound entering Alewife Station exceeds the MBTA policy capacity during the evening peak hour (V/C = 1.07). All future ridership numbers were developed with the assumption that the bus routes would remain the same, and no additional buses would be added to the existing Fall 2016 schedule. Additionally, it was assumed that all project generated transit trips would access the MBTA rather than a private shuttle service such as the Alewife TMA. This presents worst case scenario for the MBTA Red Line and key bus routes.

10.h Private Transit Analysis

As requested by the City of Cambridge, a utilization of the private transit services has also been conducted to support this Project. The analysis used existing Alewife TMA shuttle monthly ridership data, as included in the Appendix to this report.

The current site is served by the Alewife TMA shuttle at the 55 Wheeler Street stop, as illustrated in Figure 1.d.2. The shuttle is drop-off only in the morning and pick-up only in the evening at this location since it is an office building. Inbound shuttles are destined to the

developments along Concord Avenue, and outbound shuttles are destined to Alewife Station from Concord Avenue. Table 10.h.1 shows the existing system peak hour capacity.

TABLE 10.H.1 ALEWIFE TMA SHUTTLE PEAK HOUR CAPACITY (PER ALEWIFE TMA DATA)

Mode	Frequency[a]	OTP Factor[b]	# Passengers / Vehicle[c]	# Cars / Train	Resulting Capacity[d] (# Passengers / Peak Hour)
Inbound	2	1.00	18	1	32
Outbound	2	1.00	18	1	32

Notes:
(a) Number of vehicles per hour, per Alewife TMA shuttle schedule
(b) On-Time Performance Factor assumed to be 1.00
(c) Capacity based on 18-passenger shuttle vehicles
(d) Calculated Capacity = # of Trains x OTP Factor x # pax per vehicle x # of cars – shown as number of passengers per peak hour

The Alewife TMA ridership data from October 2016 was used to obtain average daily ridership and the peak hour passenger loads for the Alewife Shuttle. The resulting daily ridership at the 55 Wheeler Street shuttle stop and the corresponding shuttle service utilization at this stop are shown in Table 10.h.2.

TABLE 10.H.2 EXISTING ALEWIFE TMA SHUTTLE SERVICE UTILIZATION (PER ALEWIFE TMA DATA)

Direction	Capacity Policy	Morning Peak Hour Ridership	Evening Peak Hour Ridership	Morning Peak Hour V/C	Evening Peak Hour V/CV/C
Inbound at 55 Wheeler Street Entering	32	7	0	0.20	0.00
Inbound at 55 Wheeler Street Exiting	32	6	0	0.16	0.00
Outbound at 55 Wheeler Street Entering	32	0	7	0.00	0.20
Outbound at 55 Wheeler Street Exiting	32	0	7	0.00	0.21

The data shows that there is shuttle availability at 55 Wheeler with V/C ratios of 0.20 and 0.16 during the morning and evening peak hours, respectively.

11 Pedestrian Analysis

Pedestrian crossing volumes at study area intersections are presented in Figures 2.c.3 and 2.c.4. The results of pedestrian level of service (PLOS) analysis at intersection crosswalks are presented in Table 11.a.1 for signalized intersections and Table 11.a.2 for unsignalized intersections, as well as graphically illustrated in Figures 11.a.1 and 11.a.2.

Pedestrian level of service at signalized intersections is dictated by the portion of the signal cycle dedicated to the pedestrian crossings. Accordingly, increasing pedestrian volumes does not alter pedestrian level of service at signalized intersections, and no changes in PLOS are projected under build or future conditions. It is assumed that the walk time and cycle length at these intersections will not change from existing and therefore PLOs will remain consistent.

For unsignalized intersections, the PLOS is calculated using the crosswalk length and the conflicting vehicle flor rates for morning and evening peak hours.

The only intersection that shows a slight change in PLOS with the addition of Project trips is Fawcett Street at the Connector Road (Wheeler Street Extension). The intersection's south crosswalk changes from A to B in both the morning and evening peak hours. This change occurs due to net new vehicles trips (58 during the morning peak hour and 61 during the evening peak hour) that conflict with pedestrian movement as the vehicles pass through the crosswalk. The impact is minimal, with the addition of 1.84 seconds added during the morning peak and 1.77 seconds during the evening peak hour which barely tips the LOS threshold at this crosswalk location. All other intersections show no change in PLOS with the addition of project trips. Figures 11.a.1 and 11.a.2 show the PLOS for the various conditions for morning and evening peak hour.

TABLE 11.A.1 SIGNALIZED INTERSECTION – PEDESTRIAN LOS SUMMARY

Intersection	Crosswalk	Morning Peak Hour			Evening Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
Concord Avenue at Blanchard Road/Griswold Street	East	E	E	E	E	E	E
	West	E	E	E	E	E	E
	North	E	E	E	E	E	E
	South	E	E	E	E	E	E
Concord Avenue at Moulton Street/Neville Manor	East	C	C	C	C	C	C
	North	C	C	C	C	C	C
	South	C	C	C	C	C	C
Pedestrian Crossing on Concord Avenue between Wheeler Street and Fawcett Street	East	C	C	C	C	C	C
Midblock Crosswalk between Fresh Pond rotary and Sozio Rotary	East	C	C	C	C	C	C
Alewife Brook Parkway at Terminal Road	West	D	D	D	D	D	D
	North	D	D	D	D	D	D

TABLE 11.A.2 UNSIGNALIZED INTERSECTION – PEDESTRIAN LOS SUMMARY

Intersection	Crosswalk	Morning Peak Hour			Evening Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
Concord Avenue at Spinelli Place	East	F	F	F	F	F	F
	North	A	A	A	A	A	A
Concord Avenue at Smith Place	West	F	F	F	F	F	F
	North	B	B	B	B	B	B
Concord Avenue at Fawcett Street	West	F	F	F	F	F	F
	North	C	C	C	B	B	B
Concord Avenue at Wheeler Street	West	F	F	F	F	F	F
	North	C	C	C	C	C	C
Site Driveway at Wheeler Street	North	A	A	A	A	A	A
Fawcett Street at Connecting Road	East	A	A	A	A	A	A
	South	A	B	B	A	B	B

12 Bicycle Analysis

12.a Conflicting Movements

Conflicting vehicle turning movements at the study area intersections are presented in Figure 2.c.5 and 2.c.6, and summarized in Table 12.a.1 for Existing 2016, Build 2016, and Future 2021 conditions.

TABLE 12.A.1 CONFLICTING BICYCLE/VEHICLE MOVEMENTS AT STUDY INTERSECTIONS

			Existing Peak Hour	Conflicting Vehicle Movements					
				Existing 2016		Build 2016		Future 2021	
Intersection	Time Period	Bicycle Direction	Bicycle Volume	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]
Concord Avenue at Blanchard Road / Griswold Street	Morning	EB	29	15	135	15	138	15	145
		WB	4	170	20	169	20	177	21
		NB	16	270	260	264	253	271	259
		SB	6	10	10	10	10	10	10
		SWB	2	0	0	0	0	0	0
	Evening	EB	11	30	165	30	157	31	161
		WB	15	280	55	264	55	272	56
		NB	7	105	130	114	131	118	137
		SB	9	15	5	15	5	15	5
		SWB	0	5	0	5	0	5	0
Spinelli Place at Concord Avenue	Morning	EB	29	NA	NA	-	-	-	-
		WB	10	45	50	45	50	46	51
		SB	1	45	NA	45	-	46	-
	Evening	EB	20	NA	NA	-	-	-	-
		WB	21	5	10	5	10	5	10
		SB	6	65	NA	65	-	67	-
Smith Place at Concord Avenue	Morning	EB	4	NA	NA	-	-	-	-
		WB	15	55	95	55	95	56	97
		SB	0	70	NA	70	-	72	-
	Evening	EB	22	NA	NA	-	-	-	-
		WB	21	35	50	35	50	36	51
		SB	3	125	NA	125	-	128	-
Neville Place /Moulton Street at Concord Avenue	Morning	EB	43	20	15	20	15	21	15
		WB	19	95	25	95	25	97	26
		NB	0	5	30	5	30	5	31
		SB	1	10	0	10	0	10	0
	Evening	EB	25	15	25	15	25	15	26
		WB	21	10	5	10	5	10	5
		NB	1	25	130	25	130	26	133
		SB	0	30	20	30	20	31	21

			Existing Peak Hour	Conflicting Vehicle Movements					
				Existing 2016		Build 2016		Future 2021	
Intersection	Time Period	Bicycle Direction	Bicycle Volume	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]
Fawcett Street at Concord Avenue	Morning	EB	23	NA	NA	-	-	-	-
		WB	19	150	40	160	41	164	42
		SB	1	25	NA	31	-	35	-
	Evening	EB	28	NA	NA	-	-	-	-
		WB	21	95	15	126	20	135	22
		SB	0	25	NA	28	-	29	-
Wheeler Street at Concord Avenue	Morning	EB	4	NA	NA	-	-	-	-
		WB	19	75	50	44	23	46	24
		SB	2	80	NA	80	-	83	-
	Evening	EB	6	NA	NA	-	-	-	-
		WB	4	55	55	85	60	89	62
		SB	7	125	NA	83	-	85	-
Terminal Road/Fresh Pond Mall at Alewife Brook Parkway	Morning	EB	0	40	0	40	0	41	0
		WB	0	85	0	85	0	87	0
		NB	0	130	0	130	0	133	0
		SB	8	230	0	230	0	236	0
	Evening	EB	0	130	0	130	0	133	0
		WB	0	265	0	265	0	272	0
		NB	4	120	0	120	0	123	0
		SB	0	265	0	265	0	272	0
Connecting Road at Fawcett Street	Morning	WB	0	5	NA	5	0	5	0
		NB	2	10	0	21	0	21	0
		SB	2	NA	NA	0	0	0	0
	Evening	WB	0	0	0	0	0	0	0
		NB	2	30	5	66	5	67	5
		SB	1	0	5	0	5	0	5
Fresh Pond Rotary	Morning	EB[1]	0	NA	NA	-	-	-	-
		WB	0	75	NA	45	-	46	-
		SB	7	245	NA	237	-	250	-
		SWB	1	5	NA	5	-	5	-
	Evening	EB[1]	0	0	NA	-	-	-	-
		WB	0	40	NA	10	-	10	-
		SB	0	280	NA	293	-	309	-
		SWB	0	0	NA	0	-	0	-
Sozio Rotary	Morning	EB	5	1145	NA	1193	-	1255	-
		WB	0	35	NA	35	-	38	-
		NB	0	10	NA	35	-	36	-
		NWB	1	0	NA	0	-	2	-

			Existing Peak Hour	Conflicting Vehicle Movements					
				Existing 2016		Build 2016		Future 2021	
Intersection	Time Period	Bicycle Direction	Bicycle Volume	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]	Right Turn[a]	Left Turn[b]
		SB	0	140	NA	138	-	157	-
	Evening	EB	0	1255	NA	1274	-	1324	-
		WB	0	40	NA	40	-	46	-
		NB	8	15	NA	15	-	20	-
		NWB	3	0	NA	0	-	0	-
		SB	0	110	NA	110	-	117	-

a Advancing volume
b Opposing volume
NA Movement not available
[1] Bicycle path is independent from the roadway

13 Signal Warrant Analysis (Concord Avenue at Fawcett Street)

As requested in the TIS Scoping Letter, a Signal Warrant Analysis was conducted for the intersection of Concord Avenue at Fawcett Street. The Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition, specifies 9 different conditions which warrants the installation of a signal.

- Warrant 1 – Eight Hour Vehicular Volume
  - Condition A – Min. Vehicular Volume: A large number of intersecting traffic is the principal reason to consider installing a traffic control signal
  - Condition B – Interruption of Continuous Traffic: Traffic volume on a major street is so heavy that traffic on a minor intersecting street suffer excessive delay in entering or crossing the major street
- Warrant 2 – Four Hour Vehicular Volume
- Warrant 3 – Peak Hour
- Warrant 4 – Pedestrian Volume
- Warrant 5 – School Crossing
- Warrant 6 – Coordinated Signal System
- Warrant 7 – Crash Experience
- Warrant 8 – Roadway Network
- Warrant 9 – Intersection Near a Grade Crossing

Analysis was based on count data collected in October 2016, and detailed work sheets are included in the Appendix of the report. Under existing conditions, the intersection meets the threshold for Warrant 1 (Condition B) and Warrant 2.

Warrant 1 (Condition B) suggests that the need for a traffic control signal shall be considered if the traffic on the major street exceeds 900 vehicles per hour and traffic on the minor street exceeds 75 vehicles per hour for eight or more hours throughout the day.

Warrant 2 suggests that the need for a traffic control signal shall be considered if for any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street and the corresponding vehicles per hour on the minor street approach all fall above the applicable curve shown in MUTCD Figure 4C-1.

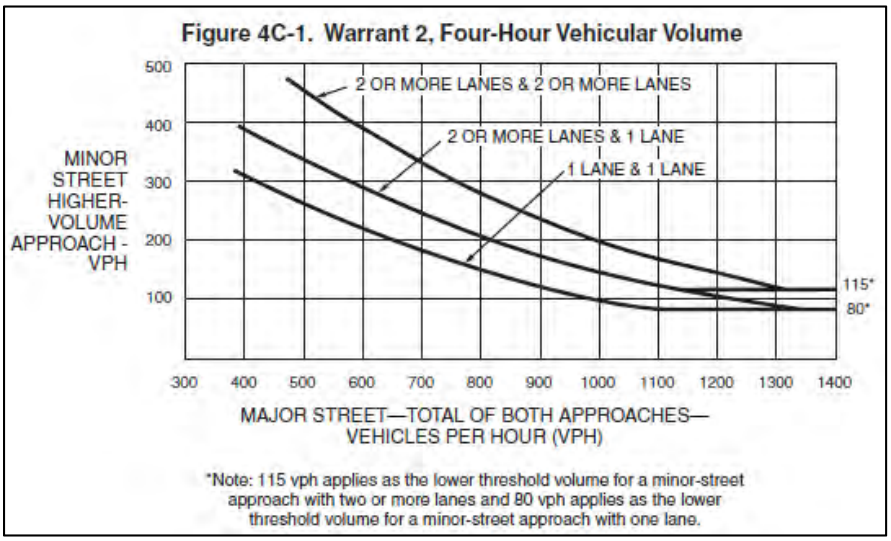


Table 13.a.1 below summarizes the volumes used for the Signal Warrant analysis.

TABLE 13.A.1 SIGNAL WARRANT ANALYSIS VOLUMES

Hour	Entering Volume Fawcett Street	Entering Volume Concord Avenue	Meets Warrant 1B?	Meets Warrant 2?
6:00 – 7:00 AM	48	782	No	No
7:00 – 8:00 AM	121	1413	Yes	Yes
8:00 – 9:00 AM	106	1766	Yes	Yes
9:00 – 10:00 AM	127	1479	Yes	Yes
10:00 – 11:00 AM	123	1313	Yes	Yes
11:00 AM – 12:00 PM	114	1380	Yes	Yes
12:00 – 1:00 PM	127	1441	Yes	Yes
1:00 – 2:00 PM	111	1324	Yes	Yes
2:00 – 3:00 PM	112	1384	Yes	Yes
3:00 – 4:00 PM	114	1477	Yes	Yes
4:00 – 5:00 PM	104	1409	Yes	Yes
5:00 – 6:00 PM	101	1384	Yes	No
6:00 – 7:00 PM	81	1333	Yes	No

Since volume is expected to increase under future conditions, it is expected that the warrants met under existing conditions will continue to be met in the future.

14 Transportation Demand Management

The Owner will support a program of transportation demand management (TDM) actions to reduce automobile trips generated by the Project. The goal of the Project's TDM plan is to reduce the use of single occupant vehicles (SOVs) by encouraging carpooling and vanpooling, bicycle commuting and walking, and increased use of the area's public transportation system by residents.

The Owner will consider the following TDM programs as part of the proposed Project to encourage residents to use alternatives to SOV travel:

- Make available 1 carshare parking spaces for a vehicle-sharing company.
- Encourage car/vanpooling in coordination with MassRIDES, Alewife TMA or other private ride-matching service provider.
- Provide air pumps and other bike tools, such as a "fix-it" stand in the bicycle storage areas.
- Join the Alewife Transportation Management Association (TMA).
- Charge parking separately from the residential rent.
- Designate a transportation coordinator (TC) for the site to manage the TDM program.
- Post information in a prominent location in the building and on the building's website, social media and property newsletters promoting the use of transportation options and service information.

15 Transportation Mitigation

The proposed Project exceeds 20 out of 148 possible data entries, resulting in a 14% exceedance rate. As requested by the TP&T Department, Table 15.a.1 provides a listing of all Planning Board Special Permit Exceedances, and indicates how transportation mitigation measures will or cannot mitigate the Project Exceedances.

TABLE 15.A.1 EXCEEDANCE MITIGATION SUMMARY TABLE

#	Location		Reason for Exceedance	Mitigation
	Criteria C – Traffic on Residential Streets			
1	Fawcett Street between Connecting Road and Concord Avenue	Morning	Increase of 58 trips on a segment of >1/3 but <1/2 residential. Threshold is 45 VPH	No mitigation proposed
2	Fawcett Street between Connecting Road and Concord Avenue	Evening	Increase of 61 trips on a segment of >1/3 but <1/2 residential. Threshold is 45 VPH	No mitigation proposed
	Criteria E-1 Pedestrian Delay			
3 4 5	Concord Avenue at Blanchard Road/Griswold Street	East Crosswalk – Morning East Crosswalk – Evening West Crosswalk – Morning	Existing and Build PLOS = E. Threshold is PLOS D with the project	Existing PLOS conditions are maintained at this

#	Location		Reason for Exceedance	Mitigation
6 7 8 9 10		West Crosswalk – Evening North Crosswalk – Morning North Crosswalk – Evening South Crosswalk – Morning South Crosswalk - Evening		location with the construction of the Project and do not deteriorate in the Build Condition.
11 12	Concord Avenue at Spinelli Place	East Crosswalk – Morning East Crosswalk – Evening	Existing and Build LOS = F. Threshold is PLOS D with the project.	Existing PLOS conditions are maintained at this location with the construction of the Project and do not deteriorate in the Build Condition.
13 14	Concord Avenue at Fawcett Street	West Crosswalk – Morning West Crosswalk – Evening	Existing and Build LOS = F. Threshold is PLOS D with the project.	Existing PLOS conditions are maintained at this location with the construction of the Project and do not deteriorate in the Build Condition.
15 16	Concord Avenue at Wheeler Street	West Crosswalk – Morning West Crosswalk – Evening	Existing and Build LOS = F. Threshold is PLOS D with the project.	Existing PLOS conditions are maintained at this location with the construction of the Project and do not deteriorate in the Build Condition.
17 18	Fawcett Street at Connecting Road	South Crosswalk – Morning South Crosswalk – Evening	Existing PLOS = A and Build PLOS = B. Threshold is PLOS A with project.	No mitigation proposed
	Criteria E-2&3 – Pedestrian and Bicycle Facilities			
19	Wheeler Street between Site Driveway and Concord Avenue		No Bicycle facilities or rights of way present	Sharrows/Shared lane marking and signage is proposed as part of this Project
20	Fawcett Street between Concord Avenue and Connector Road		No Bicycle facilities or rights of way present	No mitigation proposed

Planning Board Special Permit Criteria

Criterion A – Project Vehicle Trip Generation

Table A-1 presents the Project vehicle trip generation criterion. Project vehicle trip generation is based on ITE trip rates, adjusted for local mode split and vehicle occupancy rates as discussed previously.

TABLE A-1 PROJECT VEHICLE TRIP GENERATION

Time Period	Criteria (trips)	Build	Exceeds Criteria?
Weekday Daily	2,000	1,477	No
Weekday Morning Peak Hour	240	40	No
Weekday Evening Peak Hour	240	63	No

The Project is not expected to exceed the Planning Board Criteria for daily, morning peak, and evening peak Project vehicle trip generation under the Build program.

Criterion B – Vehicle LOS

The criteria for a Project's impact to traffic operations at signalized intersections are summarized in Table B-1 below. These criteria are evaluated for each signalized study-area intersection and presented in Table B-2.

TABLE B-1 CRITERION - VEHICULAR LEVEL OF SERVICE

Existing	With Project
VLOS A	VLOS C
VLOS B, C	VLOS D
VLOS D	VLOS D or 7% roadway volume increase
VLOS E	7% roadway volume increase
VLOS F	5% roadway volume increase

TABLE B-2 VEHICULAR LEVEL OF SERVICE

Intersection	Morning Peak Hour				Evening Peak Hour			
	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion
Concord Avenue/Blanchard Road/Griswold Street	F	F	-0.9%	No	F	F	-1.4%	No
Concord Avenue/Spinelli Place	F	F	-1.1%	No	F	F	-2.2%	No
Concord Avenue/Smith Place	F	F	-1.1%	No	F	F	-2.1%	No
Concord Avenue/Moulton Street/Neville Manor	B	B	-1.1%	No	C	C	-2.1%	No
Concord Avenue/Fawcett Street	E	F	1.7%	No	C	C	1.6%	No
Concord Avenue/Wheeler Street	E	F	1.8%	No	E	E	3.7%	No
Site Driveway on Wheeler Street	-	-	-23.7%	No	-	-	-7.6%	No
Ped Crossing at Concord Avenue	A	A	1.4%	No	A	A	1.1%	No
Ped Crossing Between Rotaries	A	A	1.5%	No	C	D	2.4%	No
Fawcett Street/Connecting Roadway	B	B	30.5%	No	B	B	40.7%	No
Alewife Brook Parkway at Terminal Road	B	B	0.2%	No	C	C	0.5%	No
Fresh Pond Rotary	F	F	1.5%	No	F	F	2.6%	No
Sozio Rotary	F	F	1.4%	No	F	F	2.6%	No

Criterion C – Traffic on Residential Streets

This criterion considers the magnitude of Project vehicle trip generation during any peak hour that may reasonably be expected to arrive and/or depart by traveling on a residential street. The criteria, based on a Project-induced traffic volume increase on any two-block residential street segment in the study area, are summarized in Table C-1.

TABLE C-1 CRITERION – TRAFFIC ON RESIDENTIAL STREETS

Parameter 1: Amount of Residential[1]	Parameter 2: Current Peak Hour Street Volume (two-way vehicles)		
	< 150 VPH	150-400 VPH	> 400 VPH
1/2 or more	20 VPH[2]	30 VPH[2]	40 VPH[2]
>1/3 but <1/2	30 VPH[2]	45 VPH[2]	60 VPH[2]
1/3 or less	No Max.	No Max.	No Max

1 - Amount of residential for a two block segment as determined by first floor frontage
2 - Additional Project vehicle trip generation in vehicles per lane, both directions
VPH - Vehicles per hour

15 of the 23 roadway segments in the study area identified as street segments which have more than 1/3 of residential frontage, and are therefore evaluated against the traffic volume criteria. The results are presented in Table C-2.

TABLE C-2 TRAFFIC ON RESIDENTIAL STREETS

			Morning Peak Hour			Evening Peak Hour		
Roadway	Segment	Amount of Residential	Existing[1]	Increase[2]	Exceeds Criteria?	Existing[1]	Increase[2]	Exceeds Criteria?
Blanchard Road	Colby St to Concord Ave	1/2 or more	955	-8	No	1160	-14	No
	Mannix Cir to Concord Ave	>1/3 but <1/2	940	-3	No	1010	-4	No
Griswold Street	Sunset Rd to Concord Ave	1/2 or more	40	0	No	30	-1	No
Concord Avenue	Blanchard Rd to Spinelli Pl	1/3 or less	1630	-19	No	1270	-29	No
	Spinelli Pl to Smith Pl	1/3 or less	1610	-19	No	1248	-29	No
	Smith Pl to Moulton St	1/2 or more	1550	-19	No	1185	-29	No
	Moulton St to Fawcett St	1/3 or less	1640	-19	No	1303	-29	No
	Fawcett St to Wheeler St	1/3 or less	1800	25	No	1415	16	No
	Between Fresh Pond and Sozio Rotaries	1/3 or less	3580	53	No	3040	74	No

			Morning Peak Hour			Evening Peak Hour		
Roadway	**Segment**	**Amount of Residential**	**Existing[1]**	**Increase[2]**	**Exceeds Criteria?**	**Existing[1]**	**Increase[2]**	**Exceeds Criteria?**
Spinelli Place	Parking Lot to Concord Ave	1/3 or less	190	0	No	120	0	No
Smith Place	Adley Rd to Concord Ave	1/3 or less	270	0	No	285	0	No
Moulton Street	Wilson St to Concord Ave	1/3 or less	160	0	No	175	0	No
Fawcett Street	Connecting Rd to Concord Ave	>1/3 but <1/2	290	58	Yes	195	61	Yes
Wheeler Street	Site Drive to Concord Ave	1/3 or less	225	-18	No	270	2	No
Alewife Brook Parkway	Terminal Rd to Fresh Pond Rotary	1/3 or less	2910	8	No	2775	18	No
Fresh Pond Parkway	Sozio Rotary to Vassal Ln	1/3 or less	2445	38	No	2065	49	No

Note: Volume interpolated from nearest data available in study area

1 Where driveways/on-street parking created a segment inflow/outflow volume imbalance, an average was calculated per direction and added

2 Net new project trips after trip credits are applied

Criterion D – Lane Queue

The criteria for a project's impact to queues at signalized intersections are summarized in Table D-1 below. These criteria are evaluated for each lane group at study-area signalized intersections and presented in Table D-2.

TABLE D-1 CRITERION – VEHICULAR QUEUES AT SIGNALIZED INTERSECTIONS

Existing	With Project
Under 15 vehicles	Under 15 vehicles, or 15+ vehicles with an increase of 6 vehicles
15 or more vehicles	Increase of 6 vehicles

TABLE D-2 LENGTH OF VEHICULAR QUEUES AT SIGNALIZED INTERSECTIONS

Intersection	Lane	Morning Peak Hour			Evening Peak Hour		
		2016 Existing	2016 Build	Exceeds Criteria?	2016 Existing	2016 Build	Exceeds Criteria?
Blanchard Rd St at Concord Ave	Blanchard NB Left/Thru	8	8	No	15	15	No
	Blanchard NB Right	0	0	No	0	0	No
	Concord EB Left/Thru/Right	15	14	No	10	10	No
	Concord WB Left	6	6	No	7	7	No
	Concord WB Thru	8	8	No	12	11	No
	Concord WB Right	5	5	No	10	10	No
	Blanchard SB Left/Thru/Right	18	18	No	19	19	No
Neville Pl/Moulton St at Concord Ave	Neville NB Left/Thru/Right	1	1	No	2	2	No
	Concord EB Left/Thru/Right	3	3	No	6	6	No
	Concord WB Left/Thru/Right	6	6	No	15	13	No
	Moulton SB Left/Right	1	1	No	6	6	No
Ped Crossing at Concord Ave	Concord Ave EB Thru	4	5	No	4	3	No
	Concord Ave WB Thru	8	11	No	7	7	No
Ped Crossing bet Rotaries	Concord Ave EB Thru	17	22	No	22	23	No
	Concord Ave WB Thru	13	13	No	6	6	No
Terminal Rd/Fresh Pond Mall at Alewife Brook Pkwy	Alewife NB Thru	13	13	No	10	10	No
	Alewife NB Right	2	2	No	2	2	No
	Terminal EB Right	2	2	No	4	4	No
	Fresh Pond Mall WB Right	2	2	No	7	7	No
	Alewife SB Thru	20	19	No	21	22	No
	Alewife SB Right	4	4	No	4	4	No

Criterion E – Pedestrian and Bicycle Facilities

Criteria 1: Pedestrian Delay

Pedestrian delay is a measure of the pedestrian crossing delay on a crosswalk during the peak hour as determined by the pedestrian level of service analysis in the HCM 2000.

Table E-1 presents the indicators for this criterion. Tables E-2 present the evaluation of PLOS criteria for each crosswalk at study area intersections under existing and full build conditions.

TABLE E-1 CRITERION – PLOS INDICATORS

Existing	With Project
PLOS A	PLOS A
PLOS B	PLOS B
PLOS C	PLOS C
PLOS D	PLOS D or increase of 3 seconds
PLOS E, F	PLOS D

TABLE E-2 SIGNALIZED INTERSECTION PLOS SUMMARY

		Morning Peak Hour			Evening Peak Hour		
Intersection	**Crosswalk**	**Existing**	**Build**	**Exceeds Criteria?**	**Existing**	**Build**	**Exceeds Criteria?**
Concord Avenue at Blanchard Road/Griswold Street	East	E	E	Yes	E	E	Yes
	West	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
	South	E	E	Yes	E	E	Yes
Concord Avenue at Moulton Street/Neville Manor	East	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Concord Avenue between Wheeler Street and Fawcett Street	East	C	C	No	C	C	No
Midblock Crosswalk between Fresh Pond rotary and Sozio Rotary	East	C	C	No	C	C	No
Alewife Brook Parkway at Terminal Road	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
Concord Avenue at Spinelli Place	East	F	F	Yes	F	F	Yes
	North	A	A	No	A	A	No
Concord Avenue at Smith Place	West	F	F	Yes	F	F	Yes
	North	B	B	No	B	B	No
Concord Avenue at Fawcett Street	West	F	F	Yes	F	F	Yes
	North	C	C	No	B	B	No
Concord Avenue at Wheeler Street	West	F	F	Yes	F	F	Yes
	North	C	C	No	C	C	No
Site Driveway at Wheeler Street	North	A	A	No	A	A	No
Fawcett Street at Connecting Road	East	A	A	No	A	A	No
	South	A	B	Yes	A	B	Yes

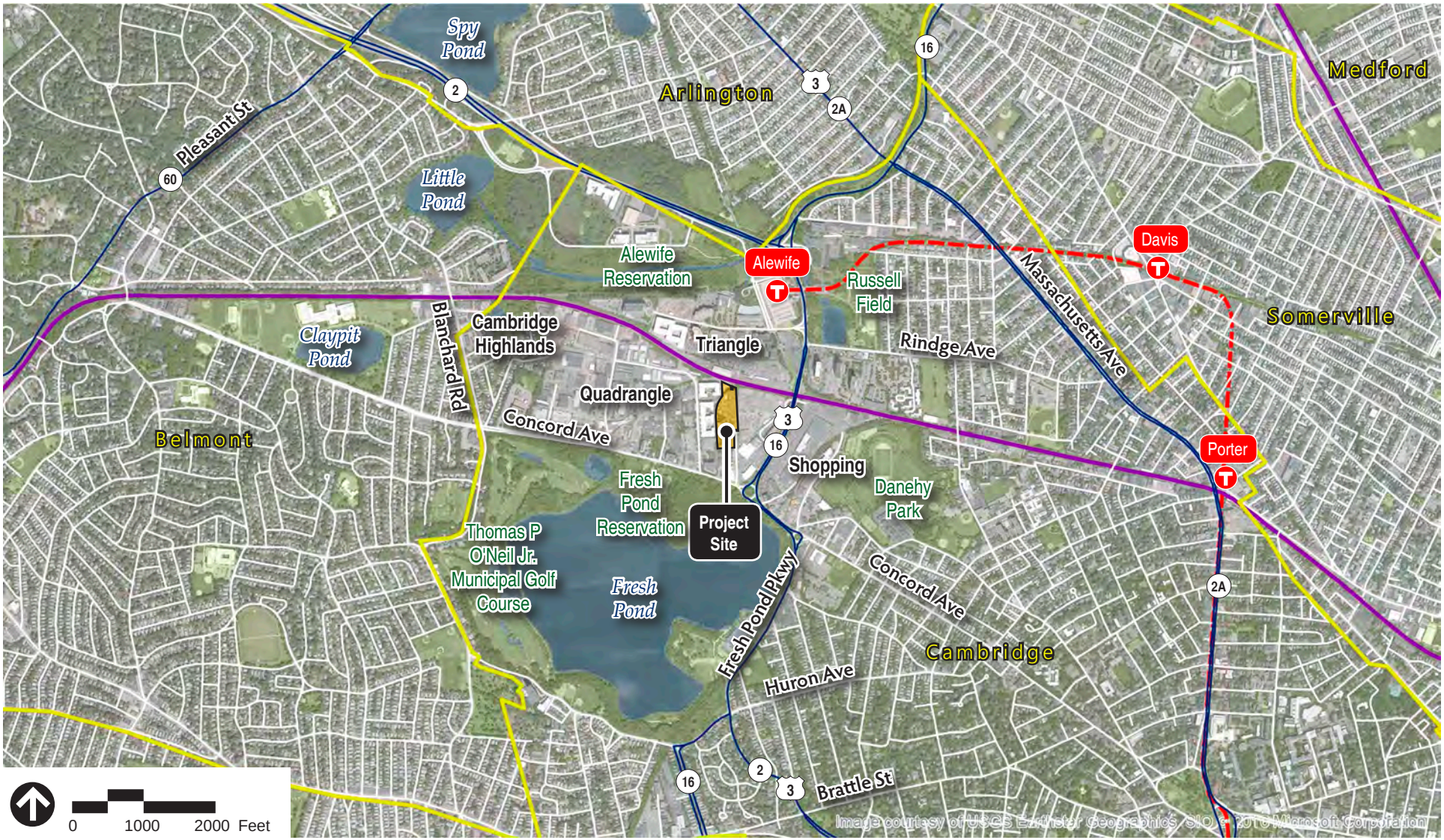
Criteria 2 & 3: Safe Pedestrian and Bicycle Facilities

Safe pedestrian and bicycle facilities are off-road or non-street bicycle lanes and sidewalks that are along a publicly-accessible street.

Table E-3 presents the indicators for this criterion. The evaluation of sidewalks or walkways and bicycle facilities are displayed.

TABLE E-3 PEDESTRIAN AND BICYCLE FACILITIES

Adjacent Street	Link (between)	Sidewalk or Walkway Present	Exceeds Criteria?	Bicycle Facilities or Right of Ways Present	Exceeds Criteria?
Wheeler Street	Site Driveway and Concord Avenue	Yes	No	No	Yes
Concord Avenue	Fawcett Street and Wheeler Street	Yes	No	Yes	No
Fawcett Street	Concord Avenue and Connector Road	Yes	No	No	Yes



Source: Bing Aerial

Key Regional Roadways
MBTA Red Line
MBTA Commuter Rail

vhb

Figure A

Site Location Map

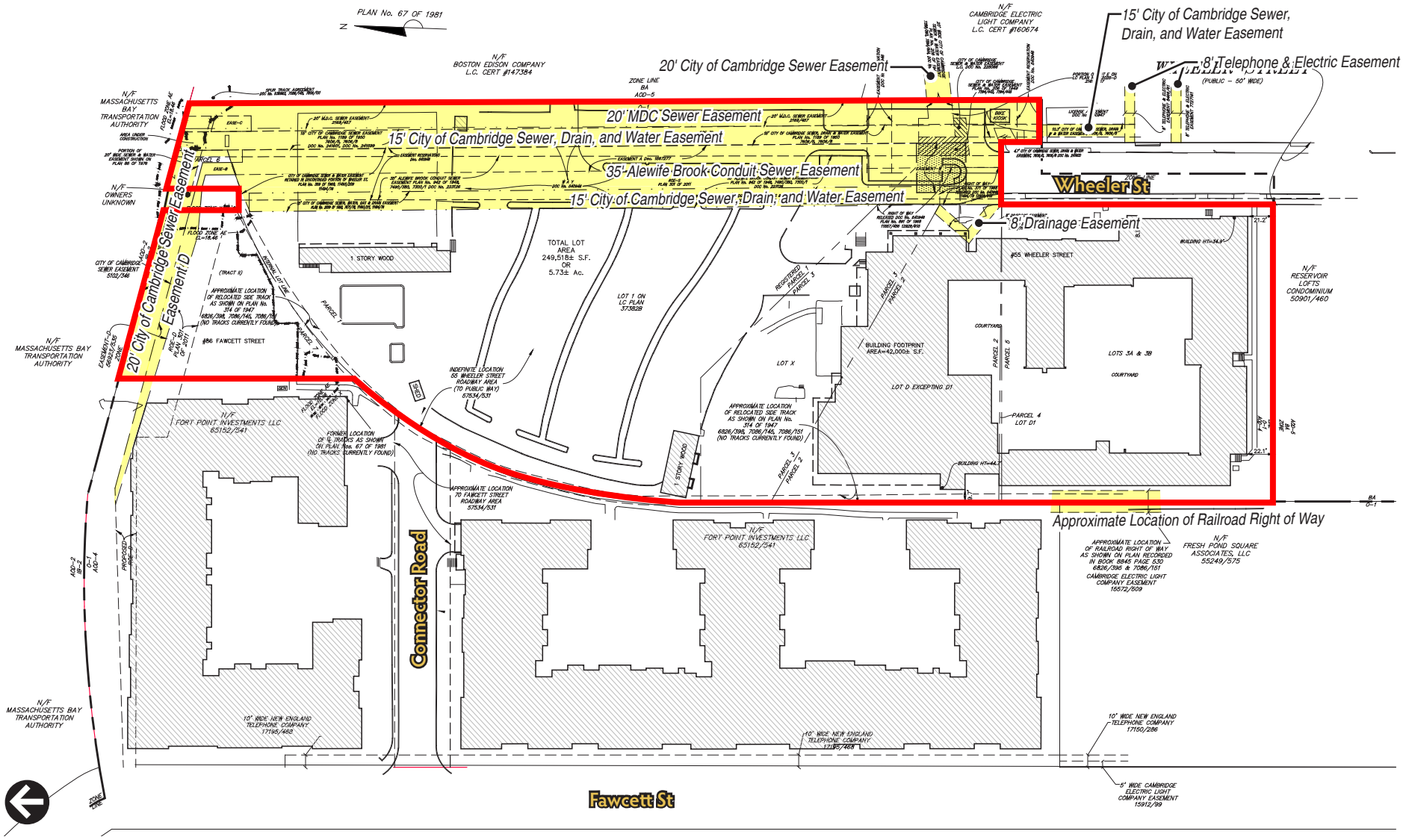
55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

Figure B

Project Site

55 Wheeler Street Project
Cambridge, Massachusetts

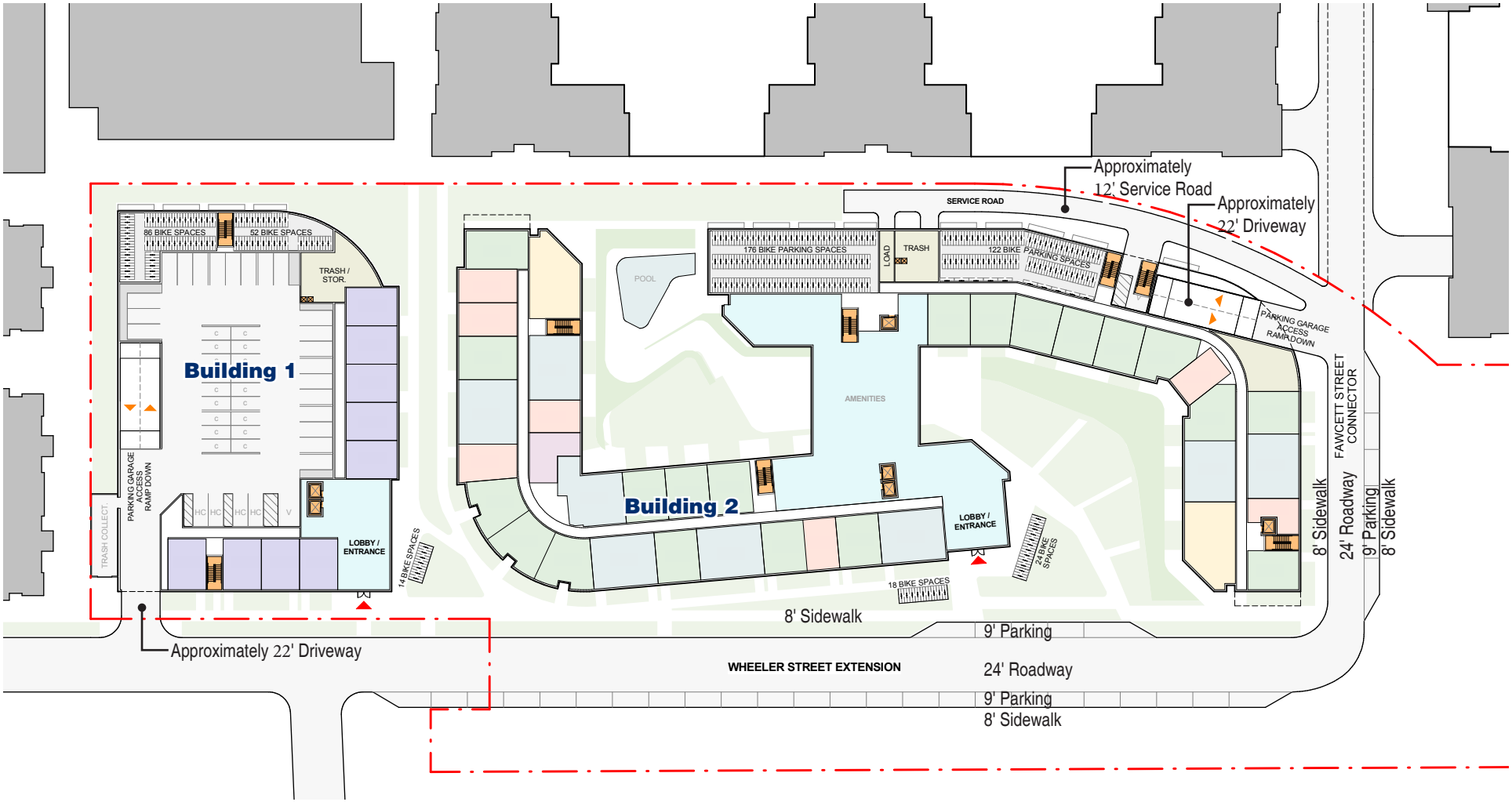


Source: DiMella Shaffer

Figure C

Existing Conditions

55 Wheeler Street Project
Cambridge, Massachusetts

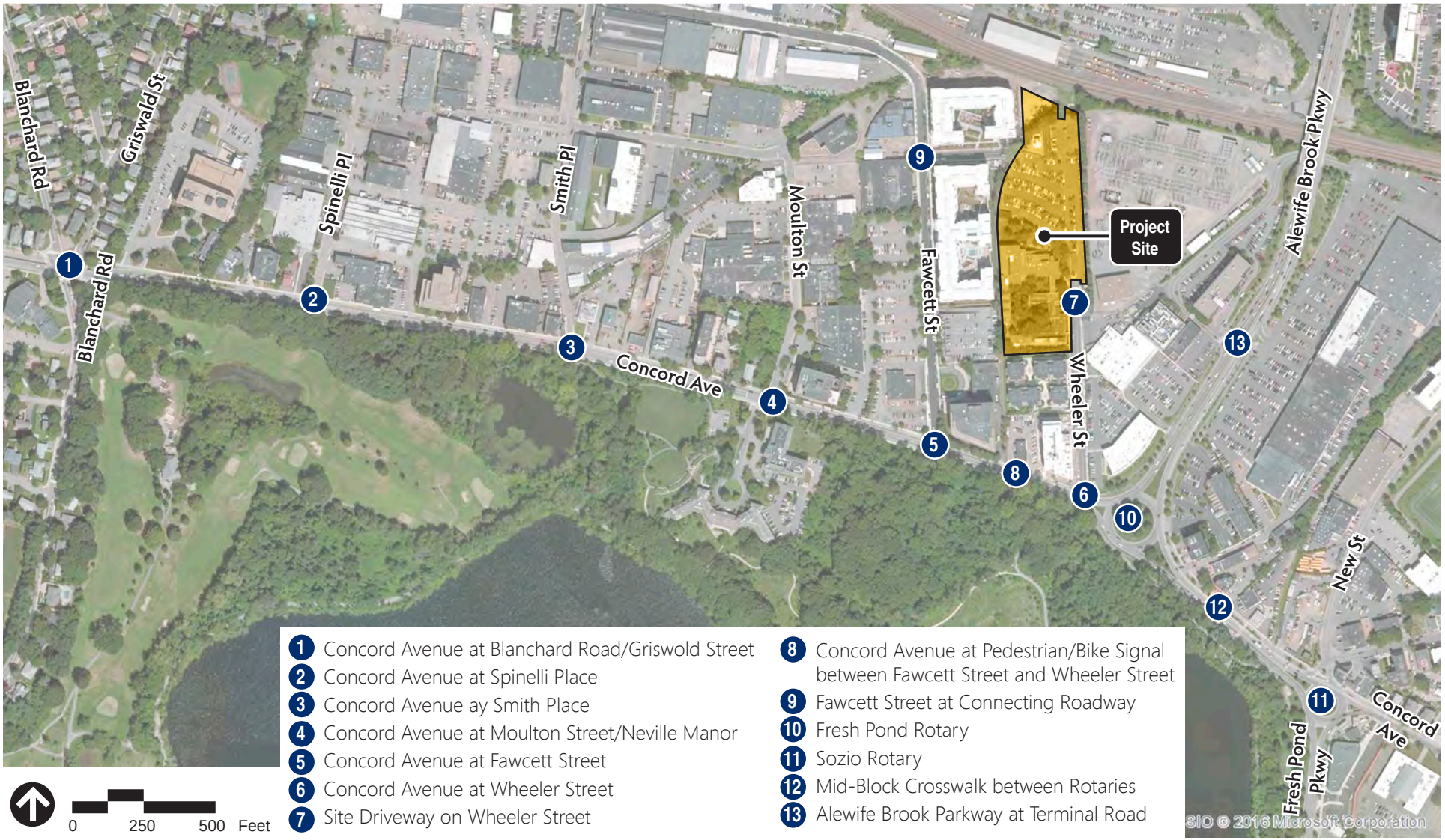


Source: DiMella Shaffer

Figure D

Proposed Site Plan

55 Wheeler Street Project
Cambridge, Massachusetts

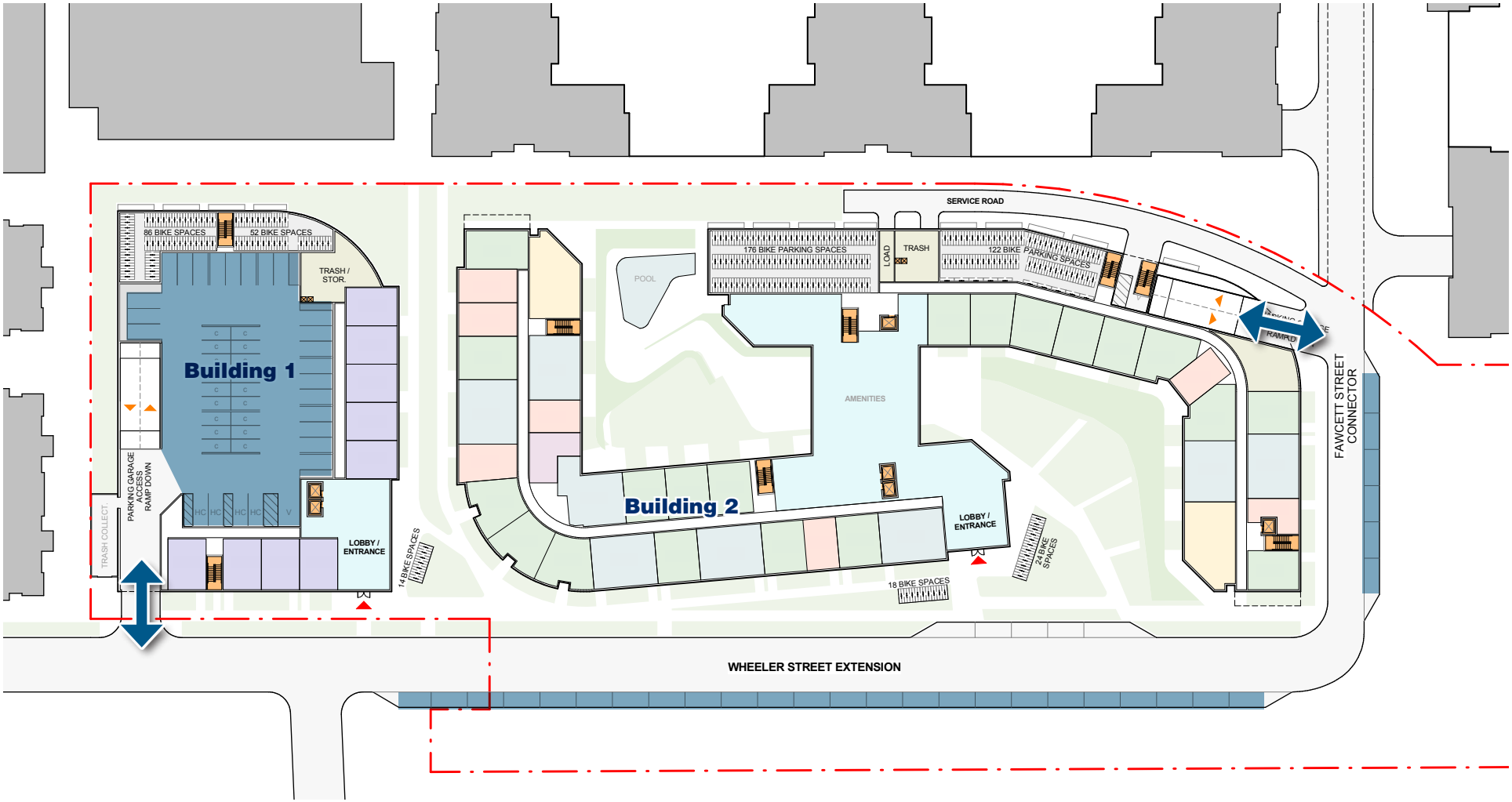


Source: Bing Aerial

Figure E

TIS Study Area Intersections

55 Wheeler Street Project
Cambridge, Massachusetts



Source: DiMella Shaffer

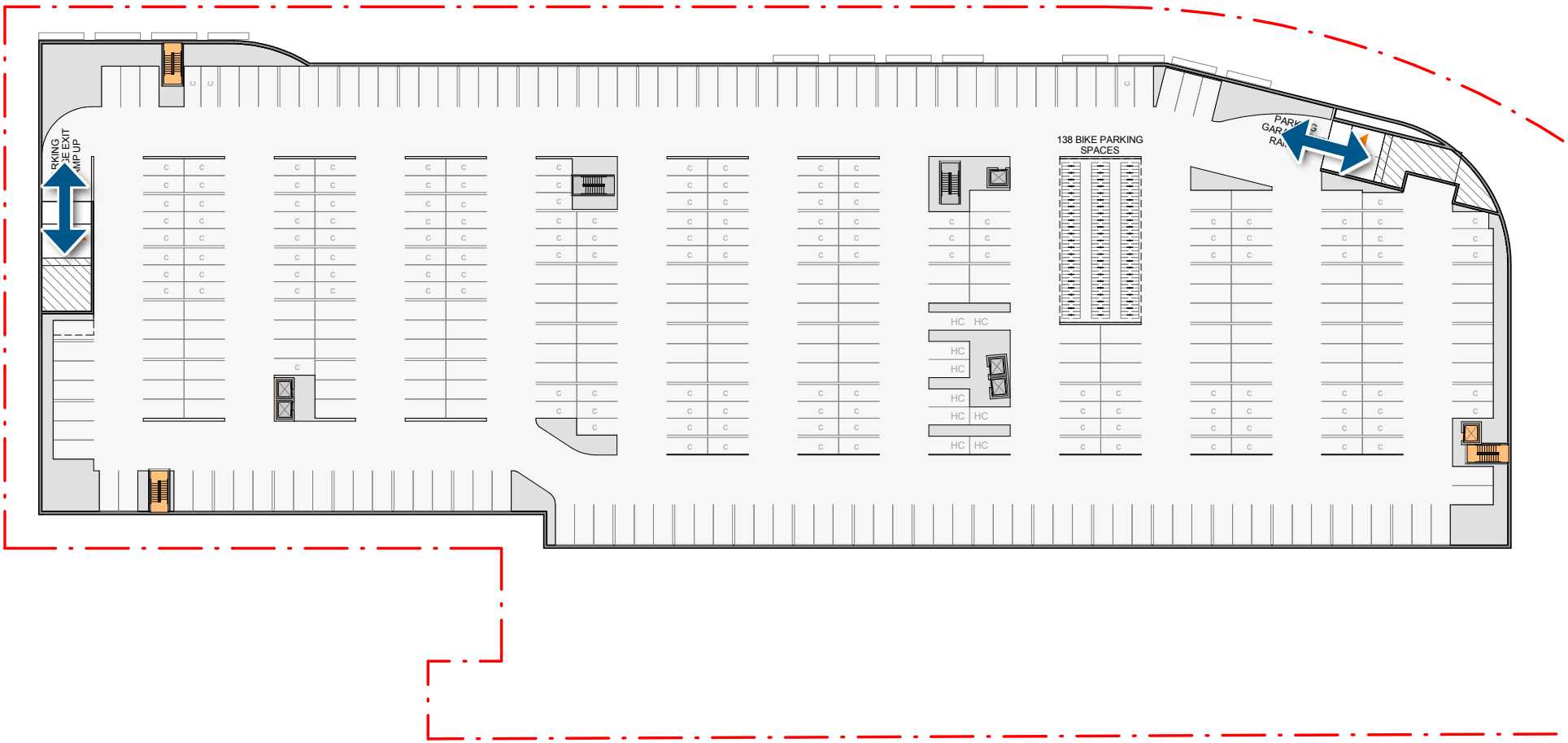
Vehicle Access

Vehicle Parking

Figure F.1

Proposed Vehicle Parking
Ground Floor/Street Level

55 Wheeler Street Project
Cambridge, Massachusetts



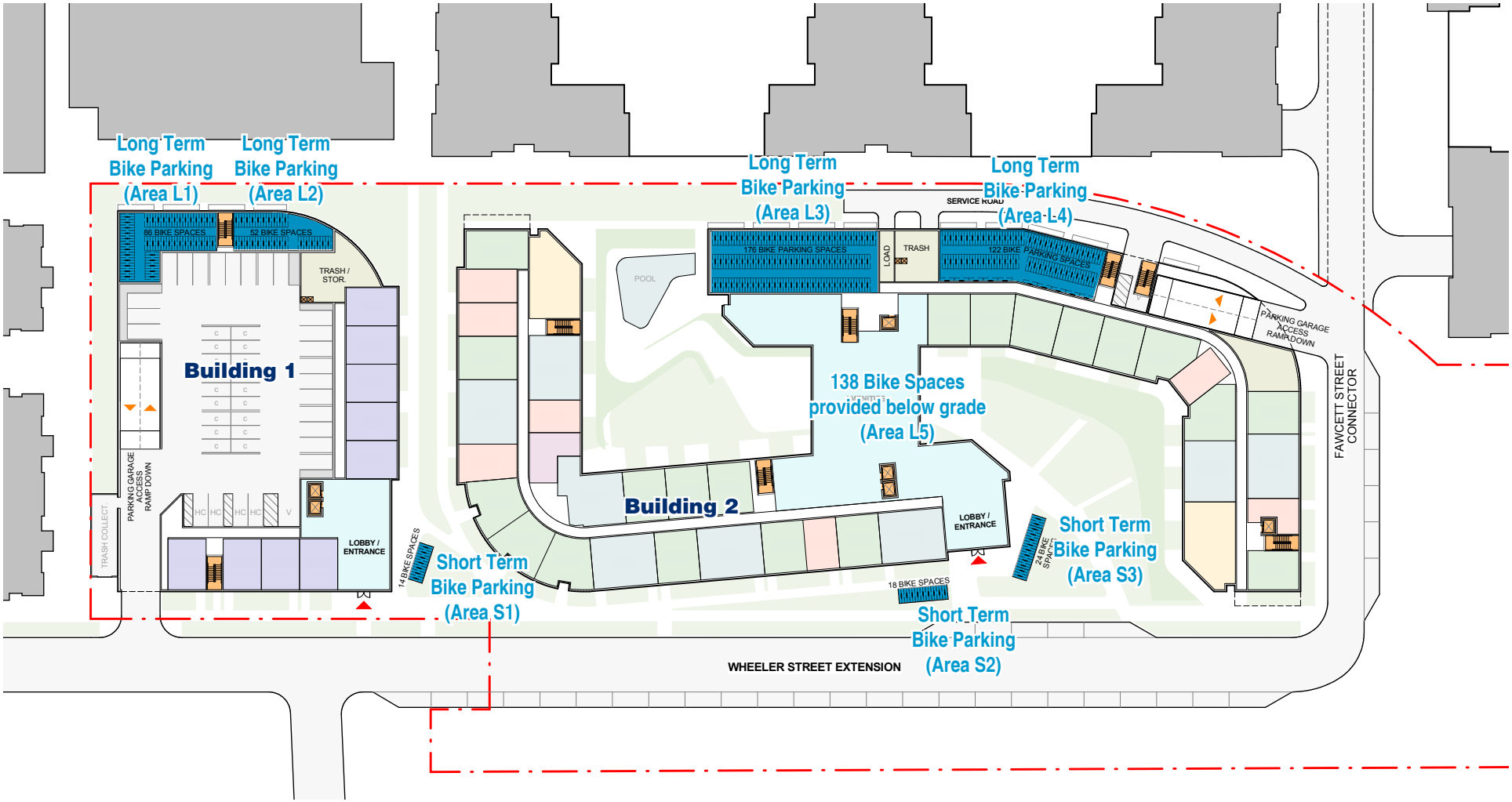
Source: DiMella Shaffer

Vehicle Access

Figure F.2

Proposed Vehicle Parking Below Grade

55 Wheeler Street Project
Cambridge, Massachusetts

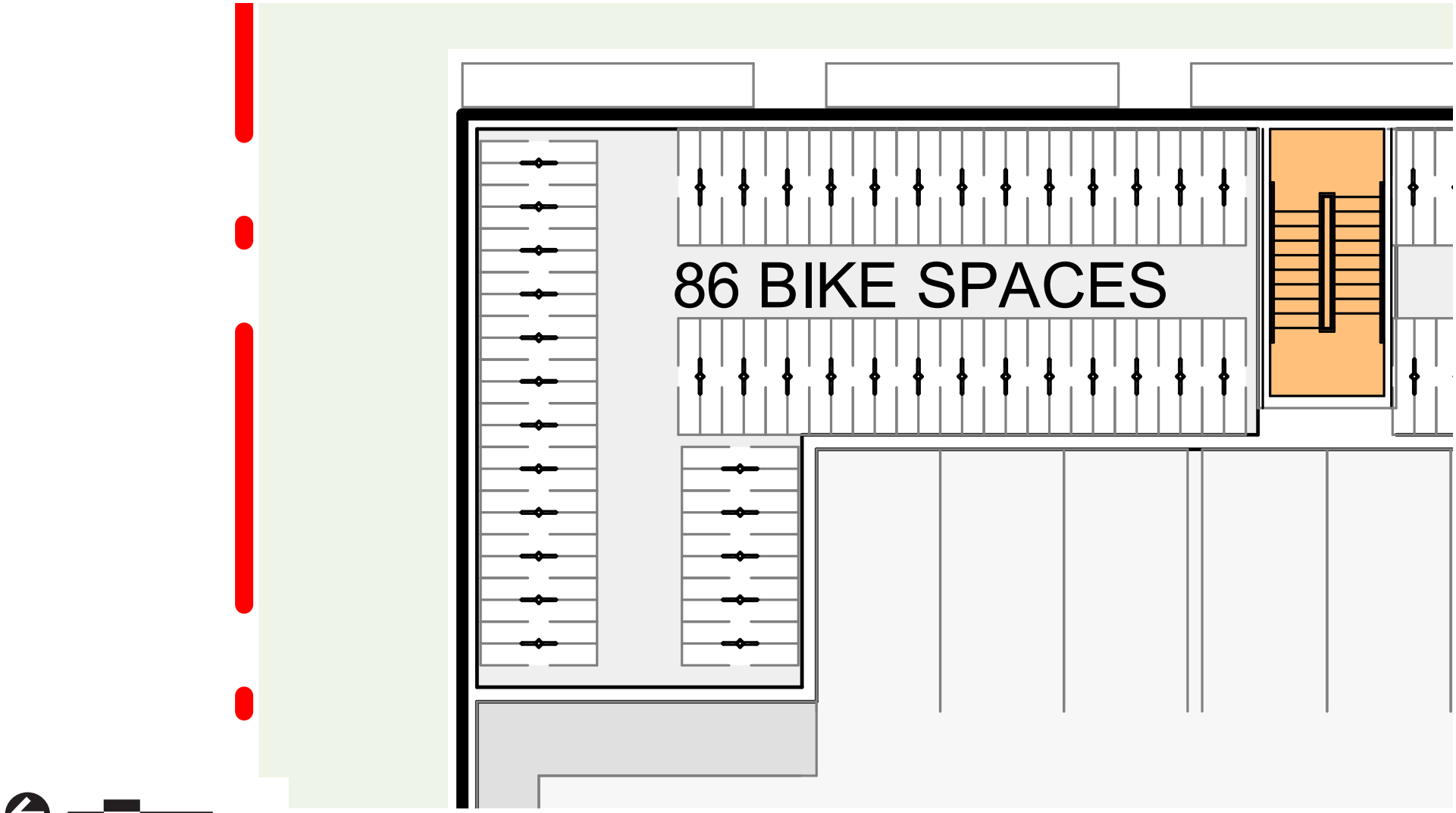


Source: DiMella Shaffer

Figure G.1

Proposed Bike Parking Key Plan

55 Wheeler Street Project
Cambridge, Massachusetts

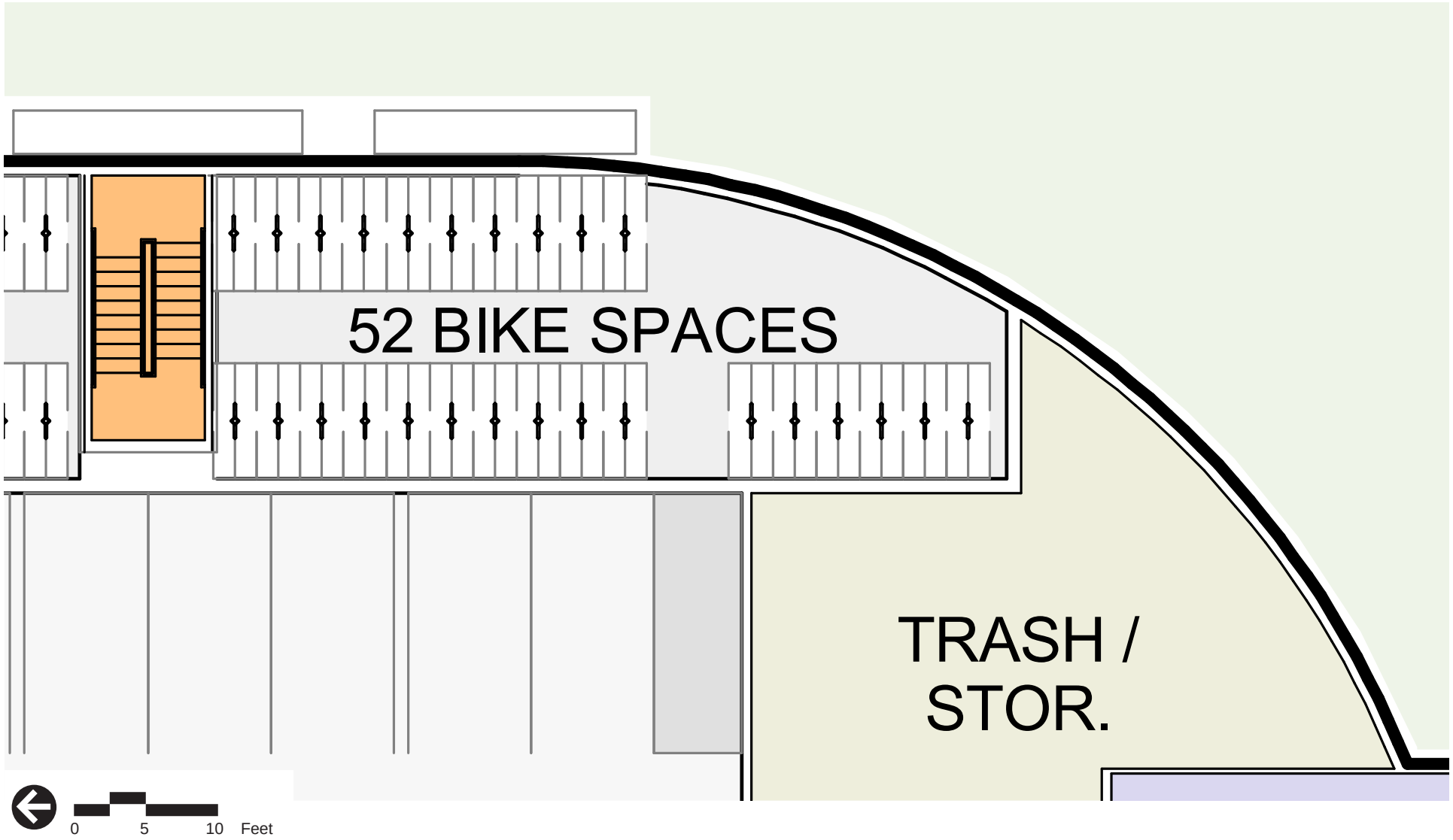


Source: DiMella Shaffer

Figure G.2

Proposed Long Term Bike Parking Plans
Building 1 - Area L1

55 Wheeler Street Project
Cambridge, Massachusetts

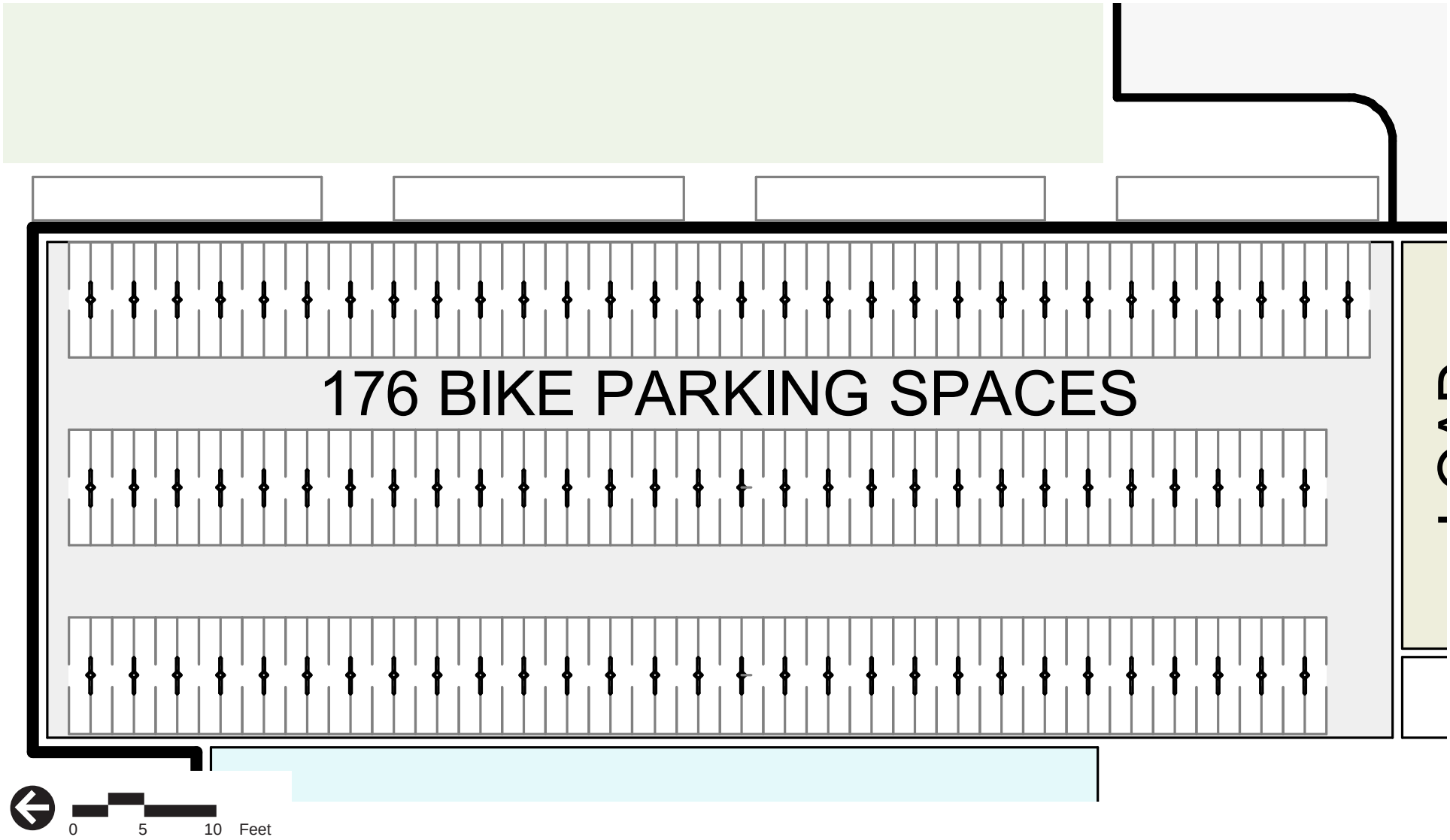


Source: DiMella Shaffer

Figure G.3

Proposed Long Term Bike Parking Plans
Building 1 - Area L2

55 Wheeler Street Project
Cambridge, Massachusetts

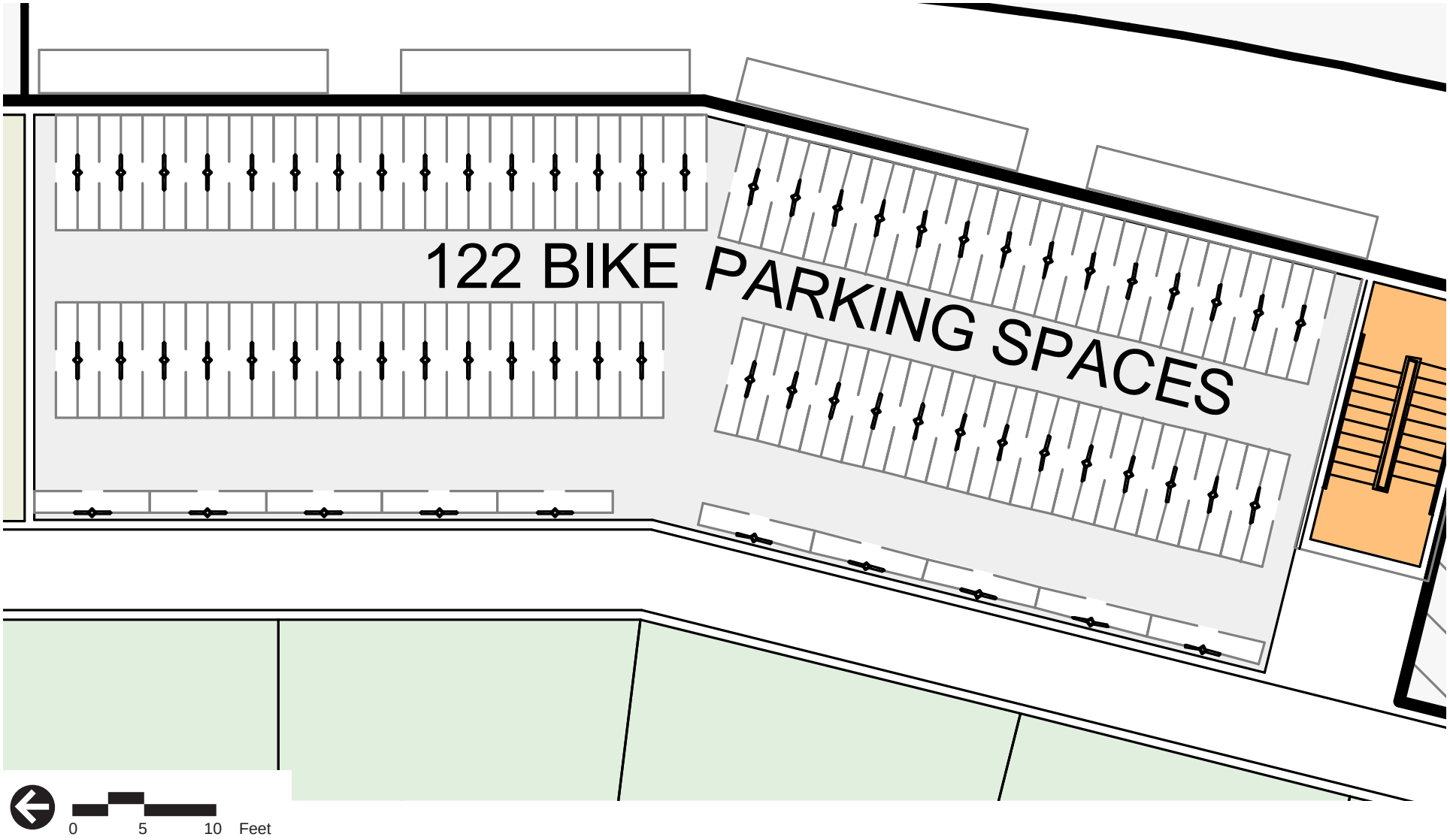


Source: DiMella Shaffer

Figure G.4

Proposed Long Term Bike Parking Plans
Building 2 - Area L3

55 Wheeler Street Project
Cambridge, Massachusetts

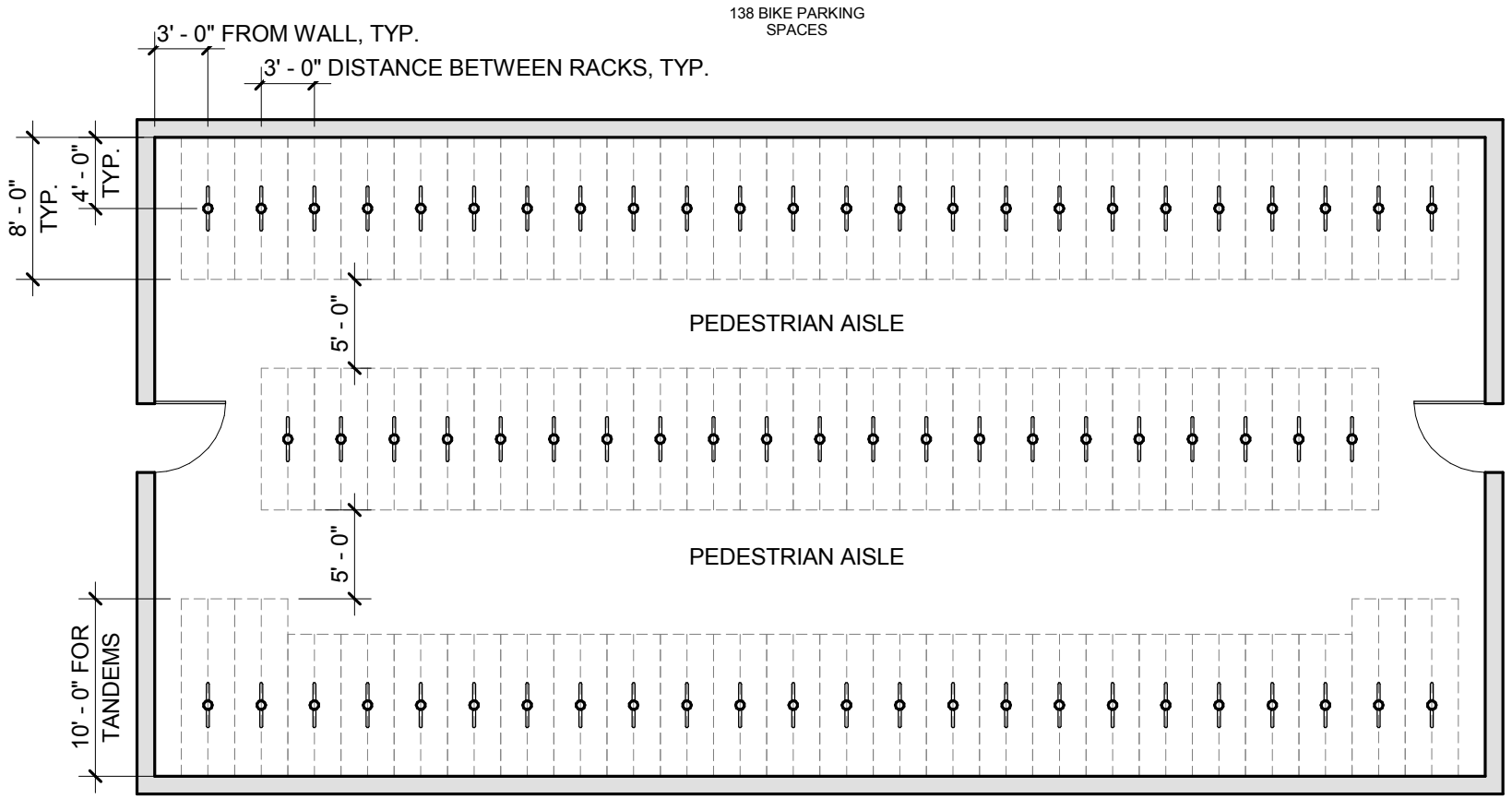


Source: DiMella Shaffer

Figure G.5

Proposed Long Term Bike Parking Plans
Building 2 - Area L4

55 Wheeler Street Project
Cambridge, Massachusetts

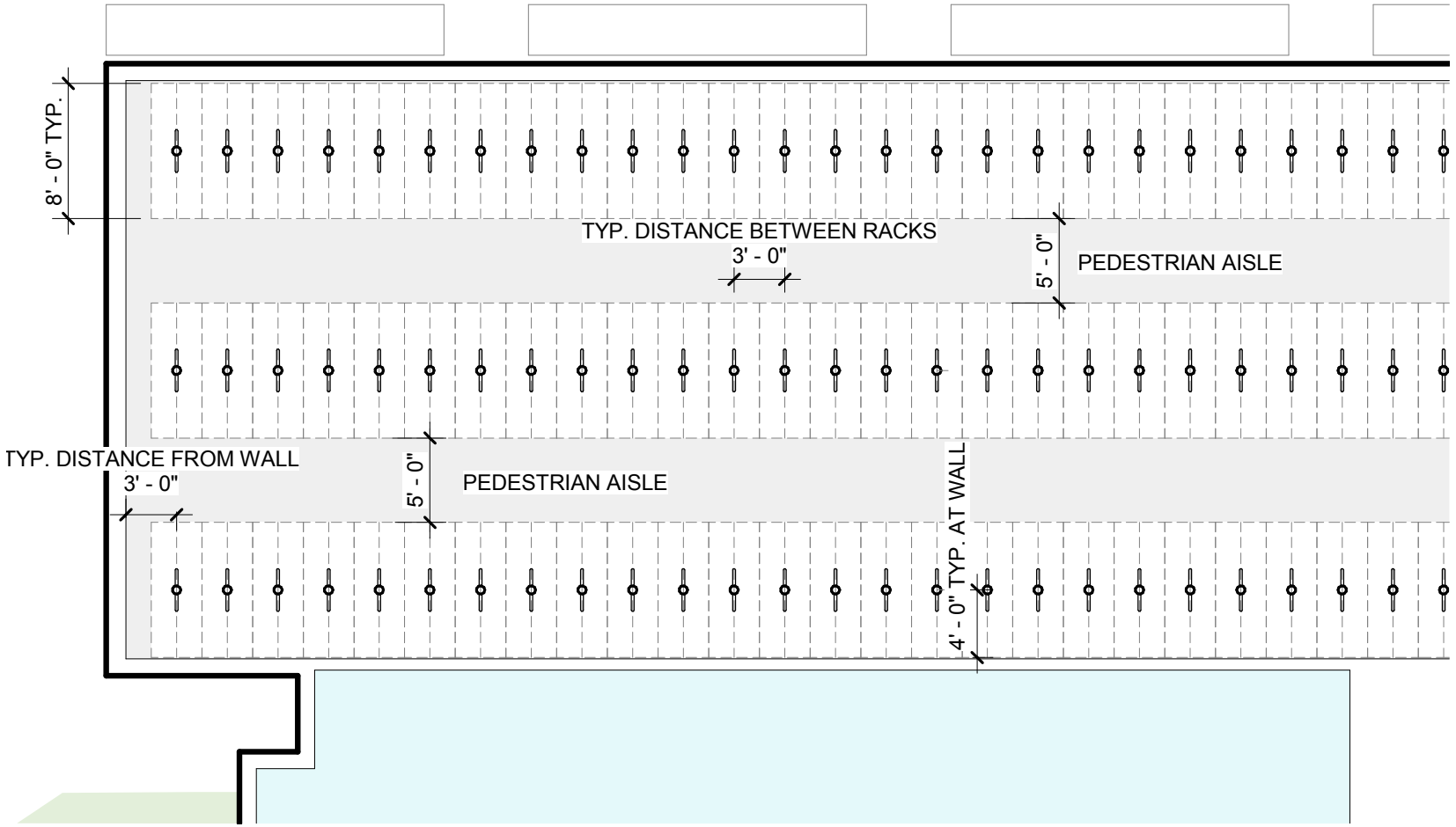


Source: DiMella Shaffer

Figure G.6

Proposed Long Term Bike Parking Plans
Below Grade - Area L5

55 Wheeler Street Project
Cambridge, Massachusetts



0 5 10 Feet

General Note: Bike Rack type and layout to comply with City of Cambridge Bicycle Parking Guidelines

Source: DiMella Shaffer

Figure G.7

Proposed Long Term Bike Parking Detail (Typical)

55 Wheeler Street Project
Cambridge, Massachusetts

Source: DiMella Shaffer

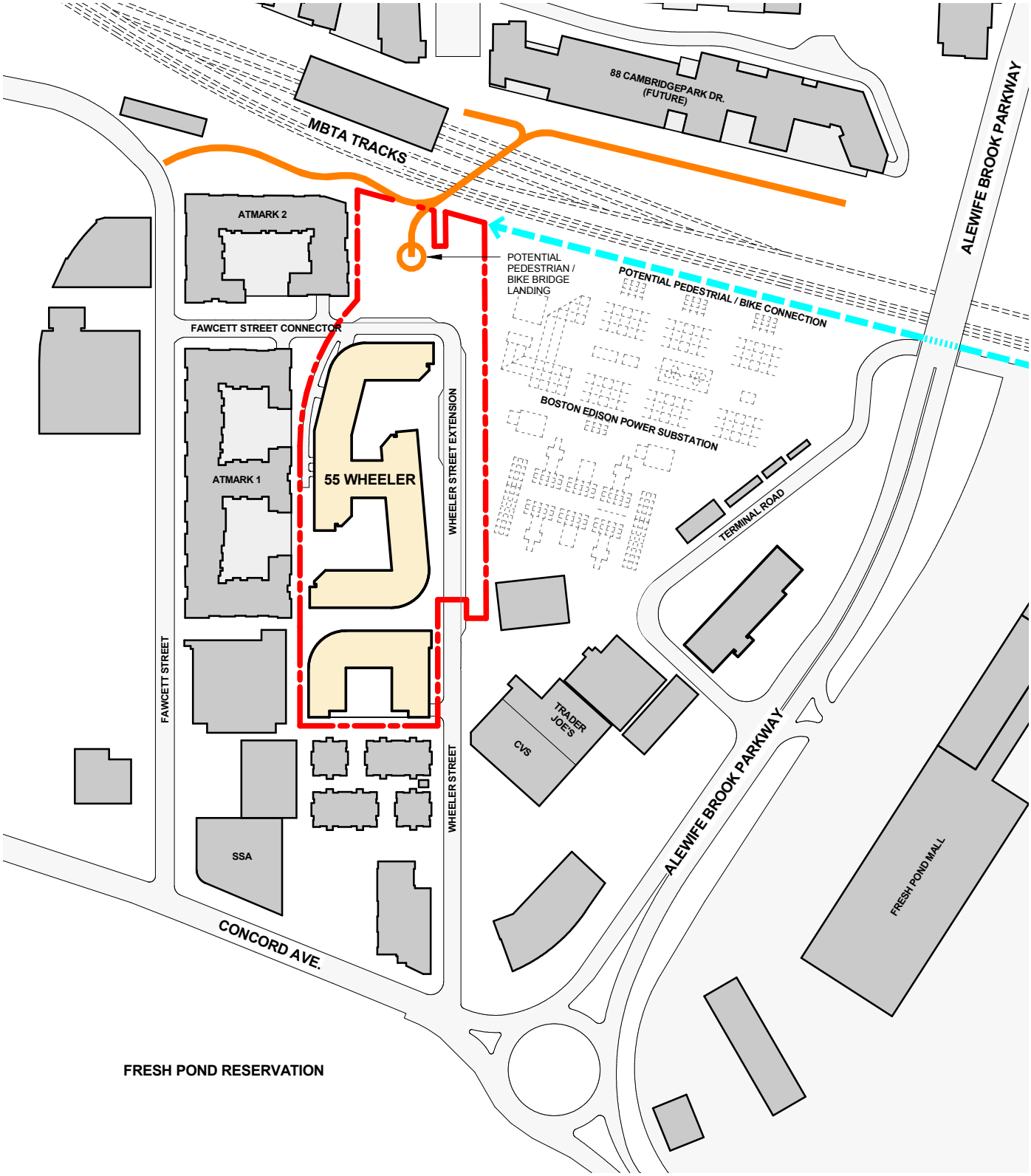
Main Entrance

50' Radius

Figure G.8

Proposed Short Term Bike Parking Plans
Building 1 - Area S1, S2, and S3

55 Wheeler Street Project
Cambridge, Massachusetts



Source: DiMella Shaffer

Potential Pedestrian/Bike Connection Extension

Potential Pedestrian/Bike Path and Bridge

Figure H

Future Planned Bike/Pedestrian Facilities (by others)

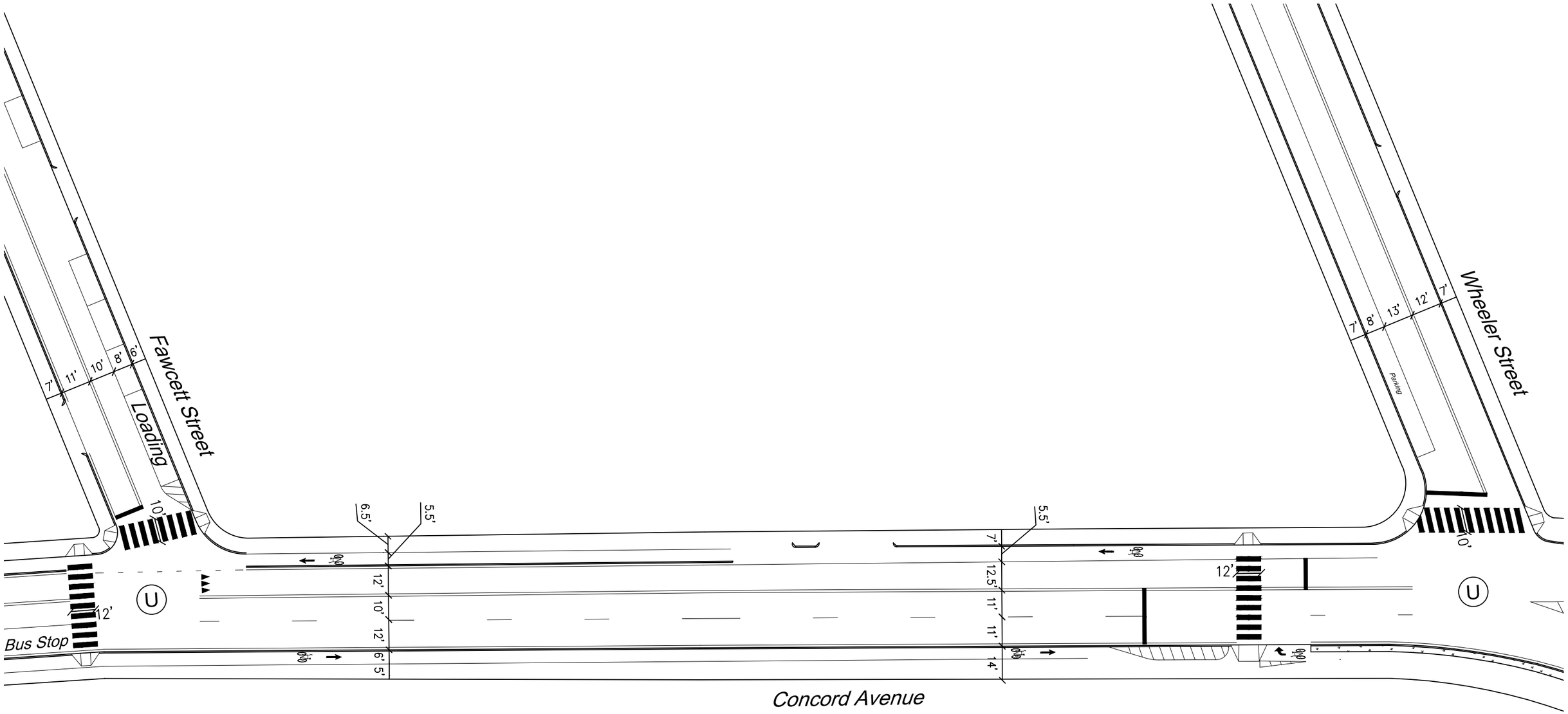
55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

Figure I

Neighboring Property Ownership

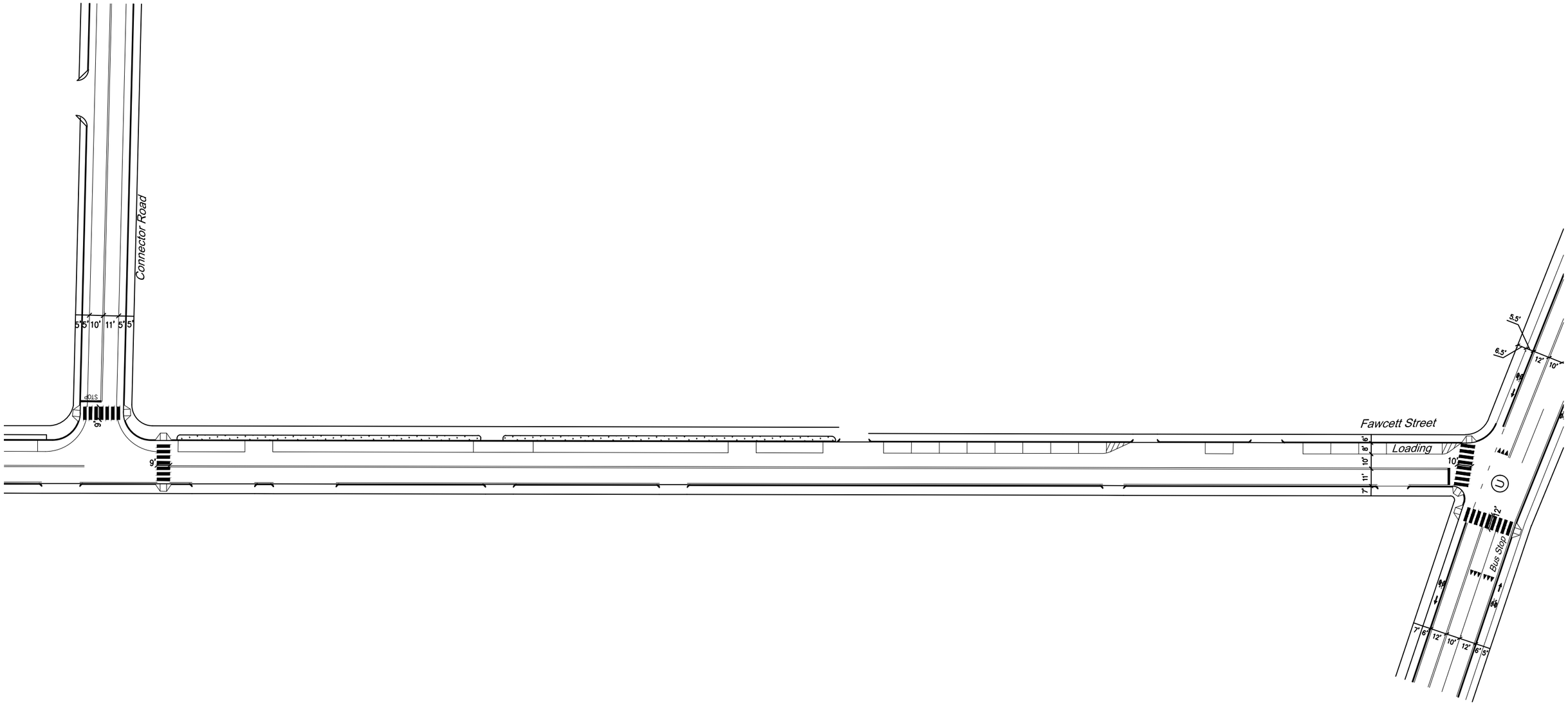
55 Wheeler Street Project
Cambridge, Massachusetts



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

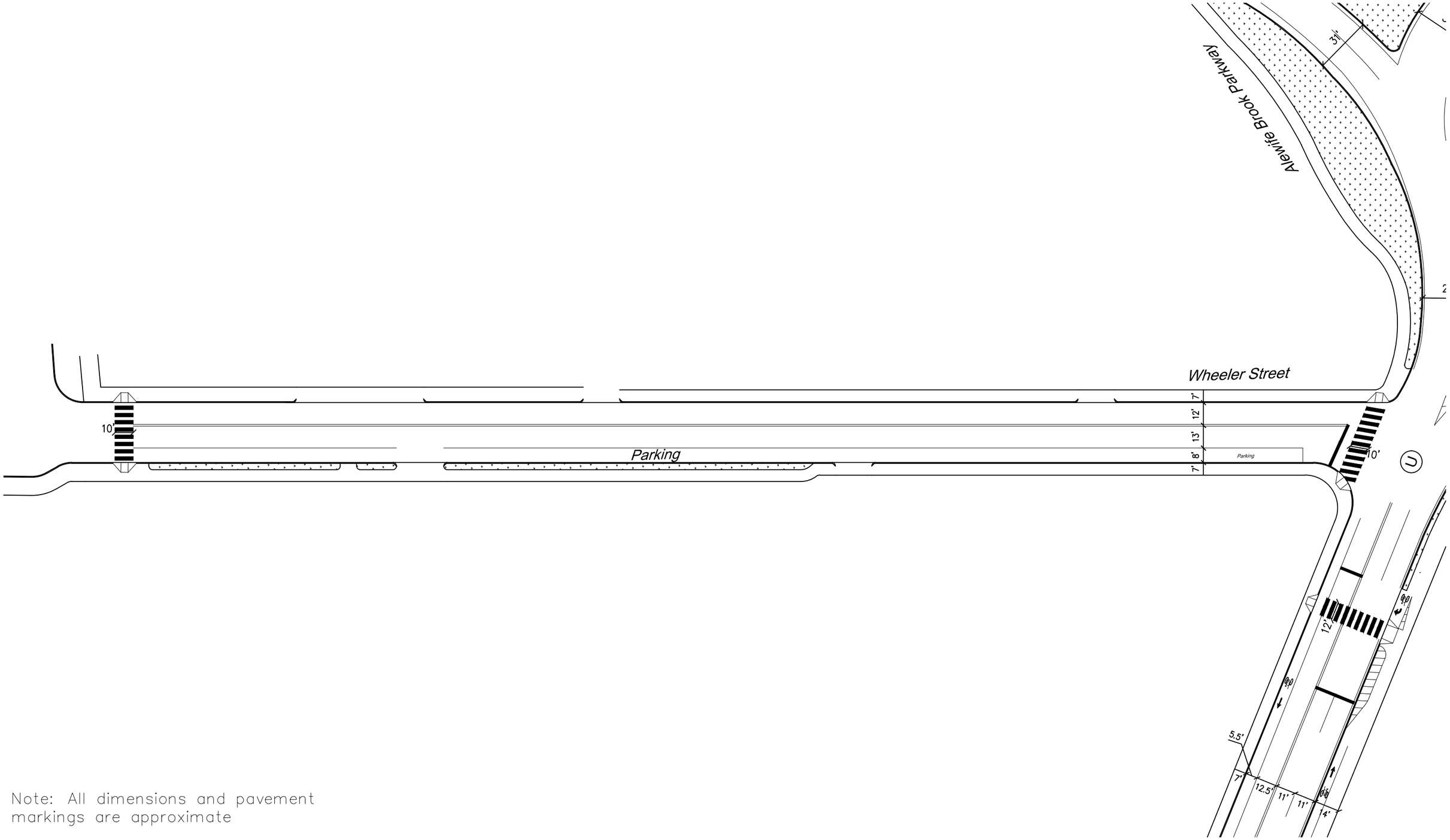
Figure 1.a.1
Existing Conditions Sketch
Concord Avenue between Fawcett and Wheeler Street
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 35 70 Feet

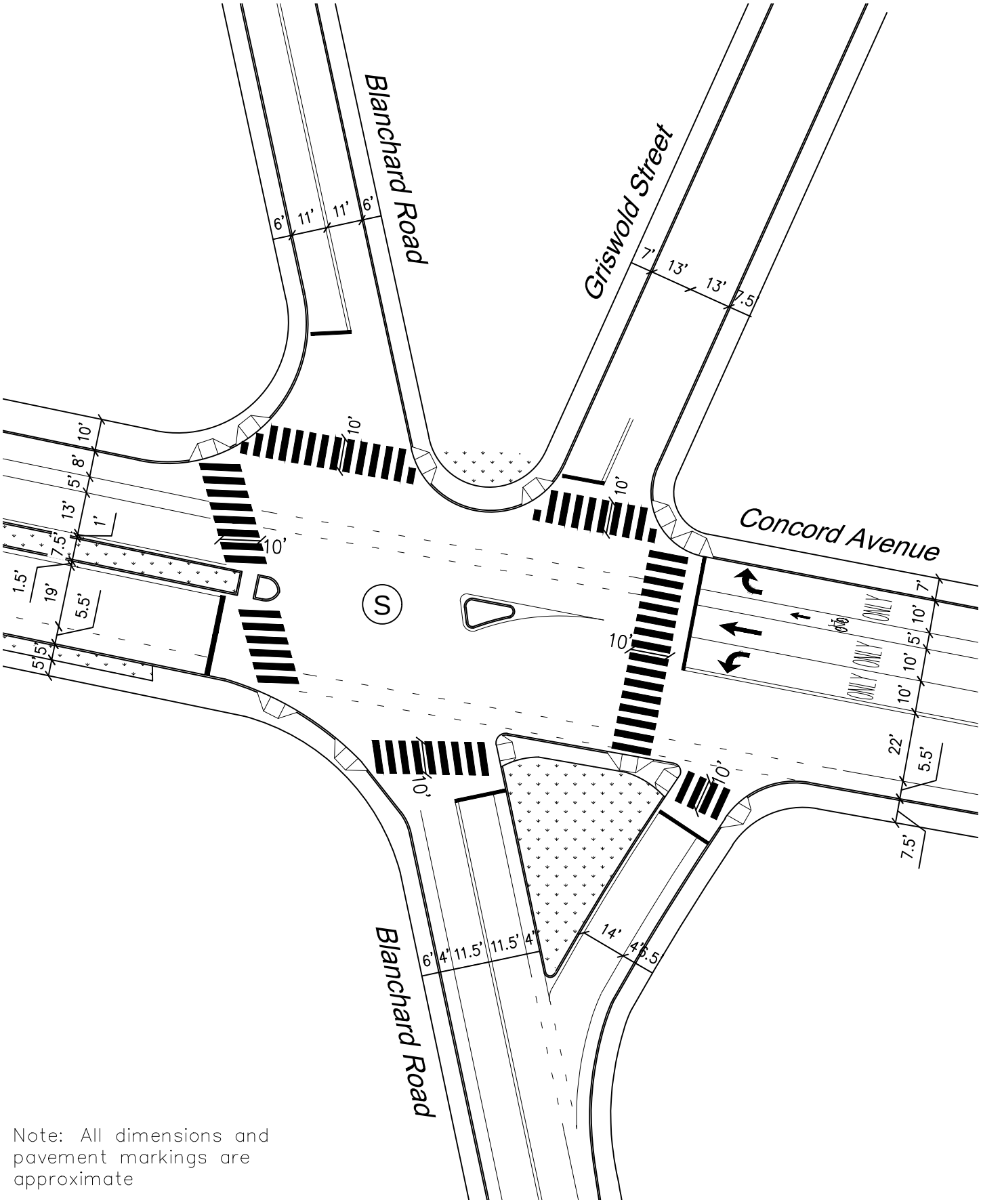
Figure 1.a.2
Existing Conditions Sketch
Fawcett Street between Concord Ave and Connecting Rd
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 25 50 Feet

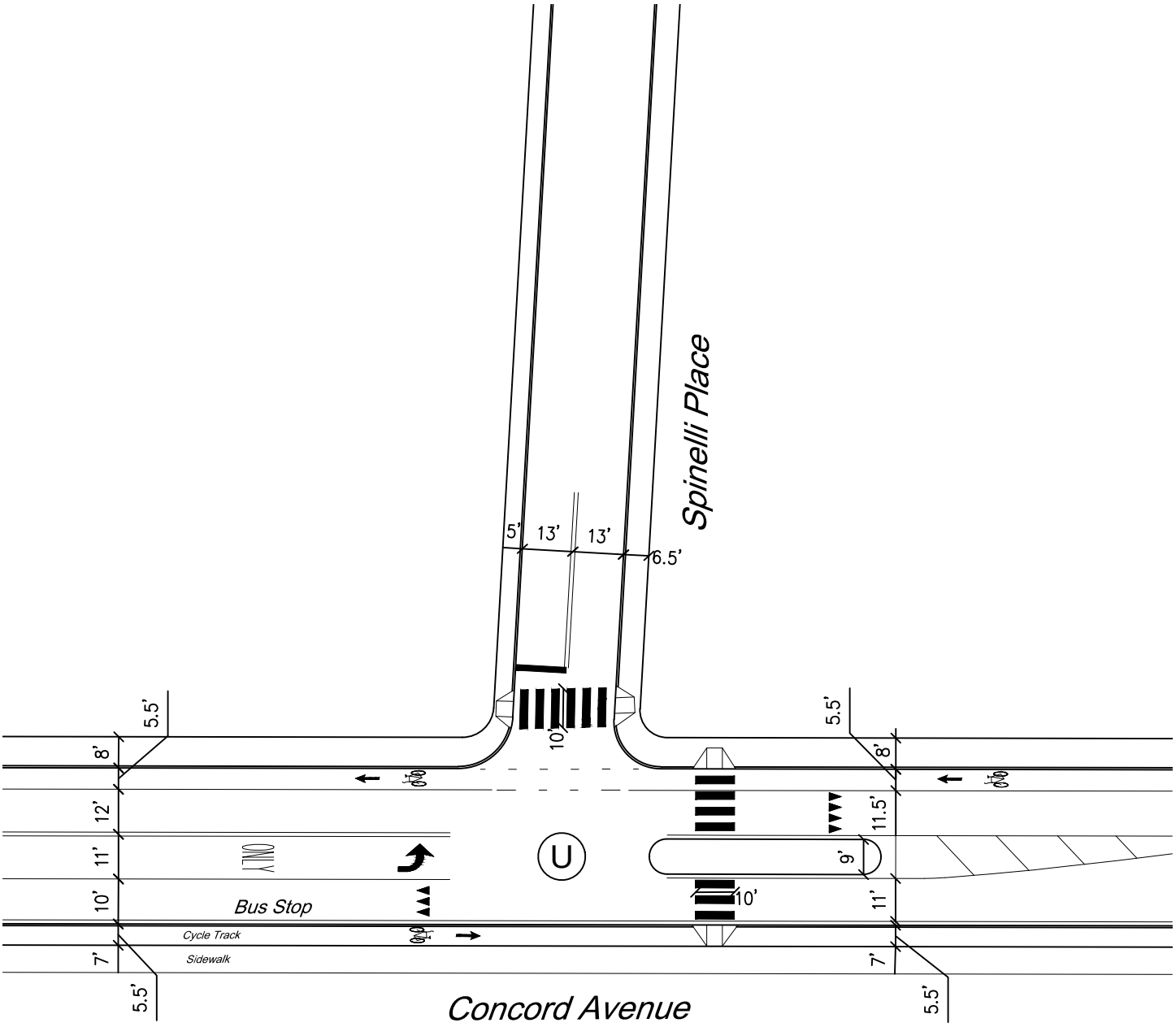
Figure 1.a.3
Existing Conditions Sketch
Wheeler Street btwn Existing Parking Lot and Concord Ave
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

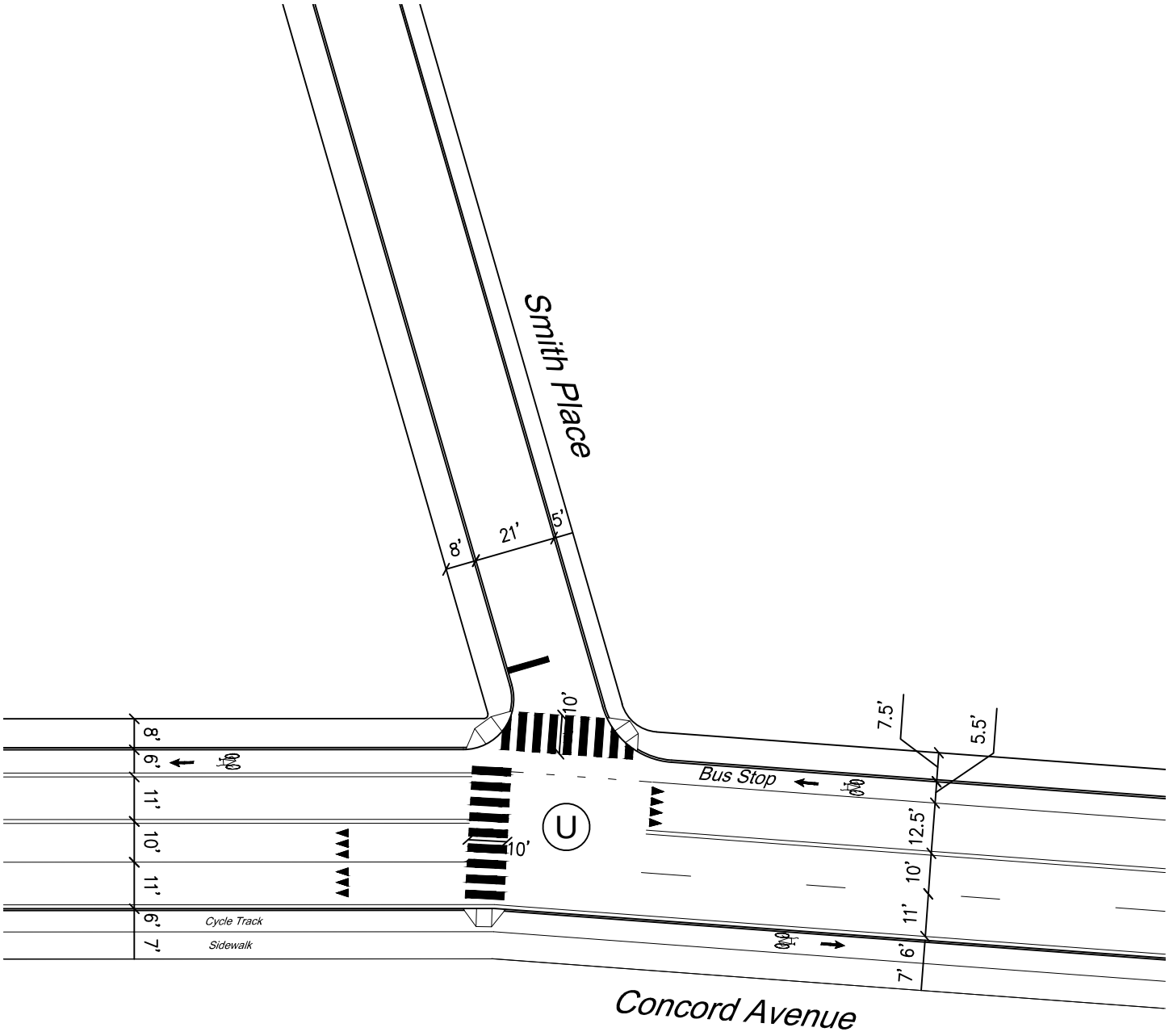
Figure 1.b.1
Existing Condition Intesection Sketch
Concord Avenue at Blanchard Road
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

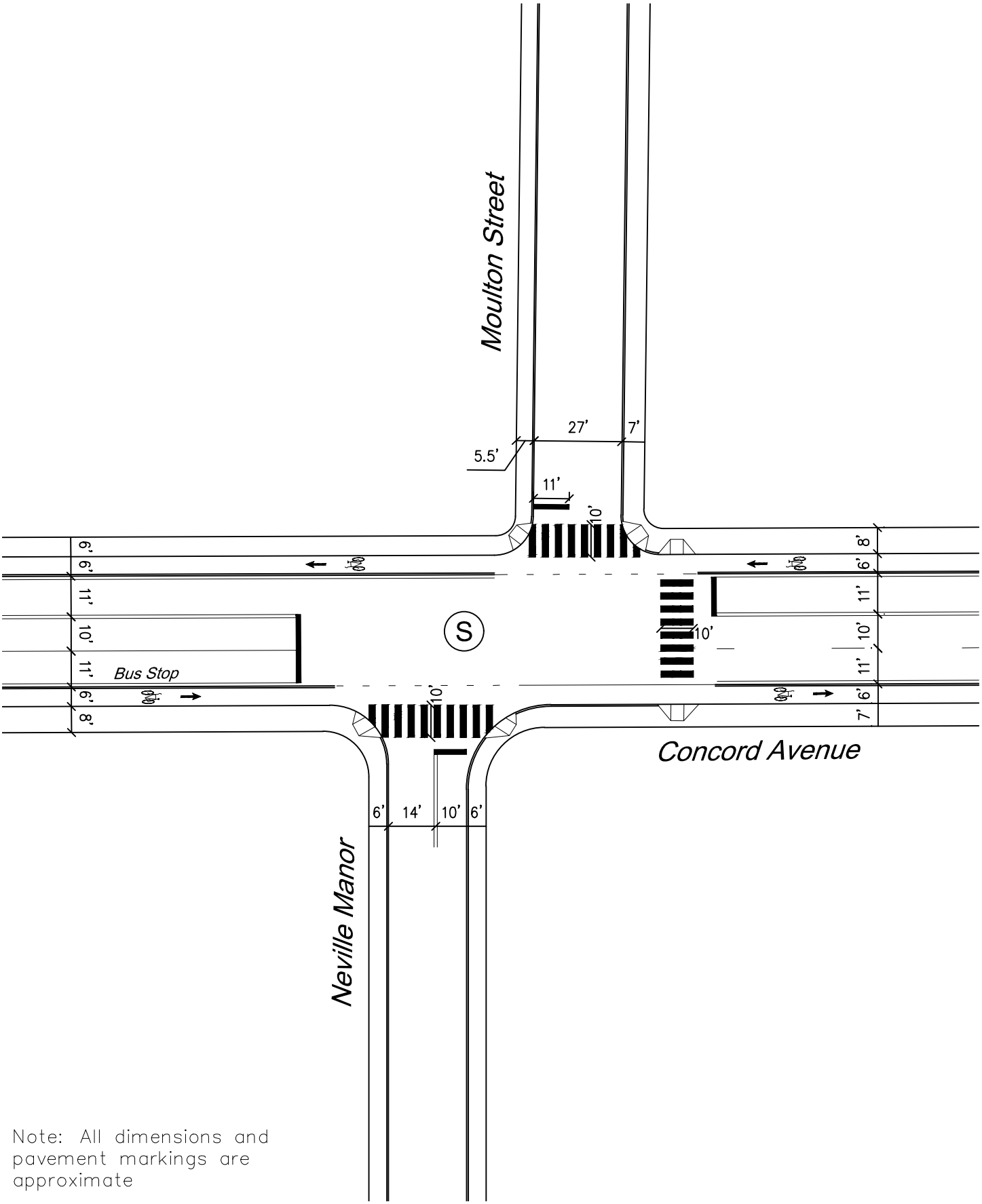
Figure 1.b.2
Existing Condition Intersection Sketch
Concord Avenue at Spinelli Place
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

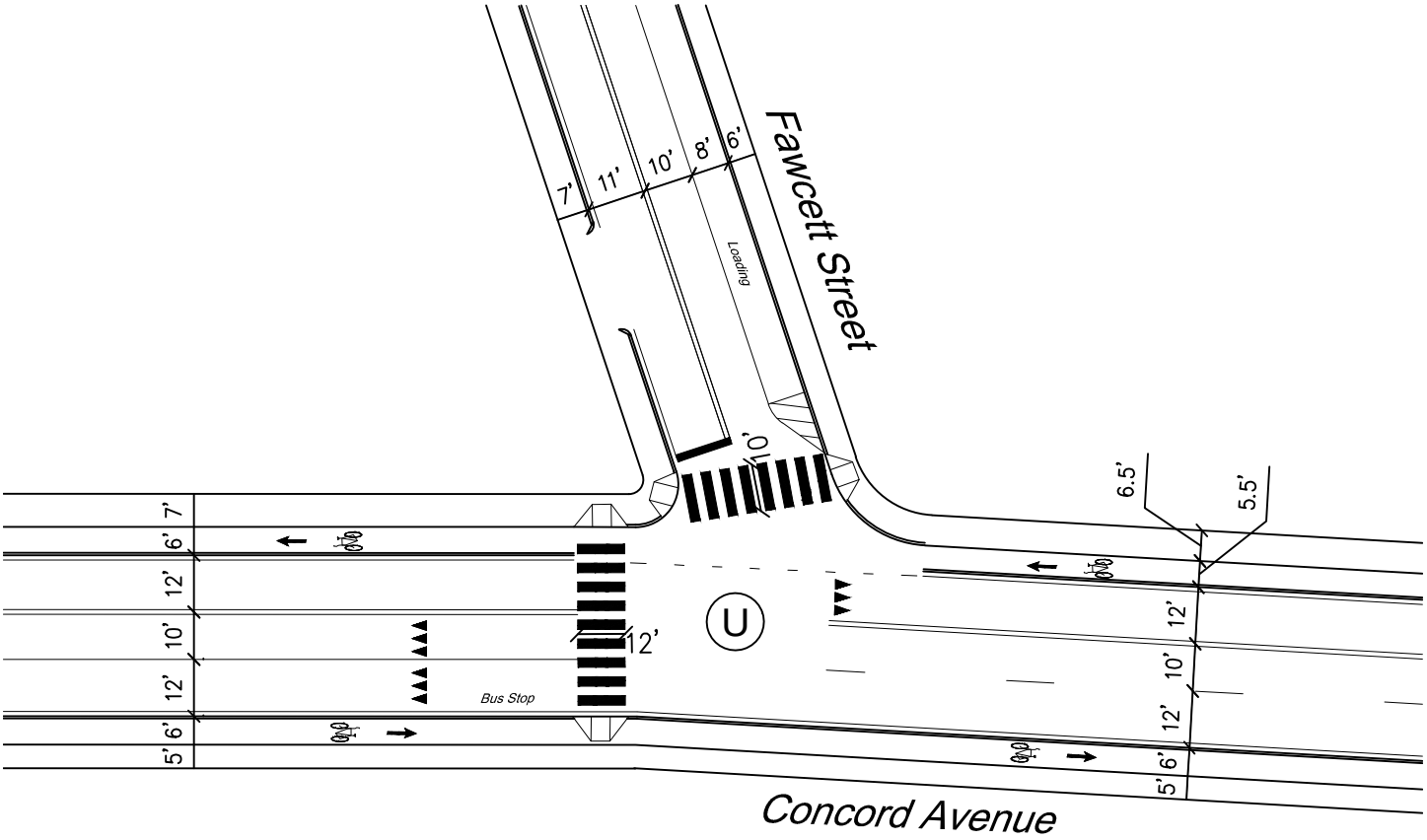
Figure 1.b.3
Existing Condition Intersection Sketch
Concord Avenue at Smith Place
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

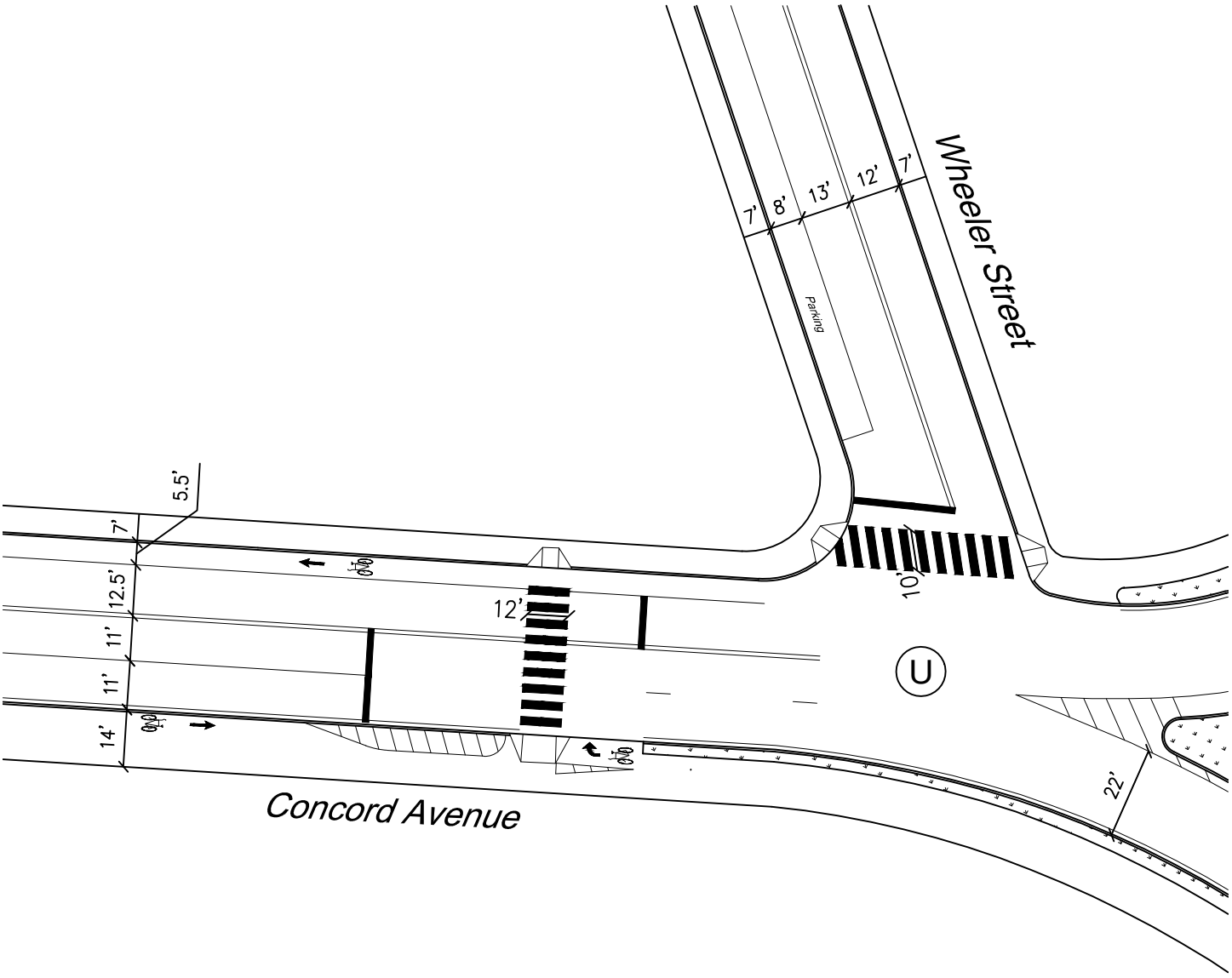
Figure 1.b.4
Existing Condition Intersection Sketch
Concord Avenue at Neville Manor/Moulton Street
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

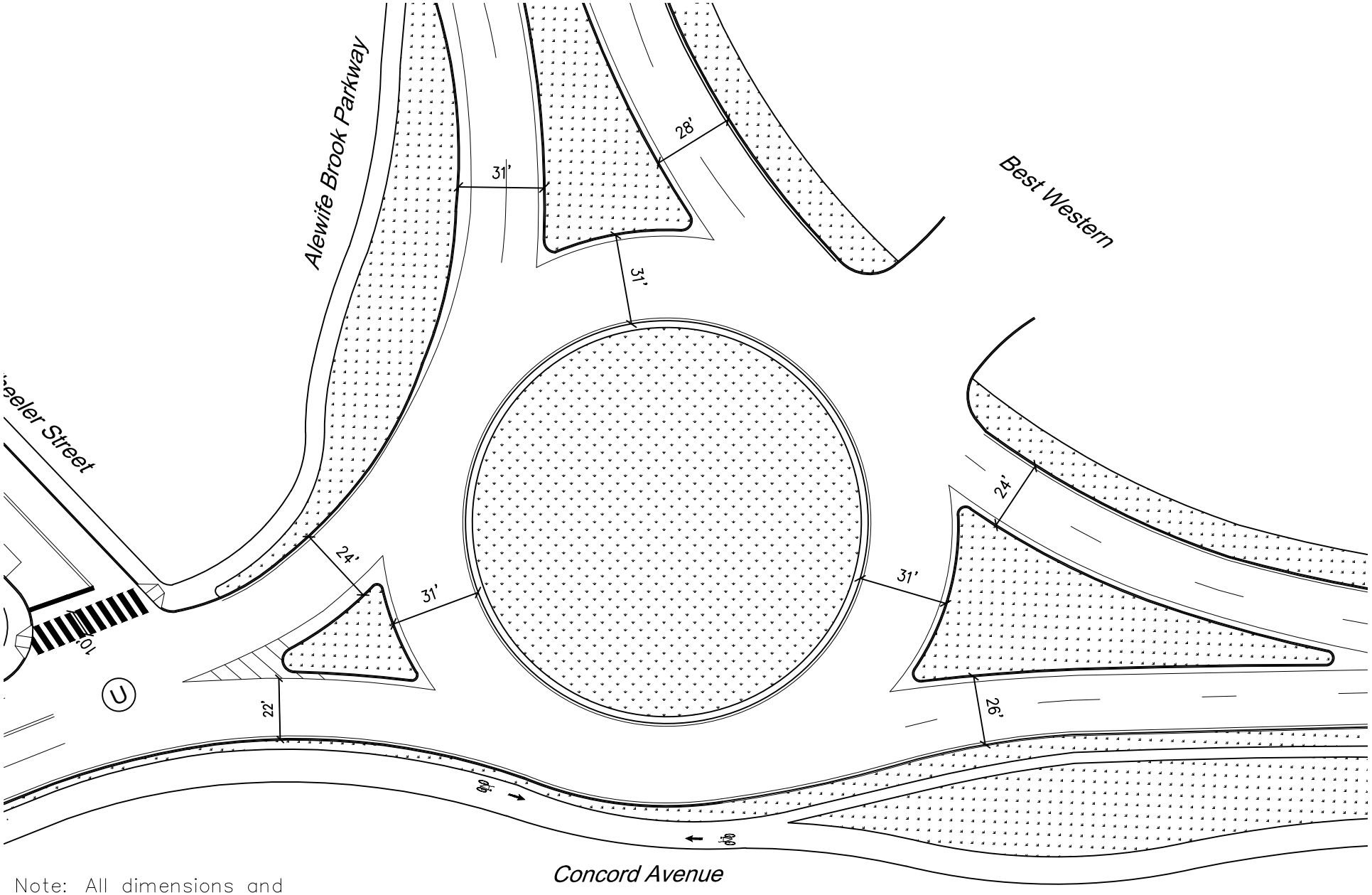
Figure 1.b.5
Existing Condition Intersection Sketch
Concord Avenue at Fawcett Street
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

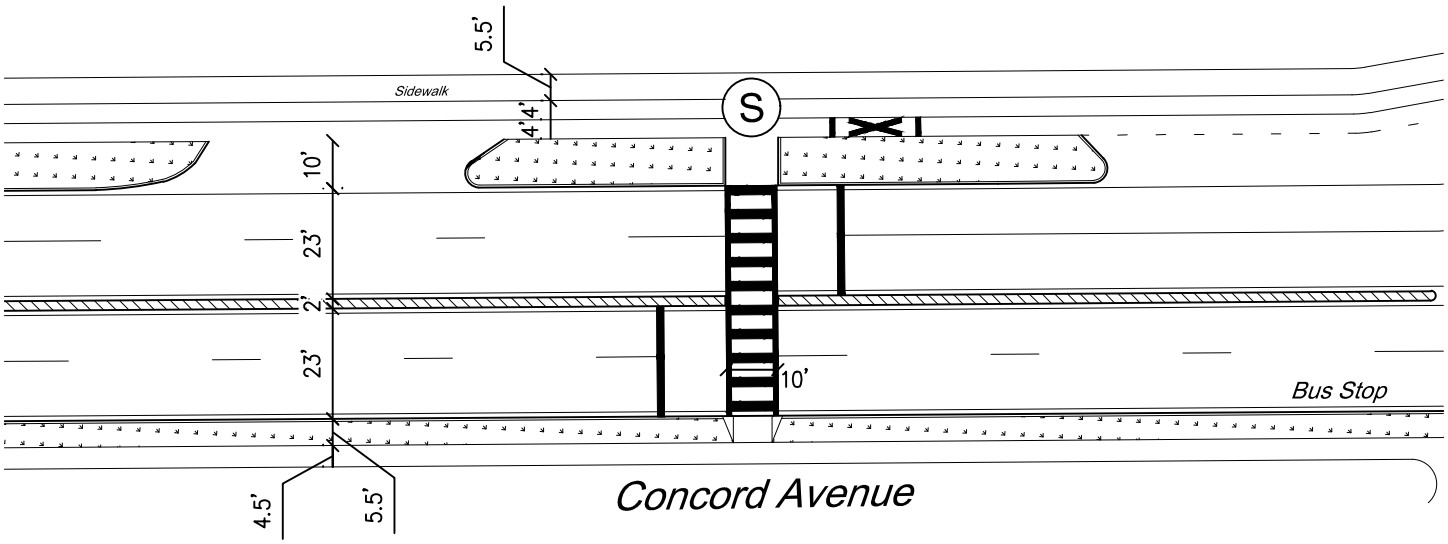
Figure 1.b.6
Existing Condition Intersection Sketch
Concord Avenue at Wheeler Street
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 25 50 Feet

Figure 1.b.7
Existing Condition Intersection Sketch
Alewife Brook Parkway Rotary
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

Figure 1.b.8
Existing Intersection Sketch
Concord Avenue at Mid-Block Crossing (betweeen rotaries)
55 Wheeler Street Development

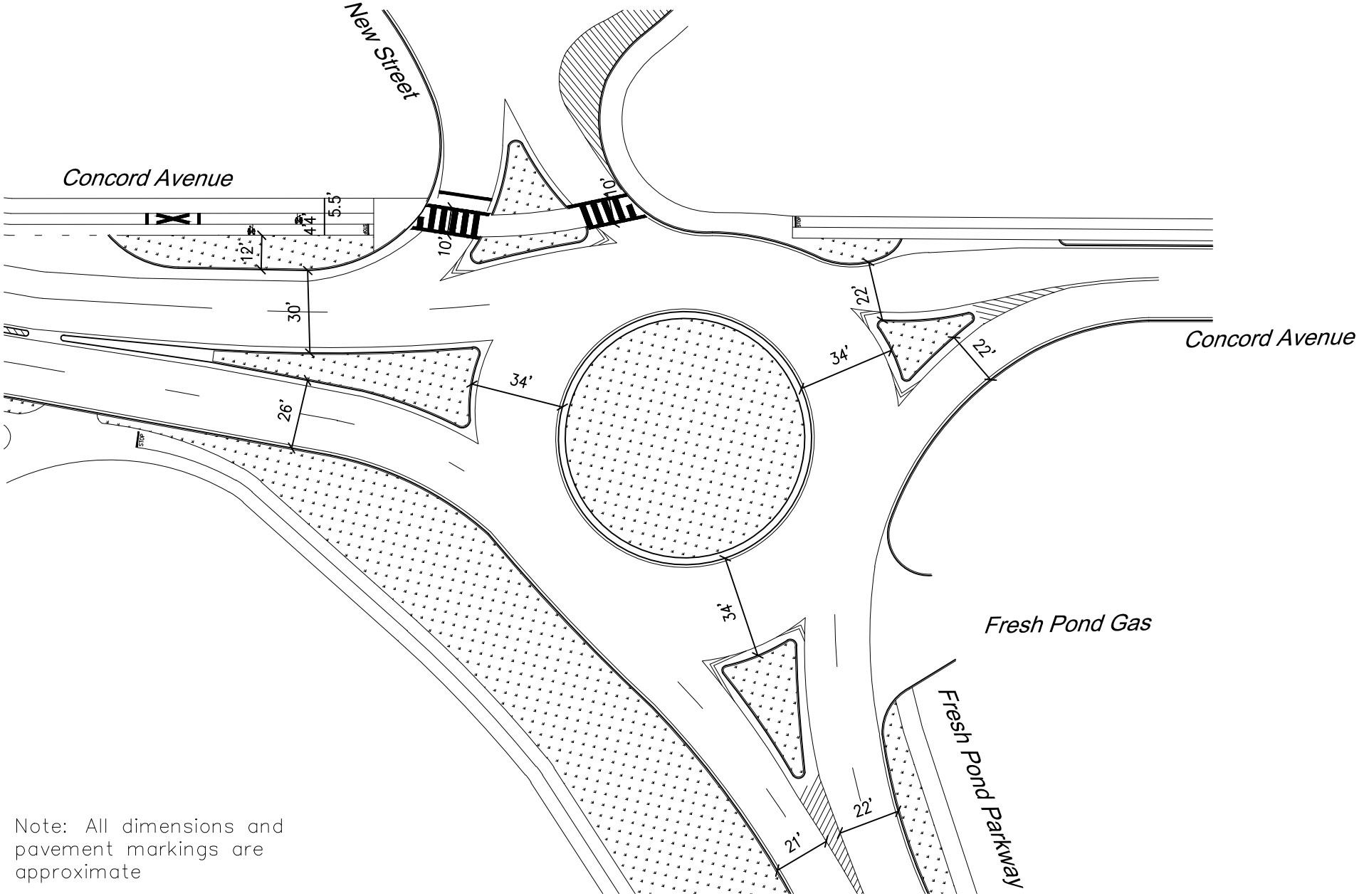
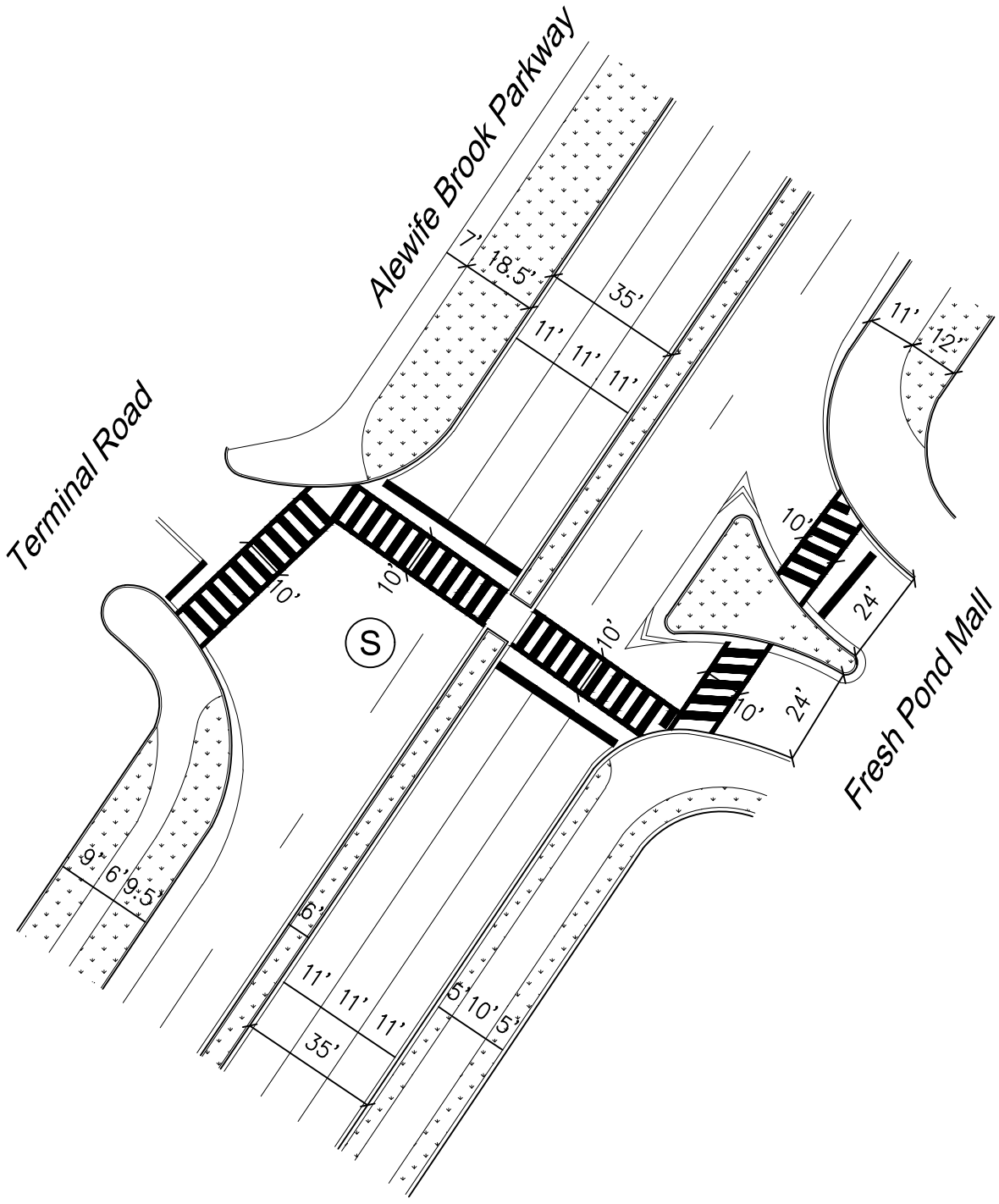


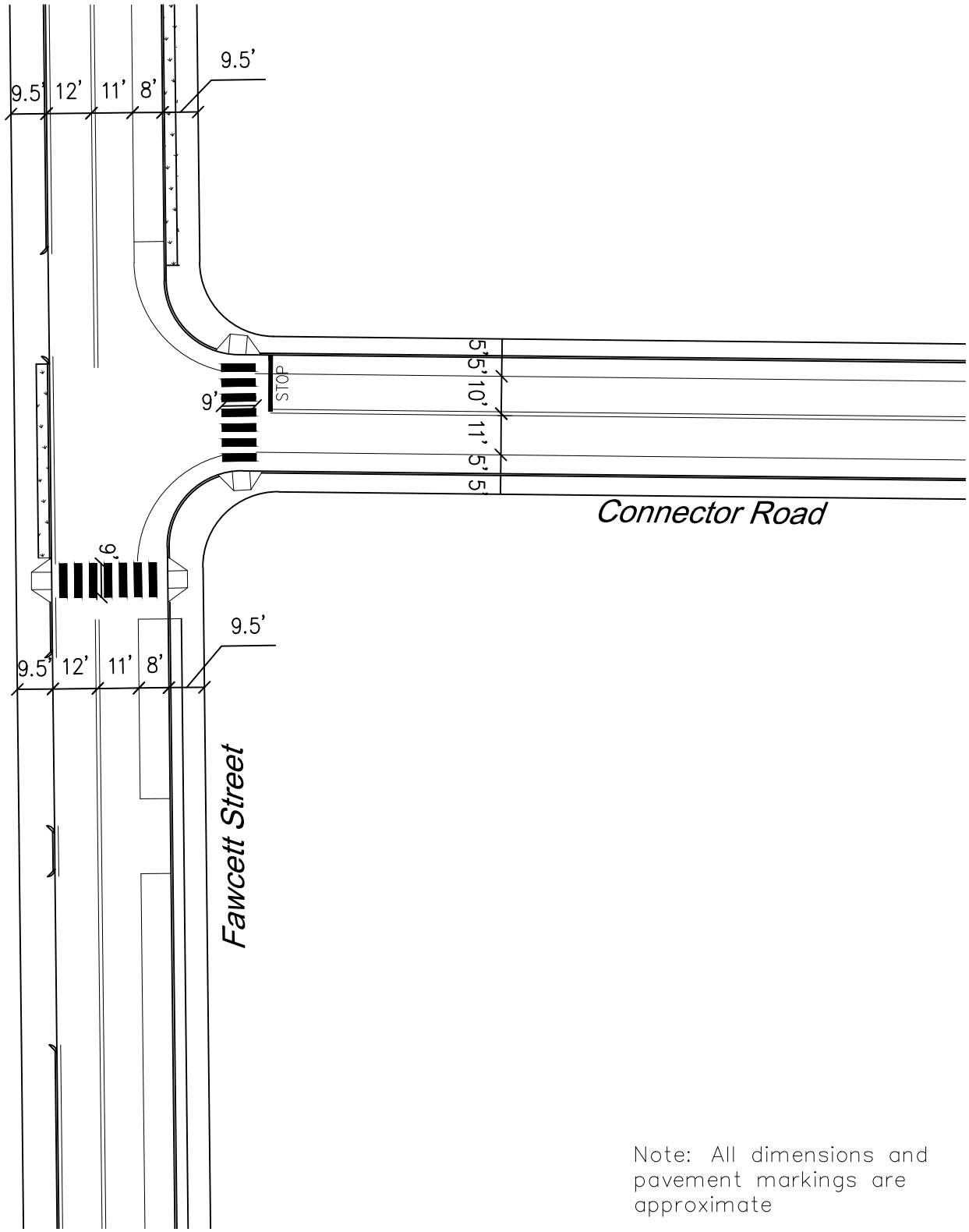
Figure 1.b.9
Existing Condition Sketch
Fresh Pond Parkway at Concord Ave (Sozio Rotary)
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

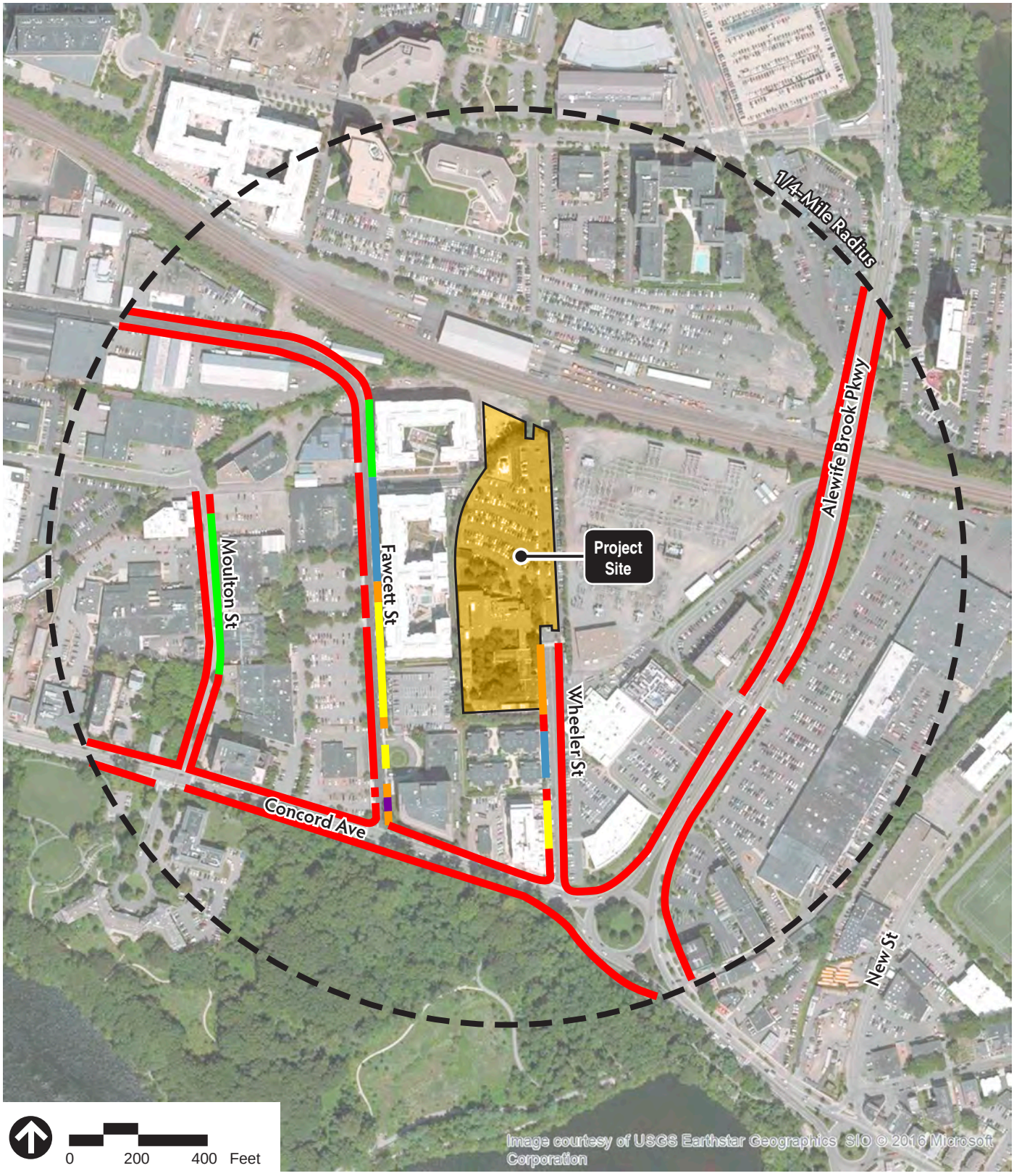
Figure 1.b.10
Existing Condition Sketch
Alewife Brook Parkway at Terminal Road/Fresh Pond Mall
55 Wheeler Street Development



Note: All dimensions and pavement markings are approximate

0 20 40 Feet

Figure 1.b.11
Existing Condition Sketch
Fawcett Street at Connector Road
55 Wheeler Street Development



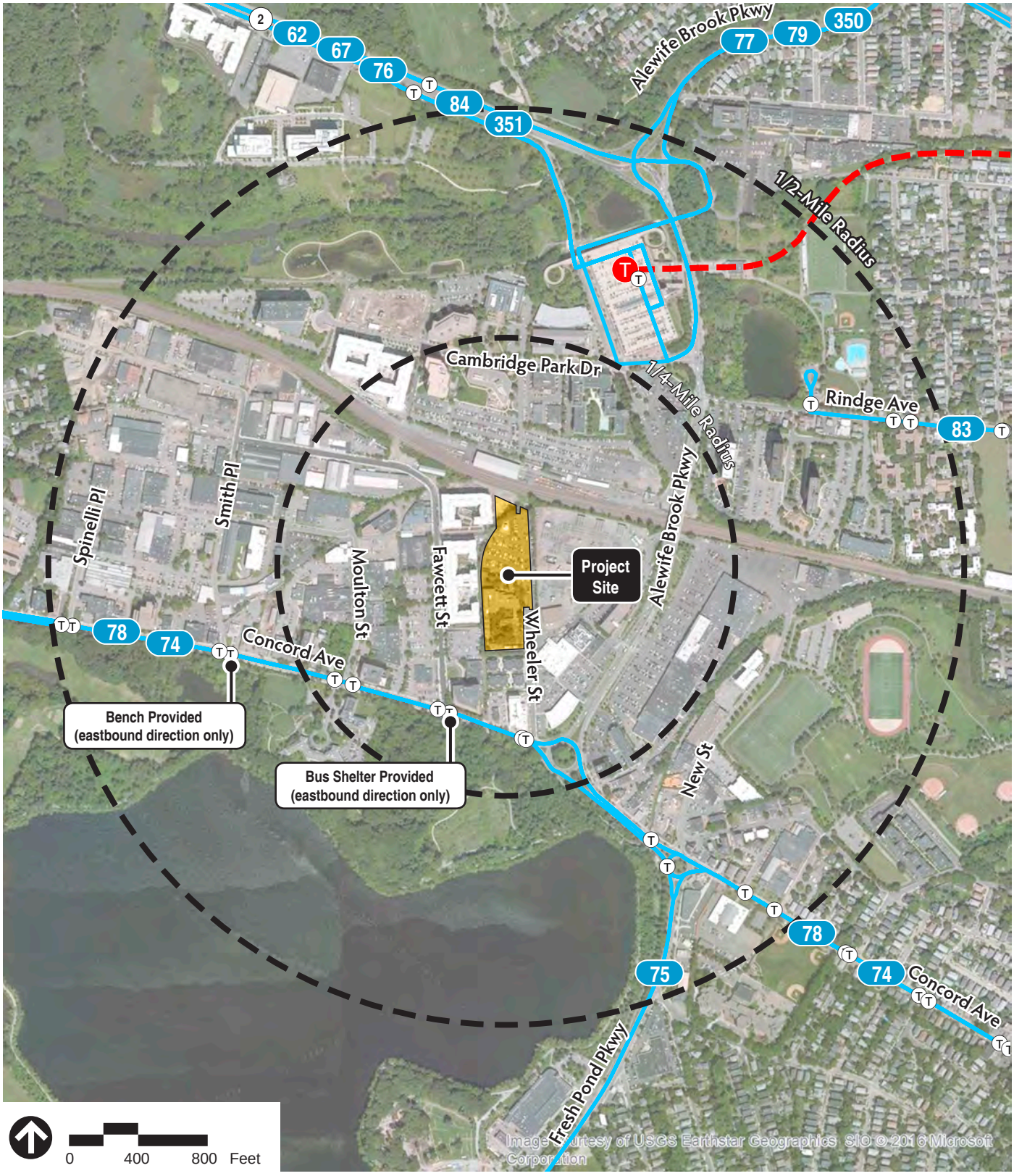
Source: Bing Aerial

- 2-Hour Parking
- Cambridge Resident Permit Parking
- No Parking
- Handicapped Parking Space
- Unregulated Parking
- No Stopping

Figure 1.c.1

Summary of On-Street Parking Regulations

55 Wheeler Street Project
Cambridge, Massachusetts

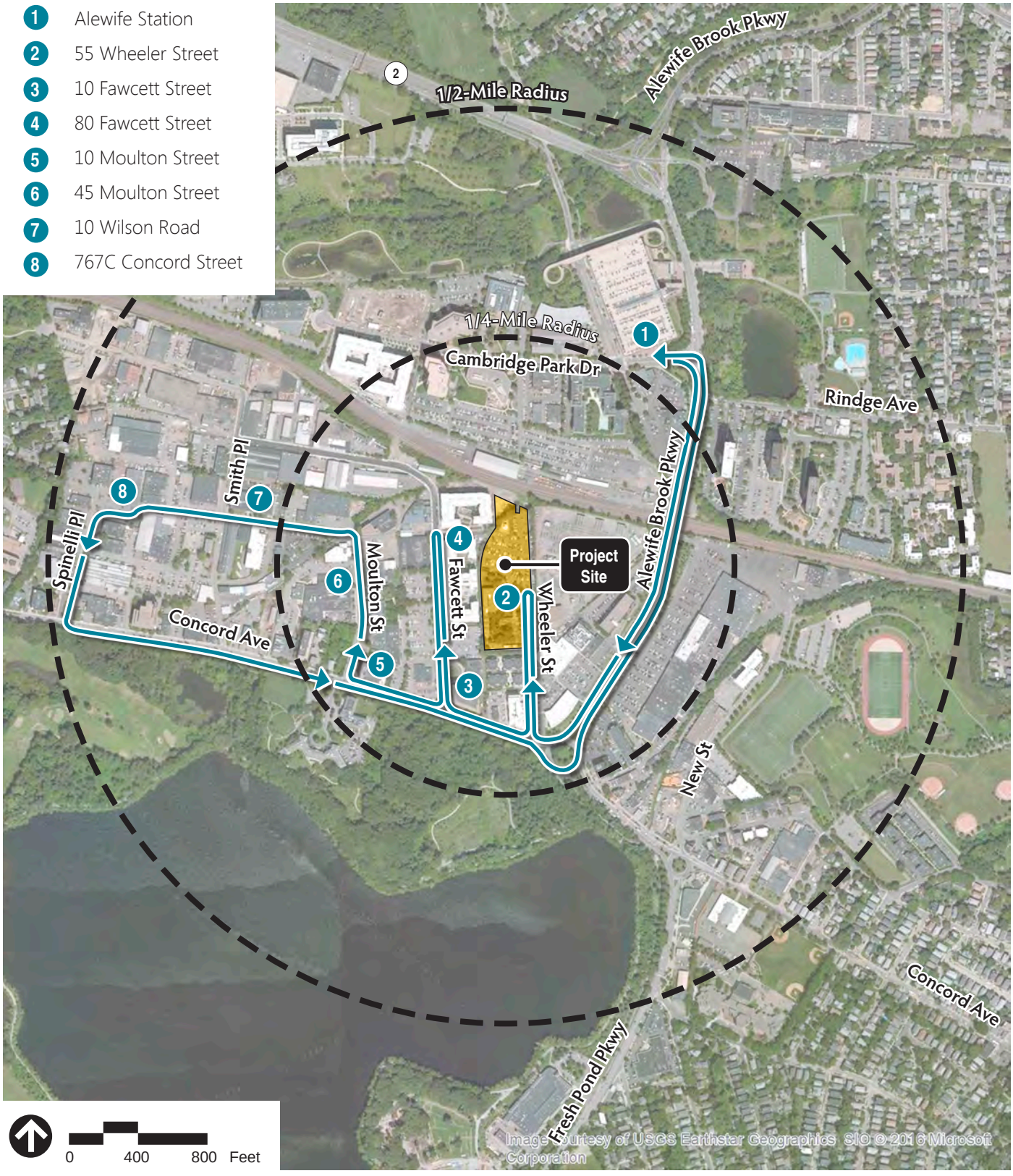


Source: Bing Aerial, MBTA

Figure 1.d.1

Public Transit

55 Wheeler Street Project
Cambridge, Massachusetts

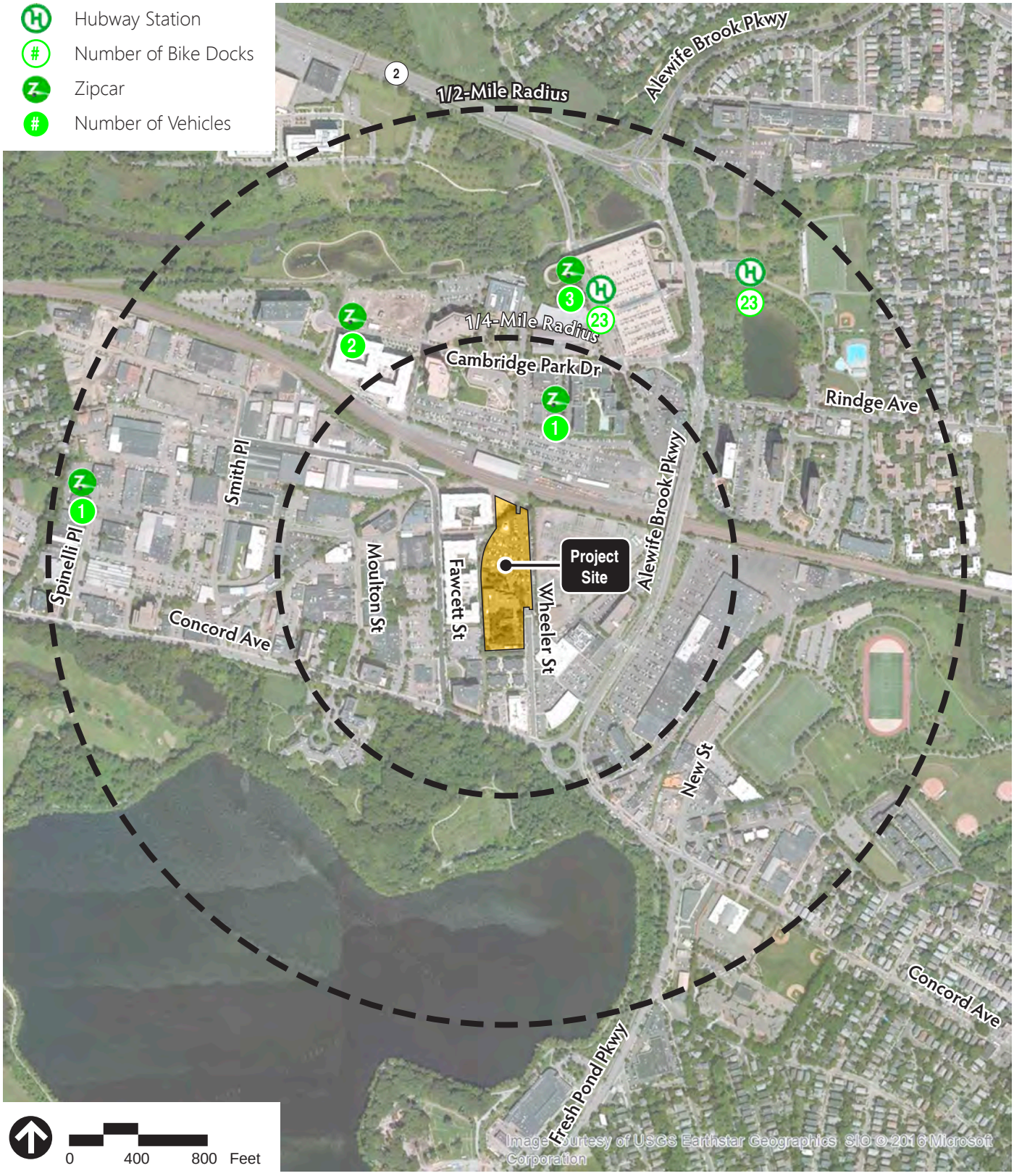


Source: Bing Aerial, Alewifetma.org

Figure 1.d.2

Private Transit Services
(Alewife TMA Shuttle Bus Route)

55 Wheeler Street Project
Cambridge, Massachusetts

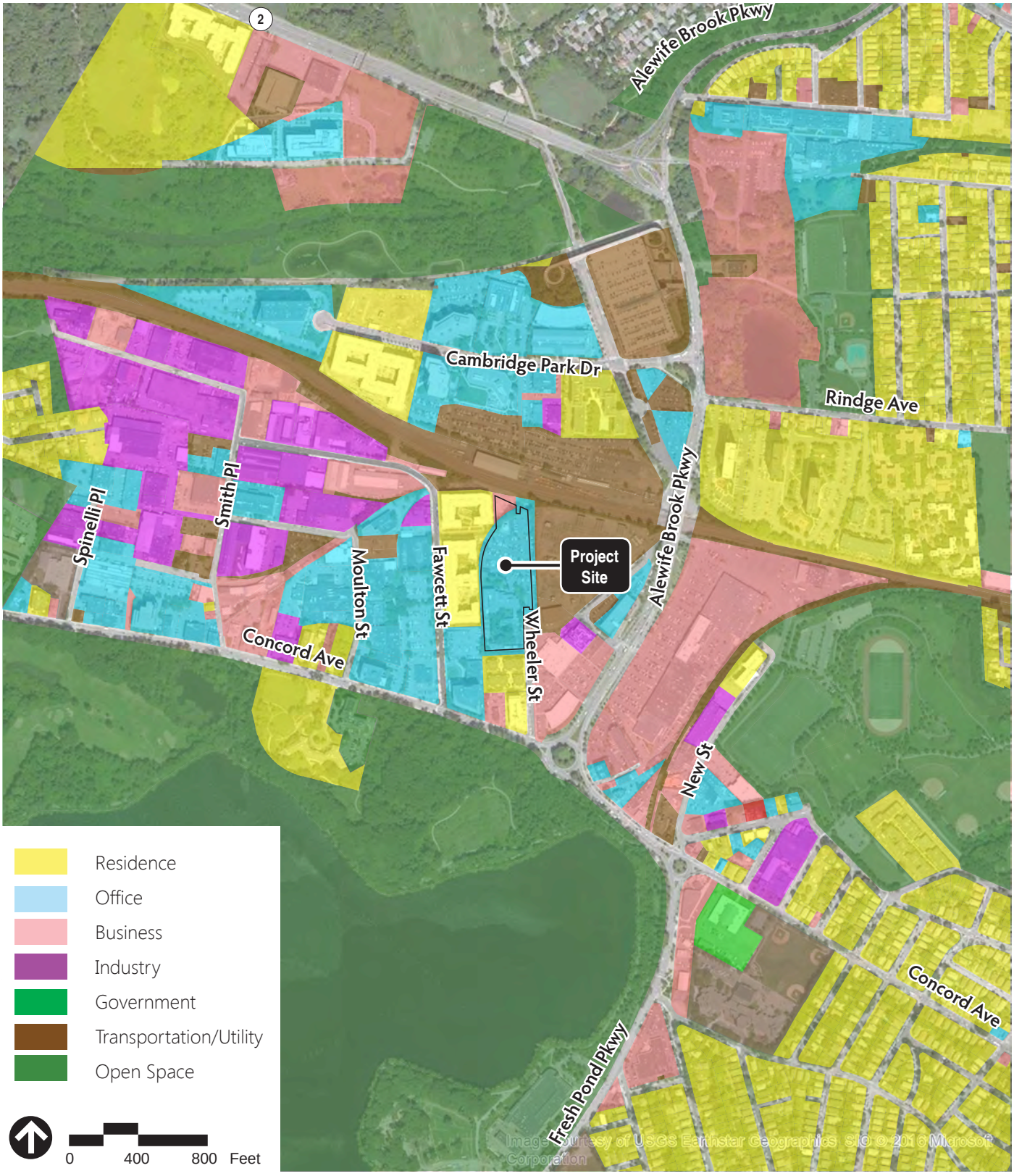


Source: Bing Aerial, Alewifetma.org

Figure 1.d.3

Bike and Car Sharing Services

55 Wheeler Street Project
Cambridge, Massachusetts



Source: Bing Aerial 2014, City of Cambridge GIS

Figure 1.e.1
Land Use

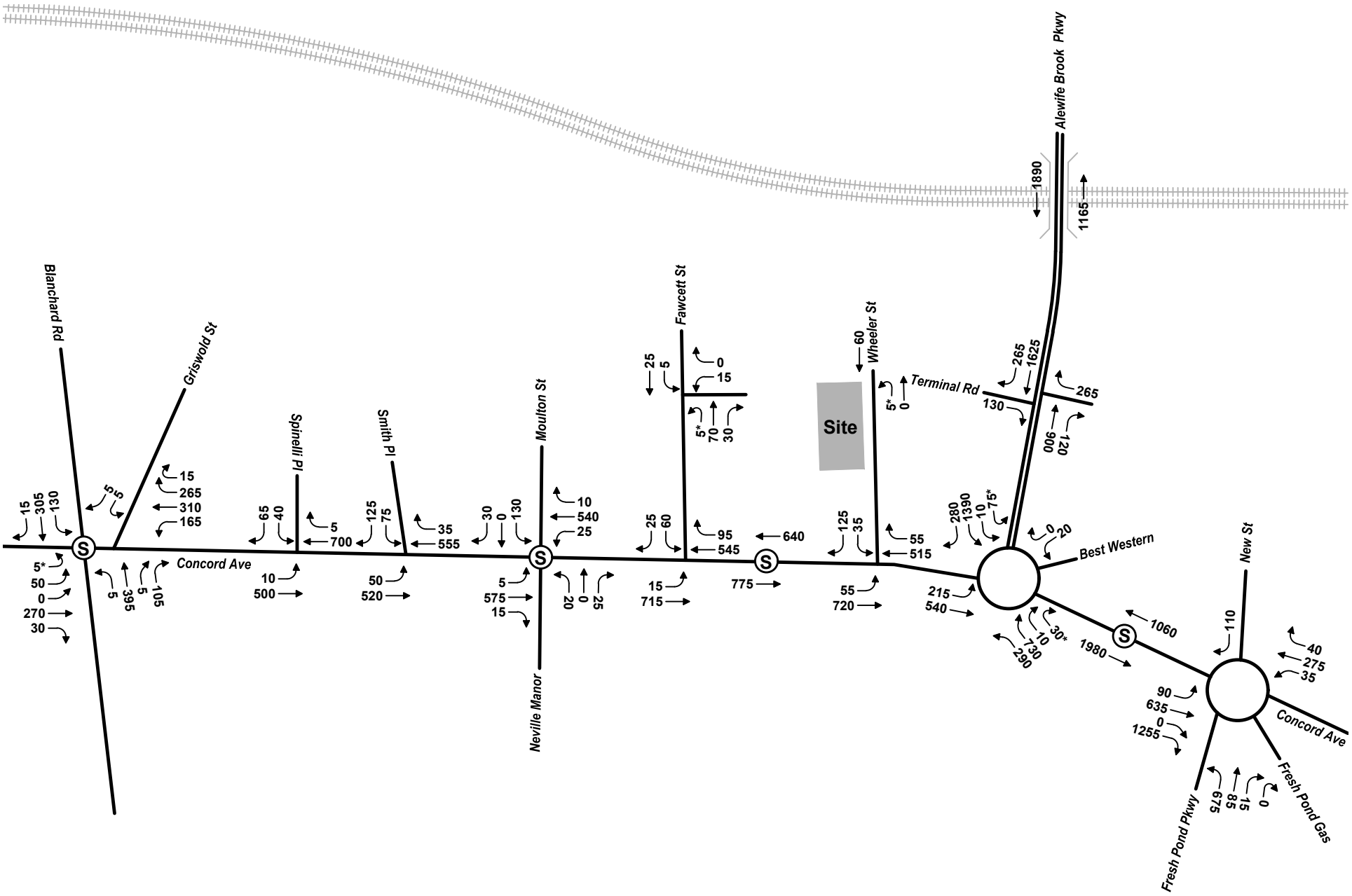
55 Wheeler Street Project
Cambridge, Massachusetts

NOTE:
* Denotes U-Turn

Not to Scale

Existing Conditions Vehicle Volumes
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 2.c.1

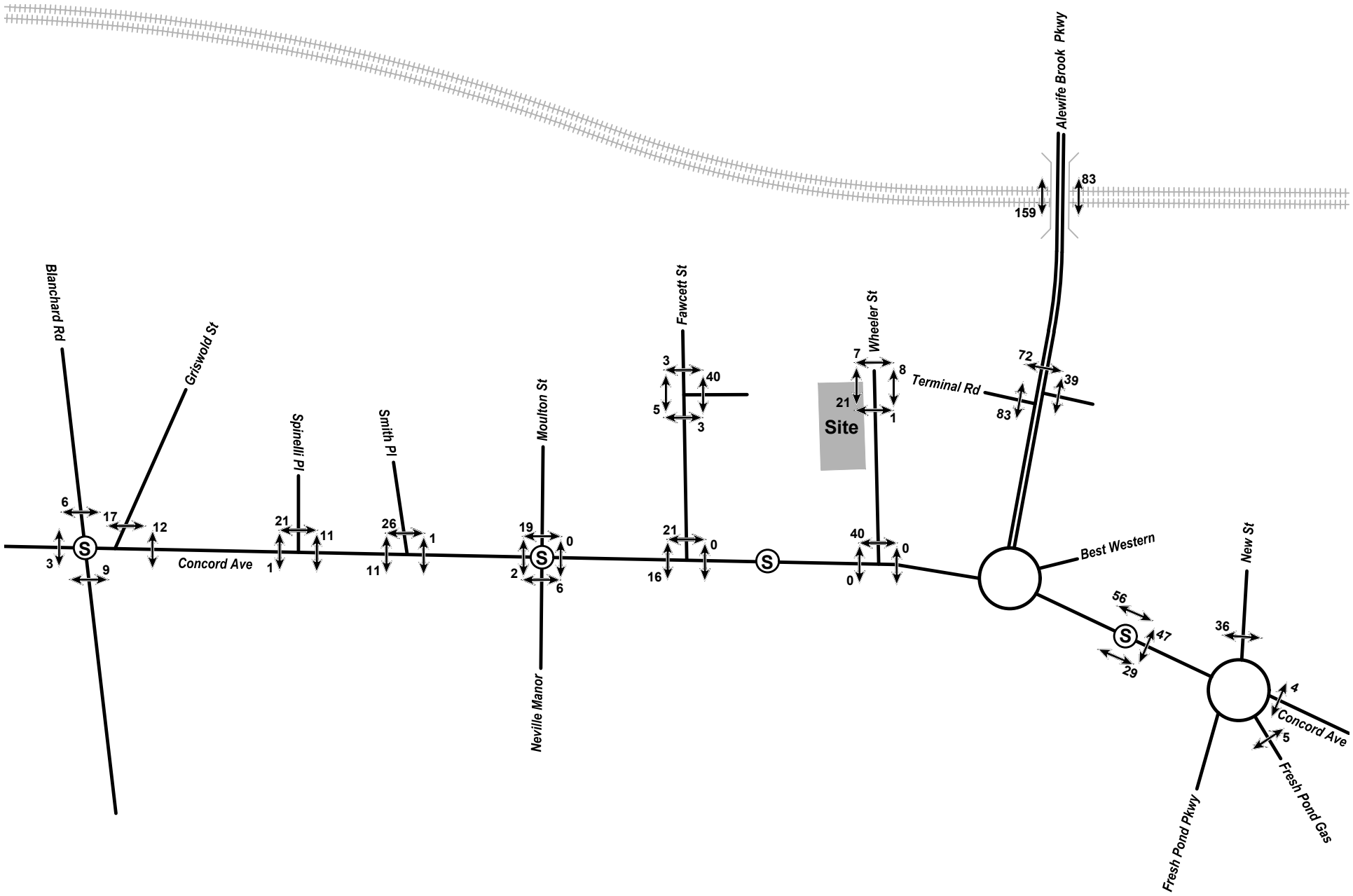


NOTE:
* Denotes U-Turn

Not to Scale

Existing Conditions Vehicle Volumes
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

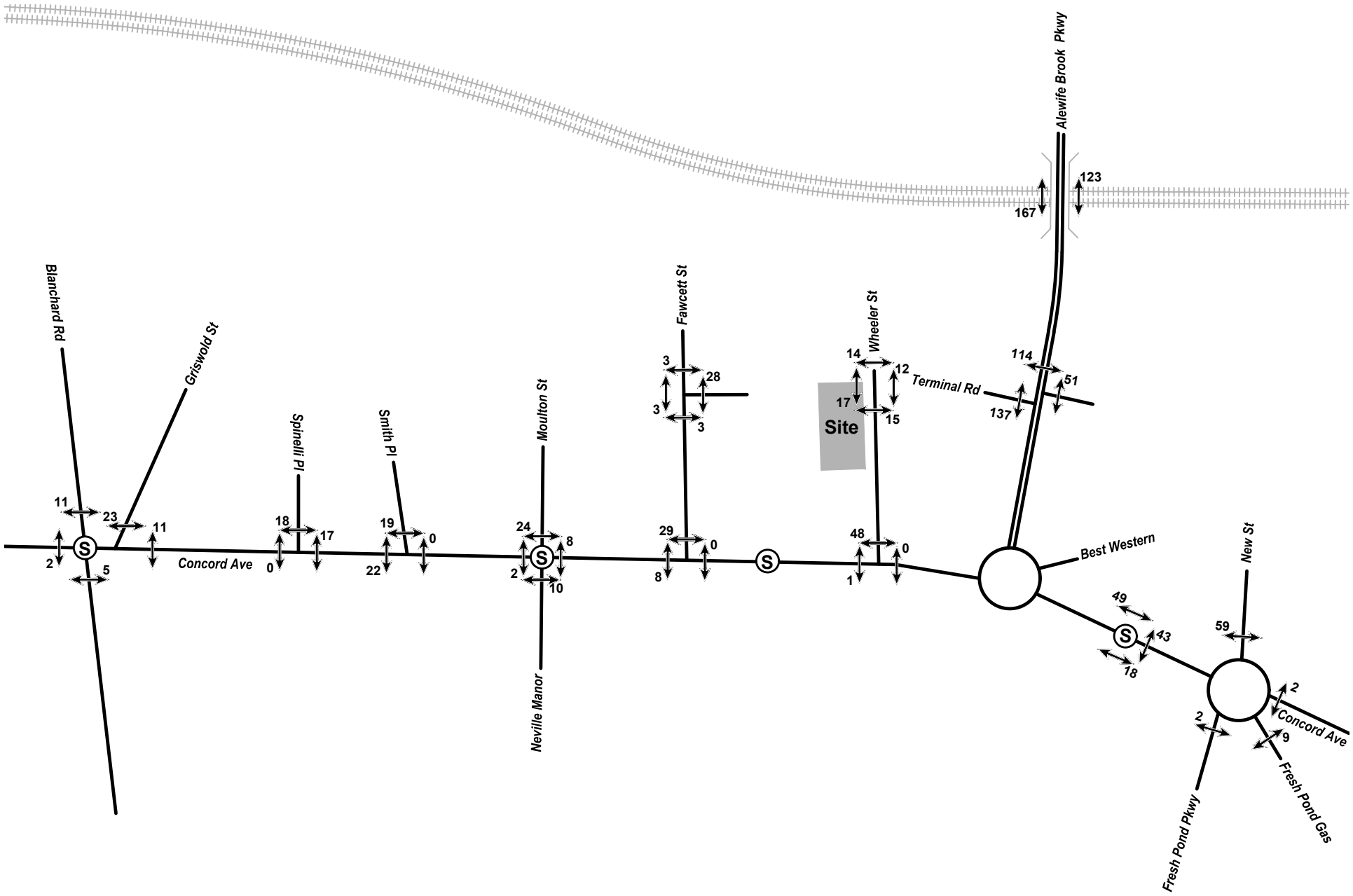
Figure 2.c.2



Not to Scale

Existing Conditions Pedestrian Volumes
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

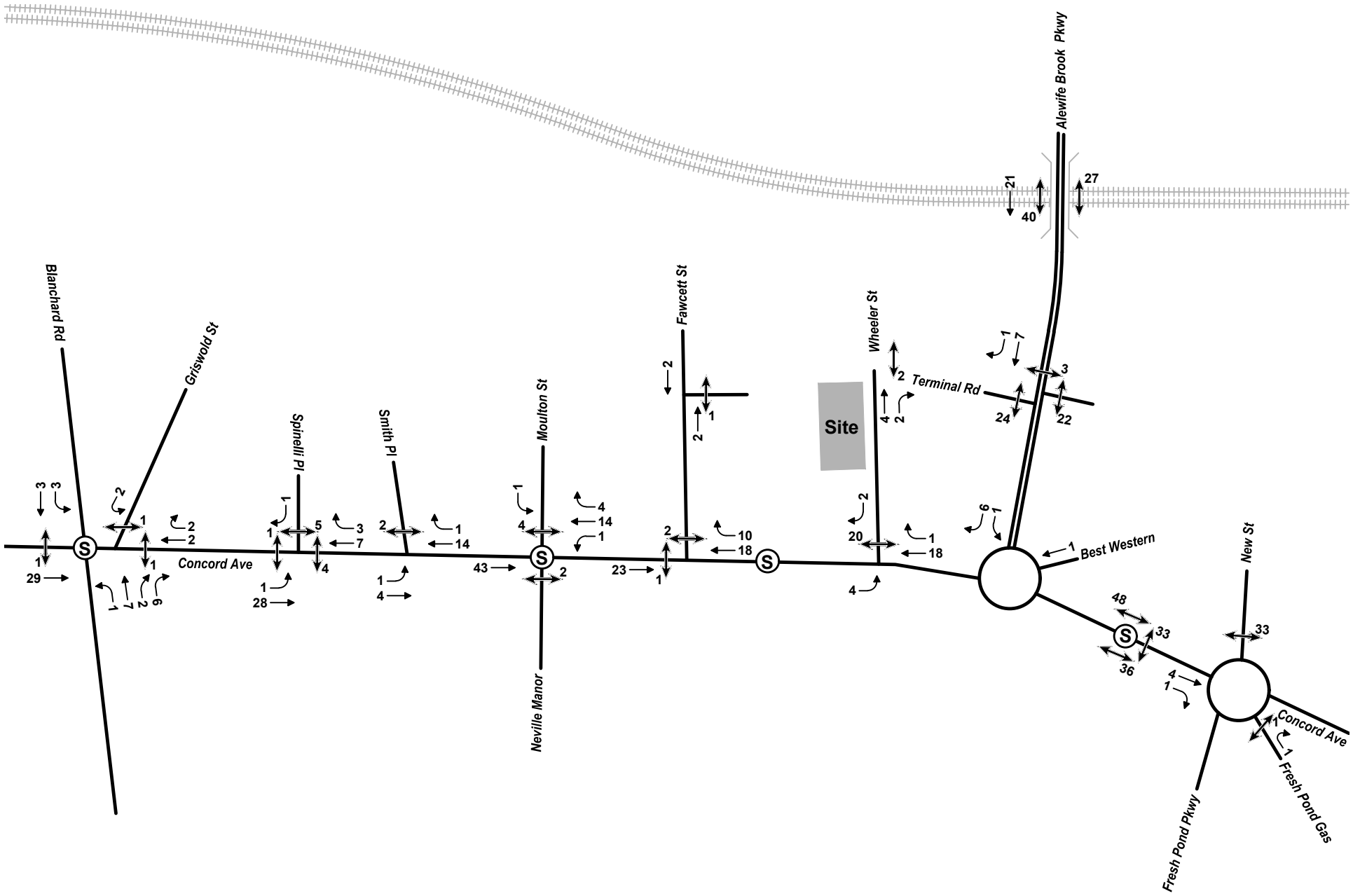
Figure 2.c.3



Not to Scale

Existing Conditions Pedestrian Volumes
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

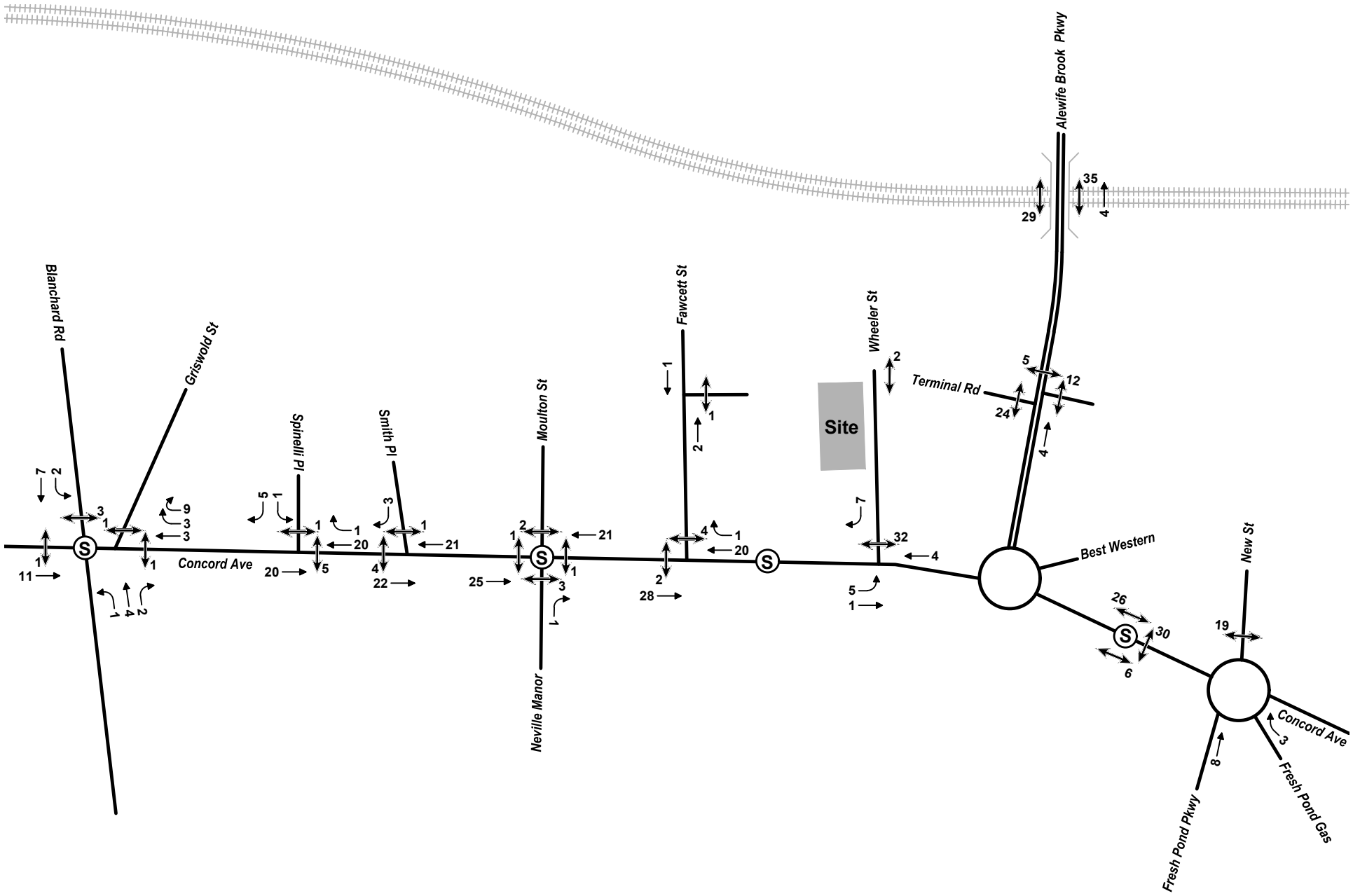
Figure 2.c.4



Not to Scale

Existing Conditions Bicycle Volumes
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 2.c.5



Not to Scale

Existing Conditions Bicylce Volumes
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

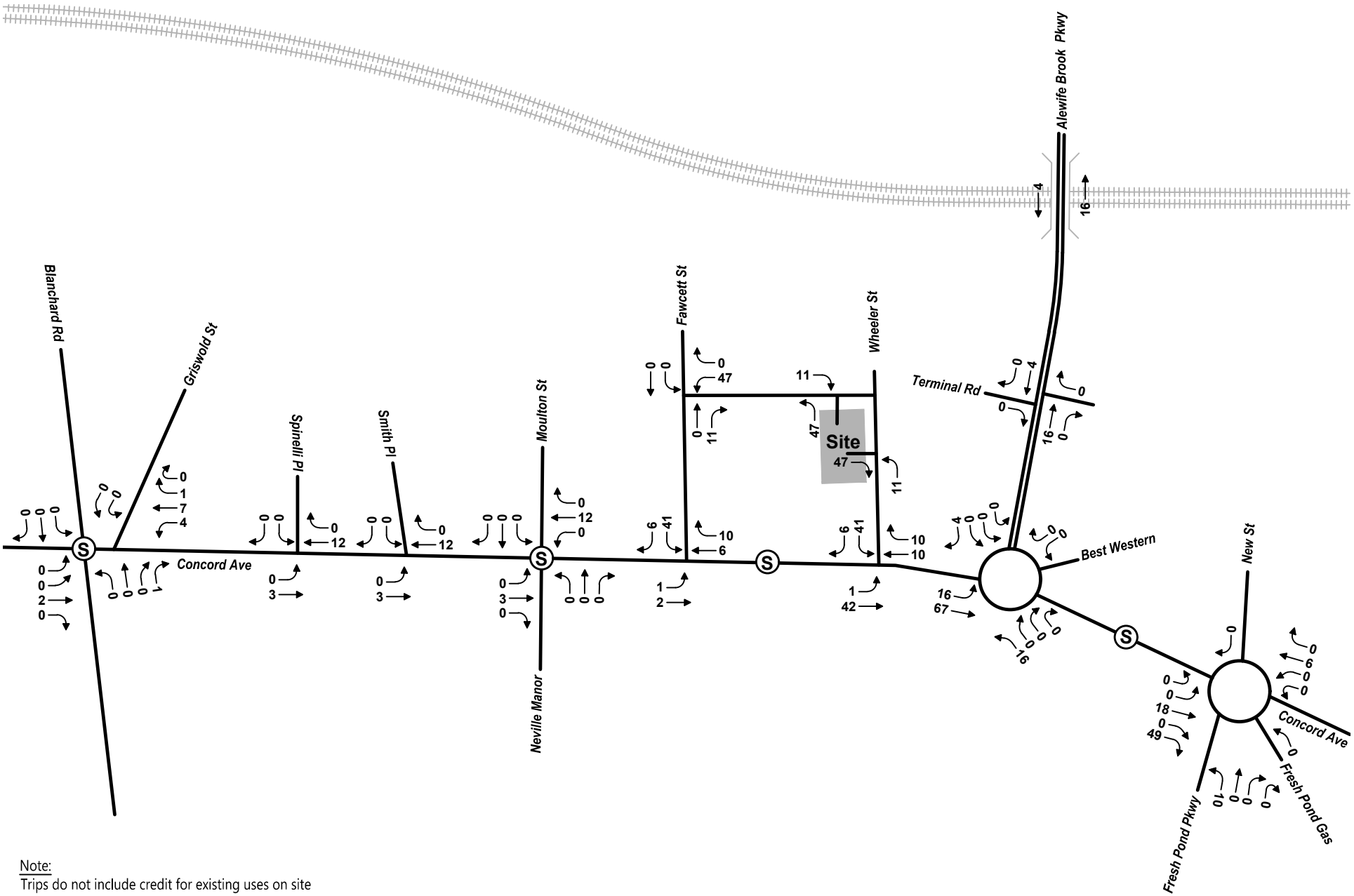
Figure 2.c.6

0 500 1000 Feet

Project Trip Distribution

Figure 3.c.1

55 Wheeler Street Project
Cambridge, MA

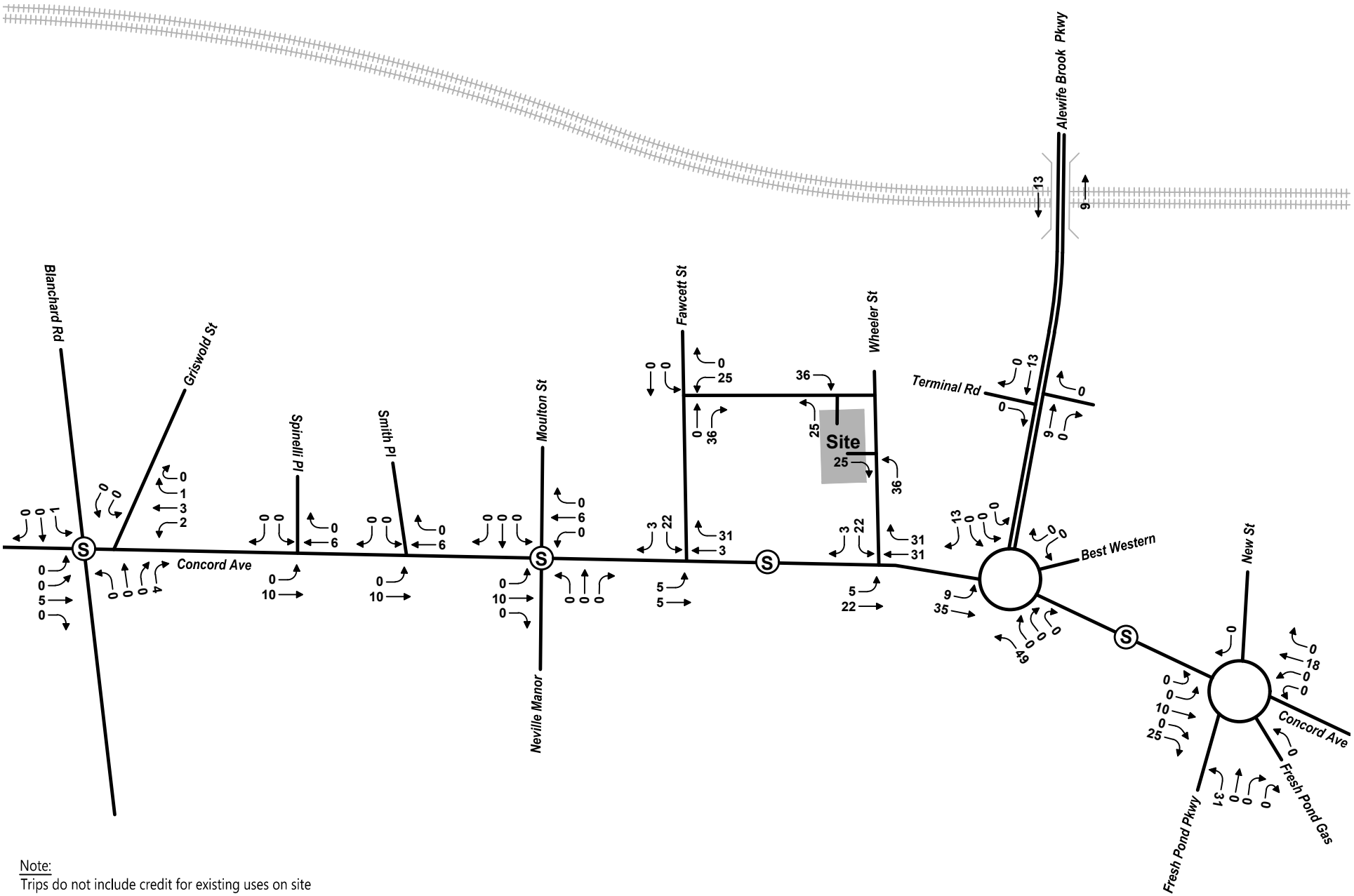


Note:
Trips do not include credit for existing uses on site

Not to Scale

Total Project Generated Trips
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 3.c.2

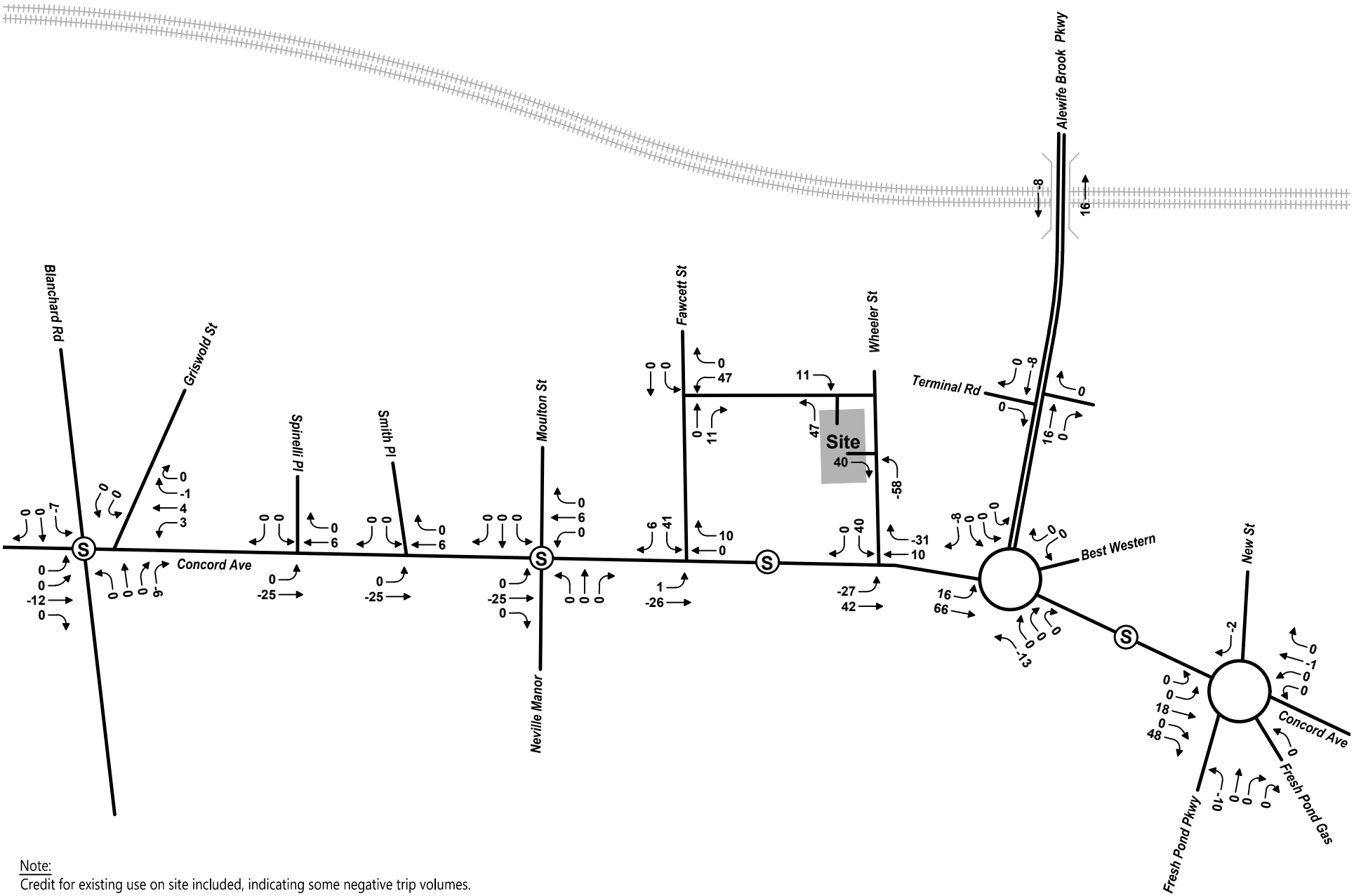


Note:
Trips do not include credit for existing uses on site

Not to Scale

Total Project Generated Trips
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

Figure 3.c.3

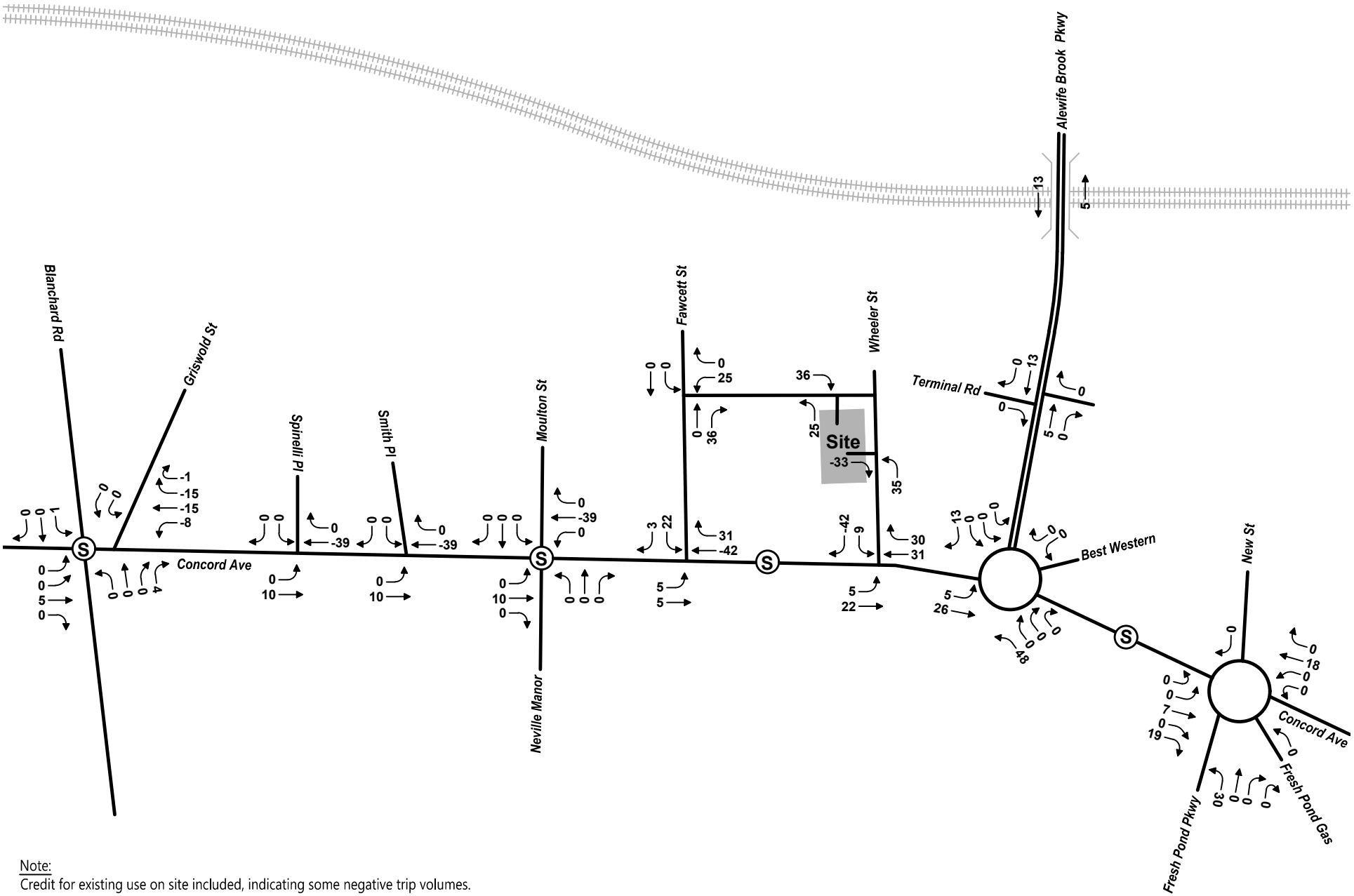


Note:
Credit for existing use on site included, indicating some negative trip volumes.

Not to Scale

Net New Project Generated Trips
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 3.c.4

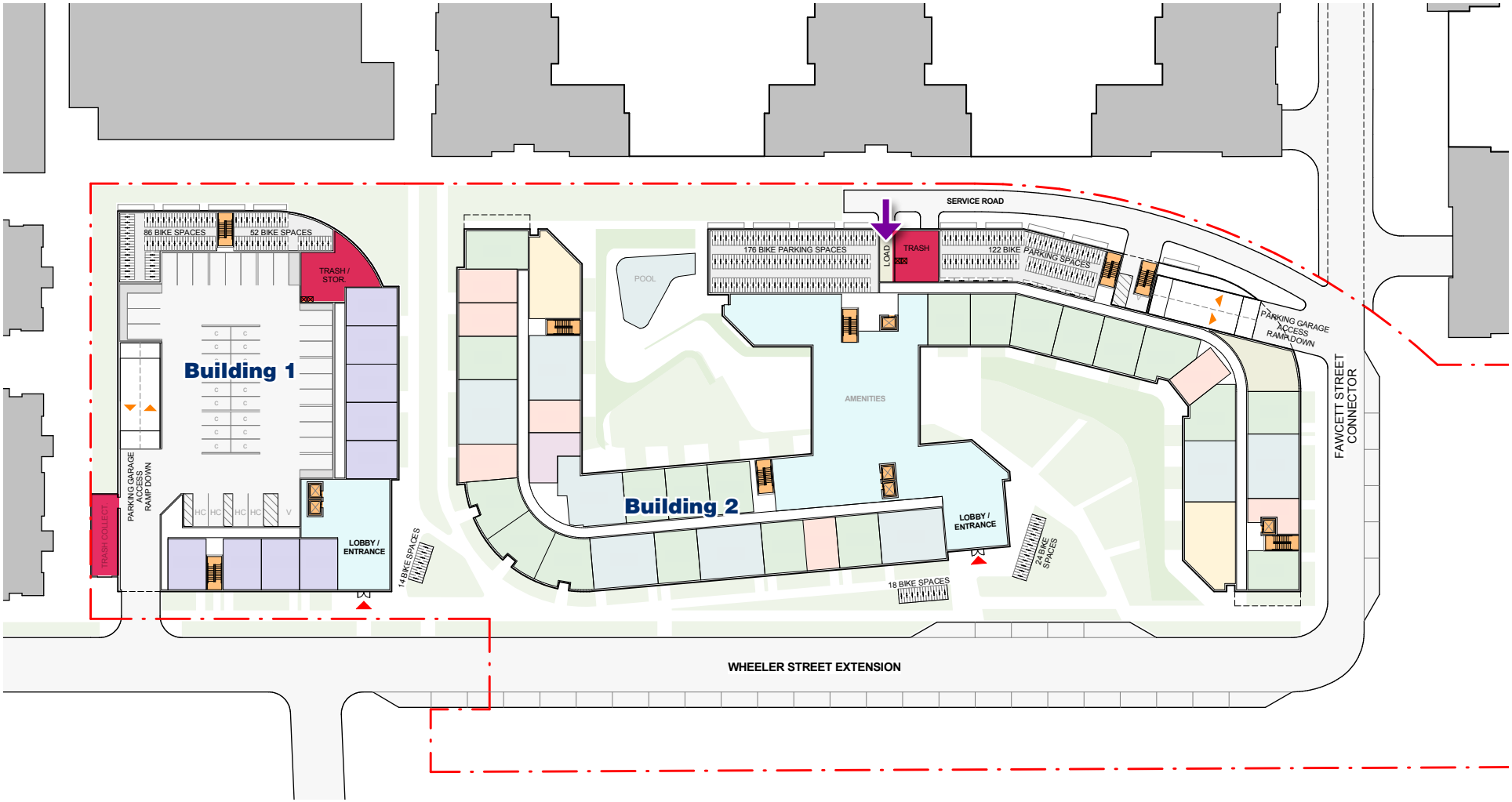


Note:
Credit for existing use on site included, indicating some negative trip volumes.

Not to Scale

Net New Project Generated Trips
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

Figure 3.c.5



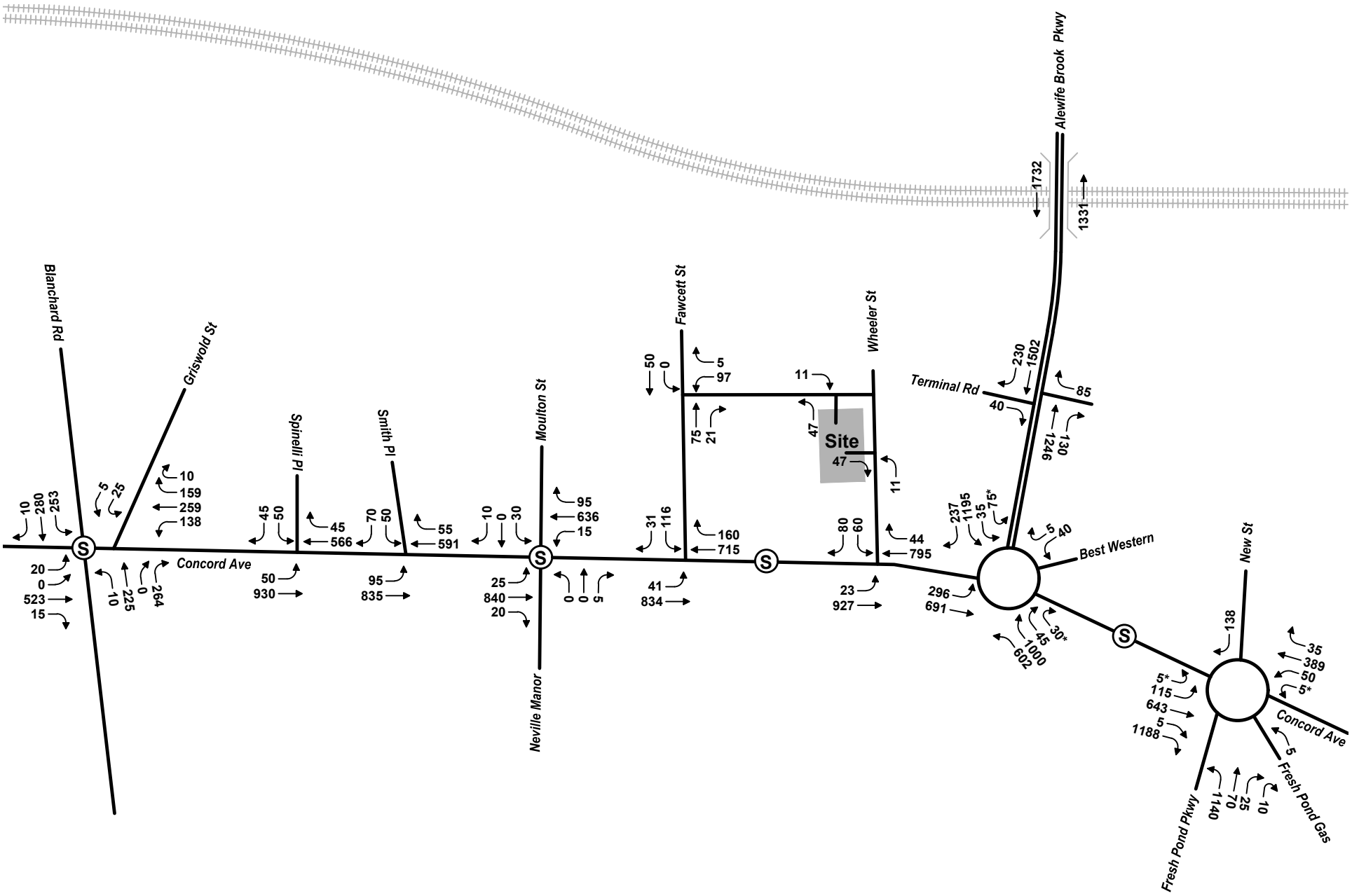
Source: DiMella Shaffer

Loading Access

Trash Rooms

Figure 3.d.1
Service and Loading

55 Wheeler Street Project
Cambridge, Massachusetts



NOTE:
* Denotes U-Turn

Not to Scale

2016 Build Conditions Vehicle Volumes
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 5.b.1

NOTE:
* Denotes U-Turn

Not to Scale

2016 Build Conditions Vehicle Volumes
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

Figure 5.b.2

\\vhb\proj\Boston\13651.00\graphics\FIGURES\Network Figures\Networks.dwg

NOTE:
* Denotes U-Turn

Not to Scale

2021 Future Conditions Vehicle Volumes
AM Peak Hour (8:00 AM - 9:00 AM)
55 Wheeler Street Project
Cambridge, Ma

Figure 5.c.1

NOTE:
* Denotes U-Turn

Not to Scale

2021 Future Conditions Vehicle Volumes
PM Peak Hour (4:30 PM - 5:30 PM)
55 Wheeler Street Project
Cambridge, Ma

Figure 5.c.2

Source: Bing Aerial

2016 Existing
2016 Build
2021 Future

Figure 6.a.1

Vehicular Level of Service Comparison Map
AM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

2016 Existing
2016 Build
2021 Future

Figure 6.a.2

Vehicular Level of Service Comparison Map
PM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

Net Delay from Existing to Build
(Project Impact)

Net Delay from Existing to Future
(impact due to all other development in the region)

Added Delay of 10 Seconds or Less

Added Delay of 10.1 to 20 Seconds

Added Delay of more than 20 Seconds

Figure 6.b.1

Net Change in Vehicular Delay
AM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

Net Delay from Existing to Build
(Project Impact)

Net Delay from Existing to Future
(impact due to all other development in the region)

Added Delay of 10 Seconds or Less

Added Delay of 10.1 to 20 Seconds

Added Delay of more than 20 Seconds

vhb

Figure 6.b.2

Net Change in Vehicular Delay
PM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

2016 Existing
2016 Build
2021 Future

Note: LOS represented the pedestrian crosswalk with the longest delay time at that intersection location

Figure 11.a.1

Pedestrian Level of Service Comparison Map
AM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

Source: Bing Aerial

2016 Existing
2016 Build
2021 Future

Note: LOS represented the pedestrian crosswalk with the longest delay time at that intersection location

Figure 11.a.2

Pedestrian Level of Service Comparison Map
PM Peak Hour

55 Wheeler Street Project
Cambridge, Massachusetts

55 Wheeler Street Development

Cambridge, Massachusetts

Technical Appendix

PREPARED FOR

55-9 Wheels Owner, LLC
10 Avery Street
Boston, MA 02111

PREPARED BY

99 High Street
Boston, MA 02110
617.728.7777

January 24, 2016

55 Wheeler Street Development

Transportation Impact Study

Technical Appendix

Request for Scoping Letter – August 23, 2016
Scoping Letter – October 19, 2016
TP&T Comment Letter – January 6, 2017
Traffic Counts
- Automatic Traffic Recorder Counts
- Turning Movement Counts
- Detailed Pedestrian and Cyclist Counts

Trip Generation Calculation
Background Traffic
- 605 Concord Avenue
- 95 Fawcett Street
- 75 New Street
- 130 Cambridge Park Drive
- 88 Cambridge Park Drive
- 35 Cambridge Park Drive

Synchro Results:
- 2016 Existing Conditions
- 2016 Build Conditions
- 2021 Future Conditions
- Supplemental Analysis – All conditions

SIDRA Results:
- 2016 Existing Conditions
- 2016 Build Conditions
- 2021 Future Conditions

Crash Rate Reports
Transit Analysis
- MBTA Analysis
- Alewife TMA Schedule

Signal Warrant Analysis
Pedestrian/Bicycle Rail Line Connection Feasibility Study

55 Wheeler Street Development

Transportation Impact Study

Technical Appendix

Request for Scoping Letter – August 23, 2016

August 23, 2016

Ref: 13651.00

Mr. Joseph Barr
Director | Traffic, Parking, and Transportation Department
City of Cambridge
344 Broadway
Cambridge, MA 021239

Re: 55 Wheeler Street Development
Request for TIS Scoping Determination

Dear Mr. Barr:

55-9 Wheels Owner, LLC has retained VHB to prepare a Transportation Impact Study (TIS) for the proposed 55 Wheeler Street residential development in Cambridge, Massachusetts. The TIS will consider the development of up to approximately 500,000 gross square feet of residential space (up to 550 units) distributed over 2 new buildings that will be supported by approximately 495 new parking spaces contained in below grade parking, as well as approximately 577 long term bicycle parking spaces and 55 short term bicycle parking spaces, in accordance with the City's Bicycle Parking Guidelines. As part of the project, a roadway connecting Wheeler Street to Fawcett Street will be constructed as a continuation of the roadway completed as part of the Atmark Residential project. Table 1 provides a summary of the proposed program and Figure 1 shows the proposed site location.

Table 1: Summary of Proposed Program

Project Component	Size / Quantity
Residential	550 units (500,000 GSF)
Vehicle Parking	495 (0.9 spaces / unit)
Bicycle Parking	577 long term spaces 55 short-term spaces

VHB proposes the following TIS scope for your consideration:

- The TIS analysis will be performed in accordance with the requirements and methodologies described in the City's latest TIS Guidelines.

Engineers | Scientists | Planners | Designers

99 High Street
10th Floor
Boston, Massachusetts 02110
P 617.728.7777
F 617.728.7782

Existing Conditions and Data Collection

- An inventory of existing conditions will be conducted and documented as described within the TIS Guidelines.
- 48-hour ATR counts will be conducted along Wheeler Street and Concord Avenue, near the Project Site.
- 12-hour pedestrian and bicycle counts will be conducted along Wheeler Street and Concord Avenue, near the Project Site.
- Turning Movement Counts (TMCs), including queue observations, will be conducted at the seven study area intersections listed below:

    1. Concord Avenue / Blanchard Road / Griswold Street (signalized)
    2. Concord Avenue / Smith Place
    3. Concord Avenue / Moulton Street / Neville Manor (signalized)
    4. Concord Avenue / Fawcett Street
    5. Concord Avenue / Wheeler Street
    6. Concord Avenue / Alewife Brook Parkway (Fresh Pond Rotary)

- Crash data for the three most recent years available, will be presented for the study area intersections.
- Public transportation existing ridership data, available via MassDOT Blue Book and MBTA provided data, within a ½ mile of the project site will be presented.

Project Traffic

- To estimate traffic generated by the Project, Institute of Transportation Engineers (ITE) average trip generation rates for Apartment (LUC 220) will be used. A summary of the resulting ITE unadjusted vehicle trips including weekday daily, morning and evening peak hour trips for the Project are presented in Table 2.

Table 2: ITE Based Unadjusted Trip Generation Summary

	Daily	AM Peak	PM Peak
Entering	1,829	56	222
Exiting	1,829	224	119
Total	3,658	281	341

Source: Trip Generation, 9th Edition; Institute of Transportation Engineers; average rates

- The 2009 National Household Travel Survey provides the national Average Vehicle Occupancy (AVO) of 1.13 for residential (Apartment) land use which will be used to convert ITE unadjusted vehicle trips to person trips. Local AVO for residential land use is calculated to be 1.10 based on data from the

2010-2014 American Commuting Survey (ACS) 5-Year Estimates for the census tract 3546, Middlesex County, MA.

- Mode split for residential trips is based on the American Commuting Survey (ACS) and is presented in Table 3.

Table 3: Mode Share

Mode	American Commuting Survey (ACS) for Census Tract 3546
Drive Alone	44%
Rideshare	8.7%
Transit	24.3%
Bike	4.8%
Walk	6.6%
Other	0.8%
Work at Home	10.8%
Total	100%

- The ITE unadjusted vehicle trips, shown in Table 2 above, are converted to person trips by applying the national AVO of 1.13 for residential land uses. Person trips are split in accordance with the mode shares presented in Table 3 to yield vehicle, transit, walk, bike and other trips estimated to be generated by the Project. Vehicle-person trips are adjusted back to vehicle trips by applying the calculated local AVO of 1.10 for residential land uses. The estimated trips by mode are presented in Table 4.

Table 4: Total Project Generated Trips (before Existing Use Credit)

	Vehicle Trips			Transit Trips			Bicycle Trips			Walk Trips		
	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Entering	1,073	33	130	502	15	61	99	3	12	136	4	17
Exiting	1,073	132	70	502	62	33	99	12	6	136	17	9
Total	2,145	165	200	1,004	77	94	198	15	18	273	21	25

Source: Trip Generation, 9th Edition; Institute of Transportation Engineers – LUC 220

- The TIS will include a trip generation credit for existing on-site uses. The existing approximately 126,000 square foot office buildings will be demolished as part of the project. Accordingly, trips associated with the existing buildings will be removed from the roadway network. The trip credit will be determined from actual driveway counts (as outlined in the TIS Guidelines methodology) that will be conducted in September 2016, and accounted for in the TIS analysis. For the purposes of the scoping determination, the credit has not been applied, however a review of ITE trip generation data indicates the possibility of a substantial reduction that could potentially lead to a net negative trip generation during the morning inbound and evening outbound periods.

- Journey-to-work census data is used to determine distribution of project vehicle trips onto the roadway network. The distribution of project trips exiting the site assumes a 50/50 percent split between Wheeler Street and Fawcett Street. The build condition assumes a roadway connection between Fawcett Street and Wheeler Street proposed by the project. Table 5 and Figure 2 summarize the regional residential trip distribution.

Table 5: Summary of Vehicle Trip Distribution

Trip Assignment	Direction	Trip Distribution
Rt.16 / Fresh Pond Parkway to memorial Drive	SB	32%
Alewife Brook Pkwy	NB	8%
Mount Auburn Street	SB	2%
Rt. 2	WB	10%
Concord Ave towards Harvard Square	EB	30%
Rindge Avenue	EB	4%
Concord Avenue towards Boston	WB	14%

- The project generated vehicle trips, as presented in Table 4 above, are assigned to the study area network based on the trip distribution shown in Table 5. Figures 3 and 4 provide a preliminary trip assignment for inbound and outbound trips and Figures 5 and 6 illustrate the resulting total project generated vehicle trips for the morning and evening peak hours. Note that the vehicle trips illustrated in Figures 5 and 6 do not account for existing site use credit, and therefore represent a very conservative overview, for the purpose of this scoping request.
- Loading and delivery access will be documented within the TIS.

Background Traffic

- A general background growth rate of 0.5% per year will be applied to estimate future traffic volumes within the study area.

- In addition to the general background growth, specific background projects will be added to the future traffic volumes, including:
    - 95 Fawcett Street
    - 88 Cambridgepark Drive
    - 130 Cambridgepark Drive
    - 75 New Street

Traffic Analysis

- 2016 Existing Conditions – will use the collected TMC data to develop existing vehicle, pedestrian and bicycle peak hour volumes for the morning and evening.
- 2021 Build Conditions – will assume full build out and occupancy of the proposed 55 Wheeler development. Project generated vehicle trips will be added to the 2016 Existing Condition volumes to develop the 2021 Build Condition volumes for the morning and evening peak hours.
- 2021 Future Conditions – will apply the general background growth rate and specific background project trip generation to the 2021 Build volumes to develop the 2021 Future Condition study area volumes, for the morning and evening peak hours.
- A queue analysis, residential street volume analysis, pedestrian analysis, bicycle analysis and transit analysis, as outlined in the TIS Guidelines, will be conducted and presented in the TIS document.
- A comprehensive TDM plan will also be outlined in the TIS

We trust that the foregoing analysis and proposed TIS scope is consistent with your project understanding and we will be pleased to provide any additional information you might require. We look forward to receiving confirmation of your scoping determination, and to working with you on this important project.

Sincerely,

Susan Sloan-Rossiter

Susan Sloan-Rossiter
Principal
ssloanrossiter@vhb.com

CC: Adam Shulman, TP&T

Scoping Letter – October 19, 2016

CITY OF CAMBRIDGE
Traffic, Parking and Transportation
344 Broadway
Cambridge, Massachusetts 02139

www.cambridgema.gov/traffic

Joseph E. Barr, Director
Brad Gerratt, Assistant Director for Parking Management
Brooke McKenna, Assistant Director for Street Management

Phone: 617-349-4700
Fax: 617-349-4747

October 19, 2016

Reid Joseph
55-9 Wheels Owner, LLC
10 Avery Street
Boston, MA 02111

Susan Sloan-Rossiter
VHB
99 High Street
10th Floor
Boston, MA 02110

RE: 55 Wheeler Street Development project

Dear Reid and Susan:

The Cambridge Traffic, Parking and Transportation (TP&T) Department received your August 23, 2016 request for a Transportation Impact Study (TIS) scope on behalf of 55-9 Wheels Owner, LLC, for the proposed 55 Wheeler Street Development project.

The 55 Wheeler Street Development project proposes up to approximately 500,000 gross square feet of residential use (up to 450 units), and approximately 495 parking spaces (0.9 spaces/unit). The project proposes approximately 577 long-term bicycle parking spaces and 55 short-term bicycle parking spaces. Based on staff review, the scope for this TIS is approved as follows.

- The TIS shall comply with the Cambridge TIS Guidelines. http://www.cambridgema.gov/traffic/alldocuments/Documents/T/trafficstudyguidelines. Please provide 4 hard copies of the full TIS and one CD-ROM that includes the full TIS, TIS appendices and all electronic files.

- The TIS should provide tables, maps, and figures of the existing study area transportation conditions, including the following information:
    - Document the existing site conditions and uses, including: square feet, land use, percent occupancy, number of full- and part-time employees, and number of automobile and bicycle parking spaces.
    - Describe in detail the proposed project, including square footage, number of units, vehicle, pedestrian and bicycle access locations.
    - Provide existing and proposed project site plan(s) including property lines. Show all abutting parcels and label property ownership and any easements.
    - Site plans should show existing and proposed widths for roadways, driveways, and sidewalks, including the proposed connector roadway between Wheeler Street and Fawcett Street.

- For area context, provide zoomed out site plan(s) showing Concord Avenue, Fawcett Street (including the Atmark residential building), Cambridgepark Drive (including the 88 Cambridgepark Drive project), Alewife Brook Parkway and Terminal Road.

- Collect automatic traffic recorder (ATR) counts (minimum 48-hours) at the following locations:

  1. Wheeler Street, north of Concord Avenue
  2. Concord Avenue between Alewife Brook Parkway and Fawcett Street
  3. Fawcett Street, north of Concord Avenue
  4. Alewife Brook Parkway, north of Concord Avenue

- Collect AM and PM peak hour traffic, pedestrian, and bicycle turning movement counts (TMCs) at the following study area intersections. The exact dates of the traffic counts should be labeled on the traffic network figures. Vehicle queue observations should coincide with turning movement counts.

  1. Concord Avenue / Blanchard Road / Griswold Street
  2. Concord Avenue / Spinelli Place
  3. Concord Avenue / Smith Place
  4. Concord Avenue / Moulton Street / Neville Manor
  5. Concord Avenue / Fawcett Street
  6. Concord Avenue / Wheeler Street
  7. Site Driveway on Wheeler Street
  8. Concord Avenue pedestrian/bicycle traffic signal between Wheeler Street and Fawcett Street
  9. Fawcett Street / Connecting roadway
  10. Concord Avenue / Alewife Brook Parkway (Fresh Pond Rotary)
  11. Concord Avenue / Fresh Pond Parkway / New Street (Sozio Rotary)
  12. Midblock crosswalk between Fresh Pond Rotary and Sozio Rotary
  13. Alewife Brook Parkway / Terminal Road

- As you suggested in the TIS scope request letter, please collect 12 hour pedestrian and bicycle counts along Wheeler Street and Concord Avenue, near the Project site. The TIS should be precise and show/describe exactly where the counts were conducted. Concord Avenue counts should distinguish between cyclists using the cycle track or roadway, and by direction of travel. Wheeler Street bicycle and pedestrian counts should as precisely as possible show the exact locations and directions of travel for pedestrians and bicyclists, including connections to/from the shopping area.

- Collect AM and PM peak hour bicycle and pedestrian counts on the Alewife Brook Parkway Bridge on top of the MBTA Commuter rail tracks. Pedestrian and bicycle counts should include sidewalks on both sides of the bridge, and record pedestrian and bicycle direction of travel.

- The TIS should document and graphically illustrate all existing public and private transit services in the area (including the commuter rail line, MBTA Alewife Station and Hubway bikesharing system). The TIS should include information on daily and peak hour train and bus ridership, boarding, alighting, bus and train loads, and volumes to capacity ratios. Also, document bus stop conditions or lack of, such as bus shelters, benches, lighting, maps and schedules, etc.

- The TIS should include crash data for the three most recent years available at all study area intersections. Include crash rates for each intersection and show bicycle and pedestrian crash rates separately. Crash rates should be compared to district and statewide averages for signalized and un-signalized intersections.

- Trip Generation. Instead of using the Institute of Transportation Engineers (ITE) trip generation rates, the trip generation analysis should be based on trip rates from other comparable residential buildings in the area, such as the 80-90 Fawcett Street project (Atmark), 603 Concord Avenue, and 25-39 Wheeler Street. Single occupancy vehicle (SOV), carpooling, pedestrian, bicycle and transit mode share assumptions should be determined based on driveway and door counts (document the dates counts were taken) and transportation monitoring reports, if available. The trip generation and proposed mode shares should also be compared to the most recently available US Census data for the Project site, and/or other data sources as approved by TP&T. All mode share, project trip generation assumptions and calculations, trip distributions and assignments shall be approved by TP&T prior to submitting the TIS.

- As requested in your TIS scoping letter, you may take trip credits for traffic generation from the existing site, as long as all data and assumptions are clearly documented, including the specific count dates. Counts should not be collected on days that may be different from a typical weekday, such as a day with a special event occurring.

- Trip Distribution.
    - Your TIS scope request letter stated that journey-to-work census data was used to determine distribution of project vehicle trips onto the roadway network. The date of the journey-to-work census data needs to be provided. Trip distribution should also be compared/verified with existing traffic flow trends and turning movement count data.
    - A 50/50 split between vehicles using Wheeler Street and Fawcett Street to access the site is reasonable assuming a roadway connection between Fawcett Street and Wheeler Street proposed by the project.
    - Figures 3-6 should be expanded to include all study area intersections. For context, the figures should also show the quadrangle roadways, including Fawcett Street, Smith Place, Wilson Road and Moulton Street.
    - Figures 2-6 in your TIS scope request letter should be drawn as close to scale as possible, especially to show the proposed project site plan, building footprints, and parking access locations.

- The TIS should include the following traffic analysis scenarios:
    - 2016 Existing Condition for vehicle, pedestrian and bicycles.
    - Project Generated Trips.
    - 2016 Build Condition. Existing Conditions plus the net new project generated trips.
    - 2021 Future Condition. 2016 Build Condition plus 0.5% background growth rate per year for 5-years, plus any other projects under construction, permitted or proposed, including the following projects:
        - 605 Concord Avenue
        - 87-95 Fawcett Street
        - 75 New Street
        - 130 Cambridgepark Drive
        - 88 Cambridgepark Drive
        - 35 Cambridgepark Drive renovation project

- Your TIS scoping request letter stated that vehicle trips shown in the figures are total vehicle trips generated by the Project, not including a reduction for existing use on site and that the TIS will focus on analyzing Net New Trips Only. The TIS may evaluate net new trips for the traffic impact analysis, however the TIS should include traffic volume figures for all conditions, including, Existing study area trips, Existing site generated trips, Project generated trips, Net New trips, Build, and Future trips. The TIS should include traffic volume figures for bicycle and pedestrian trips for the Existing, Build and Future scenarios. You should provide

particular attention to the estimated pedestrian and bicycle routes between the project site and key area destinations, such as, the MBTA Alewife station, bus stops, shopping areas, and recreational facilities. The TIS should also consider impact at new pedestrian/bicycle bridge.

- Review the City's 2005 Concord-Alewife Plan and show and discuss how the proposed project will be consistent with the plan.
    - A key recommendation in the Concord-Alewife Plan is a proposed pedestrian-bicycle bridge over the rail road tracks connecting the Quadrangle to the Triangle. The Concord-Alewife Plan stated that this is the single most important element for improving transit access to/from the Quadrangle and Cambridge Highlands because it would reduce auto mode share and positively impact traffic in the study area. The City of Cambridge is currently conducting a feasibility study for a pedestrian/bicycle bridge over the railroad tracks and commuter rail station. The City has also secured commitments for potential bridge landing sites from property owners on the north side of the tracks. The TIS should show and discuss the feasibility of providing land on the project site for a bridge landing and access ramps/stairs.
    - Another recommendation in the Concord-Alewife Plan is creation of east-west roadways. The TIS must show and describe how the proposed roadway connector between Wheeler Street and Fawcett Street is consistent with the Concord-Alewife Plan and how the connection might cause a re-distribution of vehicle, pedestrian and bicycle movements in the area, including connections between the Quadrangle and the shopping areas located off of Alewife Brook Parkway.
    - The Concord-Alewife Plan, page 35, shows a proposed pedestrian/bicycle connection located adjacent to the railroad tracks and electrical substations between the Project site and terminal Road and shopping areas (i.e. Fresh Pond mall). The TIS should provide basic information regarding the feasibility of this pedestrian/bike connection. This should include site plans showing property lines, ownership, widths, slopes and grades, and any other information/data that is relevant to determining the overall feasibility of this connection. The TIS should also consider how a potential pedestrian/bicycle facility would connect to the Project site and potential future pedestrian/bicycle bridge landing (ramps and stairs).
    - Provide AM and PM peak hour transit analysis for 2016 Existing, 2016 Build and 2021 Future Build public and private transit services. This should include distribution and assignment of transit demand by available services (i.e. Red Line, bus routes, etc.), existing usage, and Project impacts on available capacity. The transit analysis should be based on actual on-time performance (i.e. do not assume all Red Line trains run on time as scheduled). Off peak and weekend headways and capacity do not need to be evaluated in detail, however deficiencies or limitations in these services should be noted.
    - Provide a traffic signal warrant analysis for the Fawcett Street at Concord Avenue intersection based on Existing, Build and Future traffic volumes.
    - Provide maps that graphically show Vehicle LOS and Pedestrian LOS for all study area intersections for AM and PM peak hours (Existing, Build and Future Conditions). Provide one map for AM and one map for PM peak hour, showing LOS for all conditions.
    - Provide maps that graphically show vehicle delay (in seconds) for all study area intersections for AM and PM peak hours.
        - Vehicle delay maps should show the impacts that the Project will have on net change in delay (seconds). A color coded system, such as, Green for 10 or less seconds of added delay, Yellow for 11-19 seconds of added delay, and Red for 20 or greater seconds of added delay may be used, or another similar graphical map approved by the TP&T Department. This color coding system needs to reflect the full range of expected vehicle delay, rather than being concentrated at one end of the spectrum. Intersection delay maps should also be provided for the Future

Condition to take into account all other area development Projects. Graphical maps should be approved by TP&T prior to submittal in the TIS.

- The study area intersections should be listed in a table that shows existing vehicle delay in seconds, and net change in delay for Build and Future conditions.
- The TIS should indicate observed vehicular queues at intersections approaches compared to computer modeled queues.
- The TIS intersection capacity analysis tables must not indicate ">80 seconds". The total number of seconds must be provided.
- Describe in detail and provide site plans (i.e. 1:20 scale), for the project's trash and move-in/move-out operations, including number of trips expected per day, times of day, and the proposed move-in/move-out traffic management plan.

- Automobile Parking.
  - Document the number of existing parking spaces, and peak parking occupancy.
  - According the City's 1990 parking inventory, 55 Wheeler Street was reported as having 271 employee parking spaces.
  - Determine the Project's expected mid-day and evening peak hour parking demands based on parking demands at other residential projects in area, if possible, or anther methodology approved by TP&T.
  - Describe how parking will be managed for residents, visitors and site employees (i.e. daily or monthly parking fees, dedicated spaces vs. garage access cards, number of spaces per unit, etc.).

- Bicycle Parking. The Project's bicycle parking must meet the City's bicycle parking zoning requirements http://www.cambridgema.gov/cdd/projects/planning/bicycleparkingzoning.aspx. Provide 1:10 scale plans for the proposed short- and long-term bicycle parking spaces. Indicate the type of bicycle rack(s) to be provided (i.e. manufacturer and specifications).

- The TIS should describe in detail proposed transportation mitigation, including, sidewalk, roadway and traffic control infrastructure improvements and Transportation Demand Management (TDM) measures. The TIS should discuss how the mitigation will or cannot mitigate the Planning Board Special Permit Transportation exceedances. The TIS should provide a table listing proposed mitigation, in detail, and when they will be completed (i.e. prior to Building Permit, Prior to Occupancy Permit, Ongoing).

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

Very truly yours,

Joseph E. Barr
Director

cc: Adam Shulman, TP&T

TP&T Comment Letter – January 6, 2017

CITY OF CAMBRIDGE
Traffic, Parking and Transportation
344 Broadway
Cambridge, Massachusetts 02139

www.cambridgema.gov/traffic

Joseph E. Barr, Director
Brad Gerratt, Assistant Director for Parking Management
Brooke McKenna, Assistant Director for Street Management

Phone: 617-349-4700
Fax: 617-349-4747

January 6, 2017

Reid Joseph
55-9 Wheels Owner, LLC
10 Avery Street
Boston, MA 02111

Selma-Mandzo-Preldzic
VHB, Inc.
99 High Street, 10th Floor
Boston, MA 02110

RE: 55 Wheeler Street Development project

Dear Selma:

The Cambridge Traffic, Parking and Transportation (TP&T) Department received your Transportation Impact Study (TIS) on December 20, 2016 for the proposed 55 Wheeler Street Development project by 55-9 Wheels Owner, LLC. Based on staff review, some corrections and clarifications are needed for us to certify the TIS as accurate and complete. Please make the corrections and submit 3 hard copies and a CD-ROM of the updated TIS.

TIS Scope/Analysis Questions

- Contrary to what was requested in the TIS scope, the TIS did not evaluate how the proposed roadway connection may cause a redistribution of vehicle, pedestrian and bicycle movements between the Quadrangle and Shopping areas located off Alewife Brook Parkway. This may be especially important if the roadway connection between Terminal Road and Wheeler Street shown in Figure H is intended to be built. The TIS should clarify if this connection is an existing or proposed connection. However, even if there is no roadway connection between Terminal Road and Wheeler Street, it is important to understand whether Wheeler Street Extension could cause traffic redistribution, such as vehicles turning right off of Concord Avenue onto Wheeler Street instead of onto Fawcett Street to enter the Quadrangle, particularly during peak hours when Concord Avenue is congested.
- Contrary to what was requested in the TIS scope, the proposed site plan (Figure D) did not show widths for roadways, driveways, and sidewalks. Parking space dimensions should also be shown. The dimensions are important since the Wheeler Street Extension is a proposed new roadway that will eventually be a public street.
- The TIS did not adequately provide basic information, as requested in the TIS scope, regarding the feasibility of a pedestrian/bicycle connection located adjacent to the railroad tracks and electric substation, including property lines, ownership, widths, slopes and grades and any other data that is relevant to determining the general feasibility of this connection. Figure H provided no information

pertaining to this question such as existing width and grades of the potential Pedestrian/Bike Connection Extension.

- Contrary to what was requested in The TIS scope, the TIS did not provide an estimate of expected mid-day and evening peak hour parking demands based on parking demands of other residential projects in the area.

Clarifications/Corrections

- On page 47, Table 10.F.1 (Background Project Transit Trips) indicates that the 88 Cambridgepark Drive project will create 18 PM peak hour transit trips. However, the TIS for that project estimated 168 transit trips. The 18 PM peak hour transit trips is shown in the calculations the Appendix so it appears to be more than a typo. Therefore, Table 10.G.1 (Future Transit System Utilization analysis) should be corrected and the associated analysis should be updated.
- Page 49 indicates the Route 351 Outbound exiting Alewife Station V/C = 1.11, however, Table 10.E.1 indicates 1.19. Please correct or clarify.
- On page 51, it is unclear if and how the pedestrian crossing beacon was taken into account for the pedestrian analysis at the Concord Ave/Fawcett Street intersection.
- Page 51 indicates that the Concord Ave/Fawcett Street intersection changes from PLOS A to B in the morning and evening peak hours under the Existing to Build condition scenarios. However, Table 11.A.1 shows that change occurs at the Fawcett Street/Connecting Road intersection. Please correct or clarify.
- On page 57, Table 15.A.1 (Exceedance Mitigation Summary Table) the first and second items list the increased traffic on Fawcett Street and mitigation as the Proponent completing the Wheeler Street/Fawcett Street Connector Road. However, the Connector Road is what causes the traffic volume increase on Fawcett Street that triggers the exceedance. This leaves it unclear as how completing the Connector Road (which causes the exceedance) can also mitigate that exceedance (note that we remain supportive of the Connector Road, but we believe that this requires additional explanation)?
- On page 36, it is unclear in the TIS if parking for short-term loading and visitors is proposed to be accommodated solely on-street or both on-street and in the parking garage?

Other Comments

Lastly, TP&T would like to offer the following comments which we plan to explore in more detail with you as part of our review and discussion as the Project moves forward.

- The City's expectation is that the Wheeler Street Extension will be a public street including sidewalks on both sides. As a City street any on-street parking spaces will not count towards the project's zoning required parking spaces and will be regulated and controlled by the City
- The exact access location to/from the long-term bike parking from the Wheeler Street Extension is unclear and should be shown more clearly in the Planning Board Special Permit Application.
- According to the TIS, the Project is offering land for a bridge landing area be set aside in a proposed 40.000 sf park. This sound very positive, however it is unclear if that is enough space to accommodate a bridge landing and access ramps/stairs and if the existing drainage, water, and sewer easements will impact the feasibility of providing such a bridge landing in that area. Page 4 in the TIS talks about the park featuring landscaping and bicycle path connections and referred to Figure H, but Figure H showed no such landscaping and bicycle path connections.

Please call Adam Shulman of my staff at 617-349-4745 if you have any questions or would like to discuss any of these comments or requested updates. We look forward to reviewing your revised TIS when it is resubmitted.

Very truly yours,

Joseph E. Barr
Director

cc: Adam Shulman, TP&T

Traffic Counts

Automatic Traffic Recorder Counts (ATR)
Turning Movement Counts (TMCs)
Pedestrian and Cyclist Counts

Automatic Traffic Recorder Counts (ATR)

Fawcett Street
just north of Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 A Volume
Site Code: TBA

Start	NB				SB				Combined				05-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	1		41		2		32		3		73		
12:15	5		37		3		38		8		75		
12:30	4		30		1		37		5		67		
12:45	3	13	30	138	2	8	22	129	5	21	52	267	
01:00	1		37		1		27		2		64		
01:15	2		29		1		26		3		55		
01:30	1		34		2		26		3		60		
01:45	2	6	31	131	1	5	23	102	3	11	54	233	
02:00	8		35		2		21		10		56		
02:15	2		25		0		29		2		54		
02:30	2		27		4		34		6		61		
02:45	2	14	24	111	8	14	23	107	10	28	47	218	
03:00	1		26		4		33		5		59		
03:15	0		34		0		19		0		53		
03:30	4		35		0		22		4		57		
03:45	3	8	32	127	1	5	27	101	4	13	59	228	
04:00	1		22		0		39		1		61		
04:15	3		23		4		24		7		47		
04:30	1		31		0		20		1		51		
04:45	7	12	33	109	0	4	23	106	7	16	56	215	
05:00	11		13		4		22		15		35		
05:15	5		32		2		20		7		52		
05:30	8		28		7		26		15		54		
05:45	19	43	25	98	10	23	33	101	29	66	58	199	
06:00	20		31		12		11		32		42		
06:15	22		21		12		20		34		41		
06:30	35		22		14		21		49		43		
06:45	51	128	32	106	12	50	19	71	63	178	51	177	
07:00	47		27		28		28		75		55		
07:15	43		33		32		21		75		54		
07:30	27		32		43		10		70		42		
07:45	35	152	20	112	23	126	23	82	58	278	43	194	
08:00	40		23		31		21		71		44		
08:15	40		21		20		20		60		41		
08:30	48		22		23		6		71		28		
08:45	45	173	27	93	27	101	16	63	72	274	43	156	
09:00	54		16		23		12		77		28		
09:15	44		18		33		14		77		32		
09:30	48		9		26		10		74		19		
09:45	35	181	10	53	32	114	4	40	67	295	14	93	
10:00	47		5		27		7		74		12		
10:15	39		11		32		4		71		15		
10:30	37		4		47		6		84		10		
10:45	27	150	9	29	27	133	4	21	54	283	13	50	
11:00	30		3		32		2		62		5		
11:15	26		4		29		6		55		10		
11:30	26		5		25		2		51		7		
11:45	42	124	2	14	23	109	1	11	65	233	3	25	
Total	1004		1121		692		934		1696		2055		
Percent	59.2%		54.5%		40.8%		45.5%						
Day Total		2125				1626				3751			
Peak	08:30	-	12:00	-	09:45	-	12:00	-	08:45	-	12:00	-	-	-
Vol.	191	-	138	-	138	-	129	-	300	-	267	-	-	-
P.H.F.	0.884		0.841		0.734		0.849		0.974		0.890			

Fawcett Street
just north of Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 A Volume
Site Code: TBA

Start	NB				SB				Combined				06-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	4		37		3		35		7		72		
12:15	2		52		0		22		2		74		
12:30	2		34		1		33		3		67		
12:45	2	10	42	165	1	5	35	125	3	15	77	290	
01:00	3		33		2		34		5		67		
01:15	2		40		2		22		4		62		
01:30	1		30		1		35		2		65		
01:45	2	8	34	137	2	7	29	120	4	15	63	257	
02:00	9		29		0		27		9		56		
02:15	3		34		1		34		4		68		
02:30	0		28		1		25		1		53		
02:45	5	17	22	113	8	10	30	116	13	27	52	229	
03:00	1		33		3		30		4		63		
03:15	1		38		1		34		2		72		
03:30	1		33		1		39		2		72		
03:45	4	7	31	135	0	5	23	126	4	12	54	261	
04:00	3		34		1		22		4		56		
04:15	1		22		1		21		2		43		
04:30	2		33		4		35		6		68		
04:45	9	15	29	118	2	8	23	101	11	23	52	219	
05:00	5		25		3		25		8		50		
05:15	8		20		9		26		17		46		
05:30	7		29		6		26		13		55		
05:45	17	37	32	106	4	22	23	100	21	59	55	206	
06:00	21		31		5		20		26		51		
06:15	22		27		13		26		35		53		
06:30	26		26		11		25		37		51		
06:45	44	113	38	122	16	45	20	91	60	158	58	213	
07:00	54		31		34		25		88		56		
07:15	44		15		33		21		77		36		
07:30	27		31		26		16		53		47		
07:45	29	154	24	101	23	116	11	73	52	270	35	174	
08:00	41		17		28		21		69		38		
08:15	45		19		22		13		67		32		
08:30	39		16		31		16		70		32		
08:45	46	171	11	63	30	111	19	69	76	282	30	132	
09:00	43		20		31		12		74		32		
09:15	55		21		40		20		95		41		
09:30	37		12		41		11		78		23		
09:45	50	185	10	63	28	140	6	49	78	325	16	112	
10:00	54		13		33		10		87		23		
10:15	40		10		23		15		63		25		
10:30	28		9		31		4		59		13		
10:45	36	158	6	38	25	112	1	30	61	270	7	68	
11:00	50		12		29		8		79		20		
11:15	32		8		29		2		61		10		
11:30	38		5		30		7		68		12		
11:45	37	157	9	34	31	119	3	20	68	276	12	54	
Total	1032		1195		700		1020		1732		2215		
Percent	59.6%		54.0%		40.4%		46.0%						
Day Total		2227				1720				3947			
Peak	09:15	-	12:00	-	08:45	-	02:45	-	09:15	-	12:00	-	-	-
Vol.	196	-	165	-	142	-	133	-	338	-	290	-	-	-
P.H.F.	0.891		0.793		0.866		0.853		0.889		0.942			

Fawcett Street
just north of Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 A Class
Site Code: TBA

NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	11	0	0	2	0	13
01:00	0	0	5	1	0	0	0	6
02:00	0	0	13	0	0	1	0	14
03:00	0	0	5	2	0	0	1	8
04:00	0	0	11	0	0	1	0	12
05:00	1	0	34	4	0	4	0	43
06:00	0	0	111	14	1	2	0	128
07:00	0	2	125	17	3	5	0	152
08:00	0	0	145	14	2	10	2	173
09:00	7	0	127	26	2	19	0	181
10:00	0	0	106	30	1	12	1	150
11:00	1	0	101	9	0	7	6	124
12 PM	0	1	110	17	3	7	0	138
13:00	3	1	113	10	0	3	1	131
14:00	6	0	78	16	0	8	3	111
15:00	1	0	98	16	1	11	0	127
16:00	2	0	86	15	3	3	0	109
17:00	0	0	77	14	3	4	0	98
18:00	8	0	92	2	1	3	0	106
19:00	0	1	106	3	1	1	0	112
20:00	1	1	90	0	0	1	0	93
21:00	1	1	49	0	0	2	0	53
22:00	2	0	27	0	0	0	0	29
23:00	2	0	9	2	0	1	0	14
Total	35	7	1729	212	21	107	14	2125
Percent	1.6%	0.3%	81.4%	10.0%	1.0%	5.0%	0.7%	0.0%
AM Peak	09:00	07:00	08:00	10:00	07:00	09:00	11:00	09:00
Vol.	7	2	145	30	3	19	6	181
PM Peak	18:00	12:00	13:00	12:00	12:00	15:00	14:00	12:00
Vol.	8	1	113	17	3	11	3	138

Fawcett Street
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NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	0	8	2	0	0	0	10
01:00	0	0	6	2	0	0	0	8
02:00	0	0	16	1	0	0	0	17
03:00	0	0	2	1	0	4	0	7
04:00	0	0	15	0	0	0	0	15
05:00	0	0	32	2	0	3	0	37
06:00	2	0	100	6	1	4	0	113
07:00	7	2	120	19	2	4	0	154
08:00	3	0	151	11	4	2	0	171
09:00	11	0	135	28	2	6	3	185
10:00	4	0	117	21	2	14	0	158
11:00	3	0	116	23	1	14	0	157
12 PM	1	1	134	18	0	10	1	165
13:00	2	0	117	11	0	7	0	137
14:00	1	0	88	17	0	6	1	113
15:00	3	2	84	21	1	24	0	135
16:00	2	0	93	8	2	13	0	118
17:00	3	0	87	11	3	2	0	106
18:00	5	0	111	4	0	2	0	122
19:00	4	1	89	4	0	3	0	101
20:00	0	0	61	2	0	0	0	63
21:00	1	0	60	2	0	0	0	63
22:00	0	1	36	0	0	1	0	38
23:00	0	0	32	1	0	1	0	34
Total	52	7	1810	215	18	120	5	2227
Percent	2.3%	0.3%	81.3%	9.7%	0.8%	5.4%	0.2%	0.0%
AM Peak	09:00	07:00	08:00	09:00	08:00	10:00	09:00	09:00
Vol.	11	2	151	28	4	14	3	185
PM Peak	18:00	15:00	12:00	15:00	17:00	15:00	12:00	12:00
Vol.	5	2	134	21	3	24	1	165

Fawcett Street
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SB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	8	0	0	0	0	8
01:00	0	1	3	1	0	0	0	5
02:00	0	0	4	8	0	2	0	14
03:00	0	0	1	4	0	0	0	5
04:00	0	0	4	0	0	0	0	4
05:00	0	0	17	4	0	1	1	23
06:00	0	0	42	4	1	3	0	50
07:00	0	0	91	23	1	9	2	126
08:00	0	0	87	11	0	3	0	101
09:00	1	1	91	12	1	8	0	114
10:00	0	0	102	25	0	6	0	133
11:00	0	0	85	14	0	10	0	109
12 PM	0	0	108	13	0	7	1	129
13:00	0	0	85	13	0	4	0	102
14:00	1	0	91	11	1	2	1	107
15:00	3	1	82	12	3	0	0	101
16:00	0	0	85	15	2	4	0	106
17:00	0	1	95	2	2	1	0	101
18:00	1	0	68	0	1	1	0	71
19:00	3	2	72	3	2	0	0	82
20:00	0	0	59	4	0	0	0	63
21:00	0	0	39	0	0	1	0	40
22:00	0	0	20	1	0	0	0	21
23:00	0	0	10	0	0	1	0	11
Total	9	6	1349	180	14	63	5	1626
Percent	0.6%	0.4%	83.0%	11.1%	0.9%	3.9%	0.3%	0.0%
AM Peak	09:00	01:00	10:00	10:00	06:00	11:00	07:00	10:00
Vol.	1	1	102	25	1	10	2	133
PM Peak	15:00	19:00	12:00	16:00	15:00	12:00	12:00	12:00
Vol.	3	2	108	15	3	7	1	129

Fawcett Street
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Client: VHB/ S. Mandzo

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165280 A Class
Site Code: TBA

SB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	0	4	1	0	0	0	5
01:00	0	0	7	0	0	0	0	7
02:00	0	0	9	1	0	0	0	10
03:00	0	0	0	4	0	1	0	5
04:00	0	0	4	3	0	1	0	8
05:00	0	1	17	2	0	2	0	22
06:00	0	0	36	7	1	1	0	45
07:00	1	0	91	14	2	8	0	116
08:00	1	0	93	12	2	3	0	111
09:00	18	0	99	17	1	5	0	140
10:00	0	0	92	11	0	8	1	112
11:00	3	0	89	16	1	9	1	119
12 PM	2	1	98	16	0	7	1	125
13:00	1	1	97	12	0	6	3	120
14:00	3	0	86	20	0	7	0	116
15:00	0	1	106	13	3	3	0	126
16:00	1	2	84	9	3	2	0	101
17:00	1	1	91	4	2	1	0	100
18:00	1	0	84	3	2	1	0	91
19:00	0	1	68	2	1	1	0	73
20:00	0	0	65	2	0	2	0	69
21:00	1	0	43	5	0	0	0	49
22:00	0	0	30	0	0	0	0	30
23:00	0	0	19	1	0	0	0	20
Total	33	8	1412	175	18	68	6	1720
Percent	1.9%	0.5%	82.1%	10.2%	1.0%	4.0%	0.3%	0.0%
AM Peak	09:00	05:00	09:00	09:00	07:00	11:00	10:00	09:00
Vol.	18	1	99	17	2	9	1	140
PM Peak	14:00	16:00	15:00	14:00	15:00	12:00	13:00	15:00
Vol.	3	2	106	20	3	7	3	126

Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 B Volume
Site Code: TBA

Start	EB				WB				Combined				05-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	19		170		18		170		37		340		
12:15	11		179		14		173		25		352		
12:30	14		184		15		166		29		350		
12:45	15	59	149	682	11	58	181	690	26	117	330	1372	
01:00	10		142		12		168		22		310		
01:15	8		157		10		172		18		329		
01:30	10		182		10		164		20		346		
01:45	8	36	153	634	8	40	181	685	16	76	334	1319	
02:00	8		159		13		157		21		316		
02:15	2		170		7		171		9		341		
02:30	10		166		4		191		14		357		
02:45	8	28	158	653	4	28	199	718	12	56	357	1371	
03:00	7		208		5		164		12		372		
03:15	5		148		1		181		6		329		
03:30	2		183		7		175		9		358		
03:45	3	17	199	738	7	20	186	706	10	37	385	1444	
04:00	5		232		3		147		8		379		
04:15	13		170		6		161		19		331		
04:30	7		180		5		174		12		354		
04:45	10	35	202	784	25	39	171	653	35	74	373	1437	
05:00	15		196		16		164		31		360		
05:15	19		187		22		152		41		339		
05:30	31		126		41		169		72		295		
05:45	38	103	197	706	64	143	179	664	102	246	376	1370	
06:00	57		160		67		144		124		304		
06:15	61		172		79		170		140		342		
06:30	91		130		133		148		224		278		
06:45	121	330	219	681	167	446	173	635	288	776	392	1316	
07:00	173		153		186		176		359		329		
07:15	171		129		145		159		316		288		
07:30	183		117		160		135		343		252		
07:45	199	726	116	515	192	683	136	606	391	1409	252	1121	
08:00	217		117		228		134		445		251		
08:15	228		106		217		119		445		225		
08:30	208		85		219		112		427		197		
08:45	236	889	96	404	206	870	110	475	442	1759	206	879	
09:00	218		96		191		95		409		191		
09:15	192		68		178		95		370		163		
09:30	180		51		173		83		353		134		
09:45	180	770	63	278	155	697	80	353	335	1467	143	631	
10:00	166		51		167		52		333		103		
10:15	152		51		181		64		333		115		
10:30	183		23		152		41		335		64		
10:45	172	673	35	160	177	677	56	213	349	1350	91	373	
11:00	180		36		169		24		349		60		
11:15	170		28		167		30		337		58		
11:30	186		16		164		23		350		39		
11:45	169	705	15	95	195	695	18	95	364	1400	33	190	
Total	4371		6330		4396		6493		8767		12823		
Percent	49.9%		49.4%		50.1%		50.6%						
Day Total		10701				10889				21590			
Peak	08:15	-	03:30	-	08:00	-	02:30	-	08:00	-	03:30	-	- -
Vol.	890	-	784	-	870	-	735	-	1759	-	1453	-	- -
P.H.F.	0.943		0.845		0.954		0.923		0.988		0.944		

Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 B Volume
Site Code: TBA

Start	EB				WB				Combined				06-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	16		213		13		180		29		393		
12:15	12		179		21		198		33		377		
12:30	7		199		16		170		23		369		
12:45	6	41	173	764	12	62	198	746	18	103	371	1510	
01:00	9		171		8		163		17		334		
01:15	8		142		5		179		13		321		
01:30	7		154		10		157		17		311		
01:45	5	29	175	642	5	28	187	686	10	57	362	1328	
02:00	3		163		11		168		14		331		
02:15	11		156		9		193		20		349		
02:30	2		155		1		166		3		321		
02:45	8	24	186	660	7	28	208	735	15	52	394	1395	
03:00	5		203		3		188		8		391		
03:15	6		179		2		173		8		352		
03:30	4		207		6		176		10		383		
03:45	2	17	199	788	5	16	185	722	7	33	384	1510	
04:00	11		191		7		166		18		357		
04:15	12		171		10		138		22		309		
04:30	9		191		10		196		19		387		
04:45	14	46	185	738	21	48	142	642	35	94	327	1380	
05:00	12		199		18		157		30		356		
05:15	20		207		24		111		44		318		
05:30	26		197		45		155		71		352		
05:45	34	92	180	783	57	144	190	613	91	236	370	1396	
06:00	51		194		58		138		109		332		
06:15	68		168		91		165		159		333		
06:30	94		188		124		154		218		342		
06:45	127	340	178	728	175	448	163	620	302	788	341	1348	
07:00	169		172		187		150		356		322		
07:15	196		159		162		149		358		308		
07:30	174		113		158		188		332		301		
07:45	194	733	107	551	176	683	149	636	370	1416	256	1187	
08:00	209		135		239		119		448		254		
08:15	226		100		209		129		435		229		
08:30	233		106		226		114		459		220		
08:45	202	870	114	455	228	902	86	448	430	1772	200	903	
09:00	190		84		178		89		368		173		
09:15	223		99		199		100		422		199		
09:30	171		70		153		69		324		139		
09:45	196	780	59	312	181	711	84	342	377	1491	143	654	
10:00	159		64		168		68		327		132		
10:15	149		74		152		66		301		140		
10:30	167		34		158		58		325		92		
10:45	143	618	31	203	178	656	48	240	321	1274	79	443	
11:00	175		47		170		56		345		103		
11:15	149		37		157		36		306		73		
11:30	175		27		169		23		344		50		
11:45	179	678	24	135	184	680	29	144	363	1358	53	279	
Total	4268		6759		4406		6574		8674		13333		
Percent	49.2%		50.7%		50.8%		49.3%						
Day Total		11027				10980				22007			
Peak	08:00	-	03:00	-	08:00	-	02:15	-	08:00	-	02:45	-	-	-
Vol.	870	-	788	-	902	-	755	-	1772	-	1520	-	-	-
P.H.F.	0.933		0.952		0.944		0.907		0.965		0.964			

Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 B Class
Site Code: TBA

EB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	1	52	2	2	2	0	59
01:00	0	1	26	4	2	2	1	36
02:00	0	0	18	7	0	3	0	28
03:00	0	0	10	5	0	2	0	17
04:00	1	0	25	2	0	6	1	35
05:00	0	0	79	11	3	6	4	103
06:00	0	1	266	43	5	13	2	330
07:00	1	2	574	109	7	28	5	726
08:00	2	3	792	66	8	17	1	889
09:00	0	2	620	97	15	34	2	770
10:00	1	2	512	108	6	38	6	673
11:00	1	0	544	99	8	45	8	705
12 PM	0	4	554	88	7	23	6	682
13:00	0	4	543	62	5	18	2	634
14:00	1	0	546	74	6	22	4	653
15:00	1	1	632	74	13	16	1	738
16:00	0	1	700	56	6	19	2	784
17:00	2	1	653	38	8	4	0	706
18:00	2	1	634	31	10	3	0	681
19:00	1	3	476	26	4	5	0	515
20:00	0	0	389	12	2	1	0	404
21:00	0	1	261	12	2	2	0	278
22:00	2	0	150	5	3	0	0	160
23:00	1	0	88	2	2	1	1	95
Total	16	28	9144	1033	124	310	46	10701
Percent	0.1%	0.3%	85.4%	9.7%	1.2%	2.9%	0.4%	0.0%
AM Peak	08:00	08:00	08:00	07:00	09:00	11:00	11:00	08:00
Vol.	2	3	792	109	15	45	8	889
PM Peak	17:00	12:00	16:00	12:00	15:00	12:00	12:00	16:00
Vol.	2	4	700	88	13	23	6	784

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Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

165280 B Class
Site Code: TBA

EB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	0	34	3	2	2	0	41
01:00	0	0	24	2	1	2	0	29
02:00	0	0	16	7	1	0	0	24
03:00	0	0	8	5	0	4	0	17
04:00	0	0	35	5	0	6	0	46
05:00	0	0	70	9	3	9	1	92
06:00	0	2	273	46	6	11	2	340
07:00	1	1	602	77	8	39	5	733
08:00	0	4	772	61	12	19	2	870
09:00	0	1	655	86	11	25	2	780
10:00	0	0	505	67	2	34	10	618
11:00	0	2	550	75	9	38	4	678
12 PM	1	3	629	88	5	32	6	764
13:00	0	3	537	63	6	27	6	642
14:00	0	2	568	67	4	19	0	660
15:00	1	3	706	58	8	11	1	788
16:00	3	2	660	46	9	15	3	738
17:00	1	2	734	36	6	4	0	783
18:00	8	2	681	23	10	3	1	728
19:00	2	3	519	16	5	5	1	551
20:00	2	1	436	12	2	2	0	455
21:00	1	0	293	14	2	2	0	312
22:00	0	0	190	7	3	3	0	203
23:00	0	0	132	0	2	1	0	135
Total	20	31	9629	873	117	313	44	11027
Percent	0.2%	0.3%	87.3%	7.9%	1.1%	2.8%	0.4%	0.0%
AM Peak	07:00	08:00	08:00	09:00	08:00	07:00	10:00	08:00
Vol.	1	4	772	86	12	39	10	870
PM Peak	18:00	12:00	17:00	12:00	18:00	12:00	12:00	15:00
Vol.	8	3	734	88	10	32	6	788

PRECISION
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Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

165280 B Class
Site Code: TBA

WB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	50	3	2	3	0	58
01:00	0	2	34	2	1	1	0	40
02:00	0	0	27	0	0	1	0	28
03:00	0	0	13	2	0	4	1	20
04:00	0	0	34	1	2	2	0	39
05:00	0	1	111	23	1	7	0	143
06:00	3	2	347	72	6	12	4	446
07:00	8	2	589	47	20	10	7	683
08:00	16	2	736	69	9	37	1	870
09:00	11	4	535	90	18	34	5	697
10:00	11	0	527	94	9	32	4	677
11:00	6	1	560	83	5	31	9	695
12 PM	6	2	570	72	5	33	2	690
13:00	7	3	583	57	7	21	7	685
14:00	8	2	601	67	8	26	6	718
15:00	6	1	580	71	9	34	5	706
16:00	1	1	566	62	7	16	0	653
17:00	35	0	561	51	7	9	1	664
18:00	29	4	573	18	7	4	0	635
19:00	9	1	561	23	7	5	0	606
20:00	5	1	451	14	2	2	0	475
21:00	2	1	333	12	3	2	0	353
22:00	1	0	207	3	1	1	0	213
23:00	1	3	82	4	3	2	0	95
Total	165	33	9231	940	139	329	52	10889
Percent	1.5%	0.3%	84.8%	8.6%	1.3%	3.0%	0.5%	0.0%
AM Peak	08:00	09:00	08:00	10:00	07:00	08:00	11:00	08:00
Vol.	16	4	736	94	20	37	9	870
PM Peak	17:00	18:00	14:00	12:00	15:00	15:00	13:00	14:00
Vol.	35	4	601	72	9	34	7	718

PRECISION
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Concord Avenue
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

165280 B Class
Site Code: TBA

WB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	1	1	50	5	2	3	0	62
01:00	0	0	25	2	1	0	0	28
02:00	0	0	24	3	0	1	0	28
03:00	0	0	7	3	0	5	1	16
04:00	1	0	37	0	1	9	0	48
05:00	0	2	102	25	3	11	1	144
06:00	4	2	358	65	6	11	2	448
07:00	10	2	560	77	16	17	1	683
08:00	20	1	787	56	13	23	2	902
09:00	10	2	570	78	9	35	7	711
10:00	7	0	516	83	4	41	5	656
11:00	6	3	554	74	7	31	5	680
12 PM	6	2	616	83	4	32	3	746
13:00	7	1	587	54	5	30	2	686
14:00	6	2	598	95	8	23	3	735
15:00	5	2	593	88	8	22	4	722
16:00	8	4	544	51	12	22	1	642
17:00	6	2	564	31	7	2	1	613
18:00	17	2	570	19	6	5	1	620
19:00	7	4	592	23	6	4	0	636
20:00	3	2	433	7	2	1	0	448
21:00	2	1	328	7	3	1	0	342
22:00	1	0	231	3	1	4	0	240
23:00	1	1	133	5	3	1	0	144
Total	128	36	9379	937	127	334	39	10980
Percent	1.2%	0.3%	85.4%	8.5%	1.2%	3.0%	0.4%	0.0%
AM Peak	08:00	11:00	08:00	10:00	07:00	10:00	09:00	08:00
Vol.	20	3	787	83	16	41	7	902
PM Peak	18:00	16:00	12:00	14:00	16:00	12:00	15:00	12:00
Vol.	17	4	616	95	12	32	4	746

Wheeler Street just south of
Site (Parking Lot Driveway)
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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165280 C Volume
Site Code: TBA

Start	NB				SB				Combined				05-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	0		3		0		6		0		9		
12:15	0		4		0		2		0		6		
12:30	0		8		0		3		0		11		
12:45	0	0	2	17	0	0	3	14	0	0	5	31	
01:00	0		4		0		3		0		7		
01:15	0		1		0		5		0		6		
01:30	0		1		0		3		0		4		
01:45	0	0	1	7	0	0	2	13	0	0	3	20	
02:00	0		2		0		5		0		7		
02:15	0		1		0		3		0		4		
02:30	0		2		0		3		0		5		
02:45	0	0	4	9	0	0	4	15	0	0	8	24	
03:00	2		4		1		4		3		8		
03:15	0		1		0		4		0		5		
03:30	0		1		0		14		0		15		
03:45	0	2	3	9	0	1	11	33	0	3	14	42	
04:00	0		4		1		14		1		18		
04:15	0		6		0		16		0		22		
04:30	0		5		0		16		0		21		
04:45	1	1	2	17	0	1	14	60	1	2	16	77	
05:00	0		0		0		18		0		18		
05:15	0		2		0		13		0		15		
05:30	0		0		0		22		0		22		
05:45	2	2	0	2	0	0	16	69	2	2	16	71	
06:00	0		1		0		12		0		13		
06:15	1		1		0		15		1		16		
06:30	3		0		1		12		4		12		
06:45	5	9	0	2	0	1	5	44	5	10	5	46	
07:00	8		0		2		9		10		9		
07:15	3		1		1		3		4		4		
07:30	12		0		0		3		12		3		
07:45	9	32	1	2	1	4	7	22	10	36	8	24	
08:00	13		0		2		2		15		2		
08:15	9		0		1		2		10		2		
08:30	17		0		2		0		19		0		
08:45	32	71	0	0	1	6	2	6	33	77	2	6	
09:00	25		0		5		0		30		0		
09:15	30		0		1		1		31		1		
09:30	4		0		1		1		5		1		
09:45	15	74	0	0	1	8	0	2	16	82	0	2	
10:00	5		0		3		1		8		1		
10:15	10		1		1		1		11		2		
10:30	4		1		0		1		4		2		
10:45	3	22	0	2	1	5	0	3	4	27	0	5	
11:00	3		0		1		0		4		0		
11:15	2		1		3		0		5		1		
11:30	0		1		3		1		3		2		
11:45	4	9	1	3	5	12	1	2	9	21	2	5	
Total	222		70		38		283		260		353		
Percent	85.4%		19.8%		14.6%		80.2%						
Day Total		292				321				613			
Peak	08:30	-	00:15	-	11:00	-	05:00	-	08:30	-	04:00	-	-	-
Vol.	104	-	18	-	12	-	69	-	113	-	77	-	-	-
P.H.F.	0.813		0.563		0.600		0.784		0.856		0.875			

Wheeler Street just south of
Site (Parking Lot Driveway)
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PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 C Volume
Site Code: TBA

Start	NB				SB				Combined				06-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	0		2		0		4		0		6		
12:15	0		7		2		2		2		9		
12:30	0		4		0		2		0		6		
12:45	0	0	0	13	0	2	1	9	0	2	1	22	
01:00	0		2		0		2		0		4		
01:15	0		3		0		2		0		5		
01:30	0		0		0		0		0		0		
01:45	0	0	3	8	0	0	5	9	0	0	8	17	
02:00	0		2		0		4		0		6		
02:15	0		2		0		7		0		9		
02:30	0		3		0		4		0		7		
02:45	0	0	0	7	0	0	2	17	0	0	2	24	
03:00	0		0		0		1		0		1		
03:15	0		2		0		8		0		10		
03:30	0		4		0		6		0		10		
03:45	0	0	6	12	0	0	16	31	0	0	22	43	
04:00	0		4		0		15		0		19		
04:15	0		3		0		9		0		12		
04:30	1		1		0		13		1		14		
04:45	0	1	2	10	0	0	11	48	0	1	13	58	
05:00	3		3		1		25		4		28		
05:15	1		3		0		27		1		30		
05:30	1		1		0		18		1		19		
05:45	3	8	2	9	1	2	19	89	4	10	21	98	
06:00	1		1		0		20		1		21		
06:15	1		0		1		15		2		15		
06:30	2		0		1		9		3		9		
06:45	6	10	0	1	0	2	4	48	6	12	4	49	
07:00	7		1		2		7		9		8		
07:15	9		0		0		4		9		4		
07:30	9		1		0		2		9		3		
07:45	11	36	0	2	2	4	6	19	13	40	6	21	
08:00	8		0		2		0		10		0		
08:15	13		0		1		0		14		0		
08:30	17		0		1		4		18		4		
08:45	25	63	0	0	0	4	0	4	25	67	0	4	
09:00	33		0		2		2		35		2		
09:15	23		0		1		0		24		0		
09:30	13		0		3		0		16		0		
09:45	11	80	0	0	1	7	0	2	12	87	0	2	
10:00	7		0		2		0		9		0		
10:15	5		0		2		0		7		0		
10:30	3		0		0		0		3		0		
10:45	3	18	0	0	2	6	0	0	5	24	0	0	
11:00	2		0		1		0		3		0		
11:15	5		1		0		0		5		1		
11:30	2		0		3		1		5		1		
11:45	1	10	0	1	2	6	0	1	3	16	0	2	
Total	226		63		33		277		259		340		
Percent	87.3%		18.5%		12.7%		81.5%						
Day Total		289				310				599			
Peak	08:30	-	03:30	-	09:30	-	05:00	-	08:30	-	05:00	-	-	-
Vol.	98	-	17	-	8	-	89	-	102	-	98	-	-	-
P.H.F.	0.742		0.708		0.667		0.824		0.729		0.817			

Wheeler Street just south of
Site (Parking Lot Driveway)
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

165280 C Class
Site Code: TBA

NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0
03:00	0	0	1	0	0	1	0	2
04:00	0	0	1	0	0	0	0	1
05:00	0	0	2	0	0	0	0	2
06:00	0	0	9	0	0	0	0	9
07:00	1	0	27	2	1	1	0	32
08:00	1	0	67	1	1	1	0	71
09:00	2	0	68	1	1	2	0	74
10:00	0	1	20	0	0	1	0	22
11:00	0	0	9	0	0	0	0	9
12 PM	0	0	14	2	0	1	0	17
13:00	0	0	7	0	0	0	0	7
14:00	0	0	6	2	0	1	0	9
15:00	0	0	7	0	2	0	0	9
16:00	0	0	14	0	3	0	0	17
17:00	0	0	1	0	1	0	0	2
18:00	0	0	1	0	0	1	0	2
19:00	0	0	1	1	0	0	0	2
20:00	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0
22:00	0	0	2	0	0	0	0	2
23:00	0	0	3	0	0	0	0	3
Total	4	1	260	9	9	9	0	292
Percent	1.4%	0.3%	89.0%	3.1%	3.1%	3.1%	0.0%	0.0%
AM Peak	09:00	10:00	09:00	07:00	07:00	09:00		09:00
Vol.	2	1	68	2	1	2		74
PM Peak			12:00	12:00	16:00	12:00		12:00
Vol.			14	2	3	1		17

Wheeler Street just south of
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City, State: Cambridge, MA
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NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	1
05:00	0	0	8	0	0	0	0	8
06:00	0	0	9	1	0	0	0	10
07:00	2	0	34	0	0	0	0	36
08:00	2	0	59	1	0	1	0	63
09:00	4	0	73	0	1	2	0	80
10:00	1	0	14	1	0	2	0	18
11:00	0	0	9	0	0	1	0	10
12 PM	0	0	11	0	0	2	0	13
13:00	0	0	8	0	0	0	0	8
14:00	0	0	5	2	0	0	0	7
15:00	0	0	9	0	3	0	0	12
16:00	0	0	8	0	2	0	0	10
17:00	0	0	6	0	2	1	0	9
18:00	0	0	0	0	1	0	0	1
19:00	0	0	0	0	1	1	0	2
20:00	0	0	0	0	0	0	0	0
21:00	0	0	0	0	0	0	0	0
22:00	0	0	0	0	0	0	0	0
23:00	0	0	1	0	0	0	0	1
Total	9	0	255	5	10	10	0	289
Percent	3.1%	0.0%	88.2%	1.7%	3.5%	3.5%	0.0%	0.0%
AM Peak	09:00		09:00	06:00	09:00	09:00		09:00
Vol.	4		73	1	1	2		80
PM Peak			12:00	14:00	15:00	12:00		12:00
Vol.			11	2	3	2		13

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SB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	1	0	1
04:00	0	0	1	0	0	0	0	1
05:00	0	0	0	0	0	0	0	0
06:00	0	0	1	0	0	0	0	1
07:00	0	0	2	0	1	1	0	4
08:00	0	0	4	0	1	1	0	6
09:00	0	0	4	1	1	2	0	8
10:00	0	0	3	1	0	1	0	5
11:00	0	0	12	0	0	0	0	12
12 PM	0	0	11	2	0	1	0	14
13:00	0	0	11	2	0	0	0	13
14:00	0	0	12	2	0	1	0	15
15:00	1	0	30	0	2	0	0	33
16:00	3	0	52	2	2	1	0	60
17:00	5	0	64	0	0	0	0	69
18:00	3	0	38	0	2	1	0	44
19:00	0	1	19	1	1	0	0	22
20:00	0	0	6	0	0	0	0	6
21:00	0	0	2	0	0	0	0	2
22:00	0	0	3	0	0	0	0	3
23:00	0	0	2	0	0	0	0	2
Total	12	1	277	11	10	10	0	321
Percent	3.7%	0.3%	86.3%	3.4%	3.1%	3.1%	0.0%	0.0%
AM Peak			11:00	09:00	07:00	09:00		11:00
Vol.			12	1	1	2		12
PM Peak	17:00	19:00	17:00	12:00	15:00	12:00		17:00
Vol.	5	1	64	2	2	1		69

Wheeler Street just south of
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SB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	0	1	0	0	1	0	2
01:00	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0
05:00	0	0	2	0	0	0	0	2
06:00	0	0	1	1	0	0	0	2
07:00	0	0	4	0	0	0	0	4
08:00	0	0	2	0	1	1	0	4
09:00	0	0	4	0	1	2	0	7
10:00	0	0	4	0	0	2	0	6
11:00	0	0	4	1	0	1	0	6
12 PM	0	0	8	0	0	1	0	9
13:00	0	0	9	0	0	0	0	9
14:00	1	0	14	2	0	0	0	17
15:00	1	0	27	0	2	1	0	31
16:00	1	0	45	2	0	0	0	48
17:00	2	0	84	0	2	1	0	89
18:00	6	1	39	0	2	0	0	48
19:00	1	1	14	1	1	1	0	19
20:00	0	0	4	0	0	0	0	4
21:00	0	0	2	0	0	0	0	2
22:00	0	0	0	0	0	0	0	0
23:00	0	0	1	0	0	0	0	1
Total	12	2	269	7	9	11	0	310
Percent	3.9%	0.6%	86.8%	2.3%	2.9%	3.5%	0.0%	0.0%
AM Peak			07:00	06:00	08:00	09:00		09:00
Vol.			4	1	1	2		7
PM Peak	18:00	18:00	17:00	14:00	15:00	12:00		17:00
Vol.	6	1	84	2	2	1		89

Alewife Brook Parkway
north of Concord Avenue Rotary
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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165280 D Volume
Site Code: TBA

Start	NB				SB				Combined				05-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	91		366		39		431		130		797		
12:15	61		421		40		401		101		822		
12:30	64		419		39		438		103		857		
12:45	49	265	347	1553	18	136	425	1695	67	401	772	3248	
01:00	43		353		29		379		72		732		
01:15	30		396		24		427		54		823		
01:30	33		388		22		376		55		764		
01:45	21	127	390	1527	17	92	364	1546	38	219	754	3073	
02:00	16		402		12		374		28		776		
02:15	17		360		11		386		28		746		
02:30	15		356		13		381		28		737		
02:45	16	64	368	1486	13	49	423	1564	29	113	791	3050	
03:00	15		308		9		420		24		728		
03:15	12		356		12		408		24		764		
03:30	9		326		21		482		30		808		
03:45	15	51	366	1356	17	59	428	1738	32	110	794	3094	
04:00	11		308		24		436		35		744		
04:15	16		291		43		447		59		738		
04:30	22		278		59		427		81		705		
04:45	21	70	238	1115	84	210	417	1727	105	280	655	2842	
05:00	35		302		120		460		155		762		
05:15	36		204		192		449		228		653		
05:30	75		204		324		434		399		638		
05:45	87	233	270	980	367	1003	459	1802	454	1236	729	2782	
06:00	101		196		494		438		595		634		
06:15	136		258		528		439		664		697		
06:30	196		213		551		363		747		576		
06:45	224	657	323	990	490	2063	446	1686	714	2720	769	2676	
07:00	339		331		468		385		807		716		
07:15	384		356		497		391		881		747		
07:30	393		373		445		311		838		684		
07:45	339	1455	359	1419	384	1794	334	1421	723	3249	693	2840	
08:00	373		385		383		270		756		655		
08:15	326		353		404		300		730		653		
08:30	319		303		365		217		684		520		
08:45	322	1340	313	1354	414	1566	270	1057	736	2906	583	2411	
09:00	335		330		410		225		745		555		
09:15	346		321		441		210		787		531		
09:30	316		309		442		208		758		517		
09:45	351	1348	304	1264	457	1750	184	827	808	3098	488	2091	
10:00	318		256		444		166		762		422		
10:15	305		282		452		144		757		426		
10:30	339		203		448		127		787		330		
10:45	341	1303	202	943	450	1794	109	546	791	3097	311	1489	
11:00	329		143		438		93		767		236		
11:15	340		134		435		69		775		203		
11:30	314		123		435		58		749		181		
11:45	366	1349	93	493	468	1776	54	274	834	3125	147	767	
Total	8262		14480		12292		15883		20554		30363		
Percent	40.2%		47.7%		59.8%		52.3%						
Day Total		22742				28175				50917			
Peak	07:15	-	01:15	-	06:00	-	05:00	-	07:00	-	12:00	-	- -
Vol.	1489	-	1576	-	2063	-	1802	-	3249	-	3248	-	- -
P.H.F.	0.947		0.936		0.936		0.979		0.922		0.947		

Alewife Brook Parkway
north of Concord Avenue Rotary
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

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165280 D Volume
Site Code: TBA

Start	NB				SB				Combined				06-Oct-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	97		395		52		360		149		755		
12:15	71		410		48		390		119		800		
12:30	65		400		24		398		89		798		
12:45	50	283	389	1594	30	154	380	1528	80	437	769	3122	
01:00	46		372		31		370		77		742		
01:15	33		370		17		415		50		785		
01:30	30		409		22		396		52		805		
01:45	34	143	415	1566	20	90	384	1565	54	233	799	3131	
02:00	23		429		16		381		39		810		
02:15	19		392		11		373		30		765		
02:30	15		312		15		405		30		717		
02:45	12	69	321	1454	13	55	377	1536	25	124	698	2990	
03:00	16		337		14		462		30		799		
03:15	15		259		13		435		28		694		
03:30	11		283		26		481		37		764		
03:45	10	52	340	1219	13	66	445	1823	23	118	785	3042	
04:00	14		270		27		439		41		709		
04:15	21		242		37		450		58		692		
04:30	19		268		51		442		70		710		
04:45	21	75	237	1017	67	182	451	1782	88	257	688	2799	
05:00	23		245		140		436		163		681		
05:15	50		188		159		437		209		625		
05:30	73		204		305		402		378		606		
05:45	80	226	217	854	400	1004	388	1663	480	1230	605	2517	
06:00	89		260		469		447		558		707		
06:15	138		223		517		389		655		612		
06:30	183		270		529		428		712		698		
06:45	241	651	255	1008	509	2024	436	1700	750	2675	691	2708	
07:00	402		323		510		485		912		808		
07:15	399		278		468		372		867		650		
07:30	365		334		449		353		814		687		
07:45	343	1509	301	1236	442	1869	332	1542	785	3378	633	2778	
08:00	326		341		394		267		720		608		
08:15	263		334		409		285		672		619		
08:30	298		343		364		274		662		617		
08:45	306	1193	306	1324	401	1568	215	1041	707	2761	521	2365	
09:00	261		315		383		283		644		598		
09:15	304		347		429		236		733		583		
09:30	315		330		425		198		740		528		
09:45	335	1215	300	1292	463	1700	189	906	798	2915	489	2198	
10:00	311		282		442		173		753		455		
10:15	319		258		490		187		809		445		
10:30	312		234		436		150		748		384		
10:45	330	1272	219	993	435	1803	138	648	765	3075	357	1641	
11:00	334		192		413		127		747		319		
11:15	341		150		392		102		733		252		
11:30	389		137		417		63		806		200		
11:45	360	1424	129	608	433	1655	77	369	793	3079	206	977	
Total	8112		14165		12170		16103		20282		30268		
Percent	40.0%		46.8%		60.0%		53.2%						
Day Total		22277				28273				50550			
Peak	07:00	-	01:30	-	06:15	-	03:00	-	07:00	-	01:15	-	-	-
Vol.	1509	-	1645	-	2065	-	1823	-	3378	-	3199	-	-	-
P.H.F.	0.938		0.959		0.976		0.948		0.926		0.987			

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Client: VHB/ S. Mandzo

165280 D Class
Site Code: TBA

NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	2	248	13	0	2	0	265
01:00	0	0	113	13	0	1	0	127
02:00	0	0	57	5	0	1	1	64
03:00	0	0	38	8	0	4	1	51
04:00	0	0	50	9	0	8	3	70
05:00	0	1	198	24	0	8	2	233
06:00	0	0	585	53	4	13	2	657
07:00	1	3	1313	90	20	24	4	1455
08:00	0	4	1218	78	5	32	3	1340
09:00	0	4	1162	117	14	48	3	1348
10:00	0	2	1107	128	7	52	7	1303
11:00	0	2	1145	134	7	53	8	1349
12 PM	0	2	1339	145	4	54	9	1553
13:00	0	7	1324	142	5	44	5	1527
14:00	0	4	1267	167	6	40	2	1486
15:00	1	2	1169	147	10	25	2	1356
16:00	1	2	994	100	6	10	2	1115
17:00	0	4	911	55	1	7	2	980
18:00	1	3	929	46	6	4	1	990
19:00	1	4	1361	49	3	1	0	1419
20:00	0	1	1312	36	1	2	2	1354
21:00	0	2	1230	27	1	1	3	1264
22:00	1	1	918	20	1	1	1	943
23:00	0	4	464	24	0	0	1	493
Total	6	54	20452	1630	101	435	64	22742
Percent	0.0%	0.2%	89.9%	7.2%	0.4%	1.9%	0.3%	0.0%
AM Peak	07:00	08:00	07:00	11:00	07:00	11:00	11:00	07:00
Vol.	1	4	1313	134	20	53	8	1455
PM Peak	15:00	13:00	19:00	14:00	15:00	12:00	12:00	12:00
Vol.	1	7	1361	167	10	54	9	1553

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Alewife Brook Parkway
north of Concord Avenue Rotary
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

165280 D Class
Site Code: TBA

NB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	2	268	10	0	3	0	283
01:00	0	0	135	6	0	2	0	143
02:00	0	0	61	7	0	1	0	69
03:00	0	0	40	3	0	8	1	52
04:00	0	0	59	9	0	6	1	75
05:00	0	1	193	20	0	11	1	226
06:00	0	2	575	56	4	12	2	651
07:00	0	3	1350	107	15	26	8	1509
08:00	0	1	1085	71	7	26	3	1193
09:00	0	1	1061	91	7	50	5	1215
10:00	0	3	1112	104	2	46	5	1272
11:00	0	2	1241	119	6	52	4	1424
12 PM	0	3	1364	163	6	54	4	1594
13:00	0	4	1355	148	1	51	7	1566
14:00	1	5	1212	174	10	49	3	1454
15:00	0	2	1057	135	6	18	1	1219
16:00	1	1	897	93	6	16	3	1017
17:00	1	3	785	58	3	4	0	854
18:00	2	2	958	37	2	5	2	1008
19:00	1	6	1169	50	4	6	0	1236
20:00	1	1	1285	34	1	0	2	1324
21:00	1	0	1257	29	1	4	0	1292
22:00	0	2	968	20	0	2	1	993
23:00	0	3	583	22	0	0	0	608
Total	8	47	20070	1566	81	452	53	22277
Percent	0.0%	0.2%	90.1%	7.0%	0.4%	2.0%	0.2%	0.0%
AM Peak		07:00	07:00	11:00	07:00	11:00	07:00	07:00
Vol.		3	1350	119	15	52	8	1509
PM Peak	18:00	19:00	12:00	14:00	14:00	12:00	13:00	12:00
Vol.	2	6	1364	174	10	54	7	1594

Alewife Brook Parkway
north of Concord Avenue Rotary
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION
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165280 D Class
Site Code: TBA

SB

Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/05/16	0	0	129	5	0	2	0	136
01:00	0	0	89	3	0	0	0	92
02:00	0	0	44	2	0	3	0	49
03:00	0	0	47	5	0	5	2	59
04:00	0	1	185	18	2	3	1	210
05:00	0	5	859	126	1	11	1	1003
06:00	1	4	1747	259	4	41	7	2063
07:00	4	2	1604	134	15	32	3	1794
08:00	10	1	1410	99	5	41	0	1566
09:00	1	4	1529	157	12	37	10	1750
10:00	1	3	1559	166	9	54	2	1794
11:00	0	3	1545	165	6	47	10	1776
12 PM	2	3	1479	145	2	59	5	1695
13:00	1	3	1383	102	7	39	11	1546
14:00	1	5	1422	97	2	33	4	1564
15:00	0	4	1595	90	20	25	4	1738
16:00	0	5	1616	85	6	15	0	1727
17:00	1	4	1716	65	8	7	1	1802
18:00	1	4	1620	47	5	7	2	1686
19:00	0	9	1356	44	6	4	2	1421
20:00	3	1	1033	16	1	2	1	1057
21:00	0	5	788	27	4	3	0	827
22:00	0	2	538	3	1	2	0	546
23:00	0	3	265	5	0	1	0	274
Total	26	71	25558	1865	116	473	66	28175
Percent	0.1%	0.3%	90.7%	6.6%	0.4%	1.7%	0.2%	0.0%
AM Peak	08:00	05:00	06:00	06:00	07:00	10:00	09:00	06:00
Vol.	10	5	1747	259	15	54	10	2063
PM Peak	20:00	19:00	17:00	12:00	15:00	12:00	13:00	17:00
Vol.	3	9	1716	145	20	59	11	1802

Alewife Brook Parkway
north of Concord Avenue Rotary
City, State: Cambridge, MA
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165280 D Class
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SB

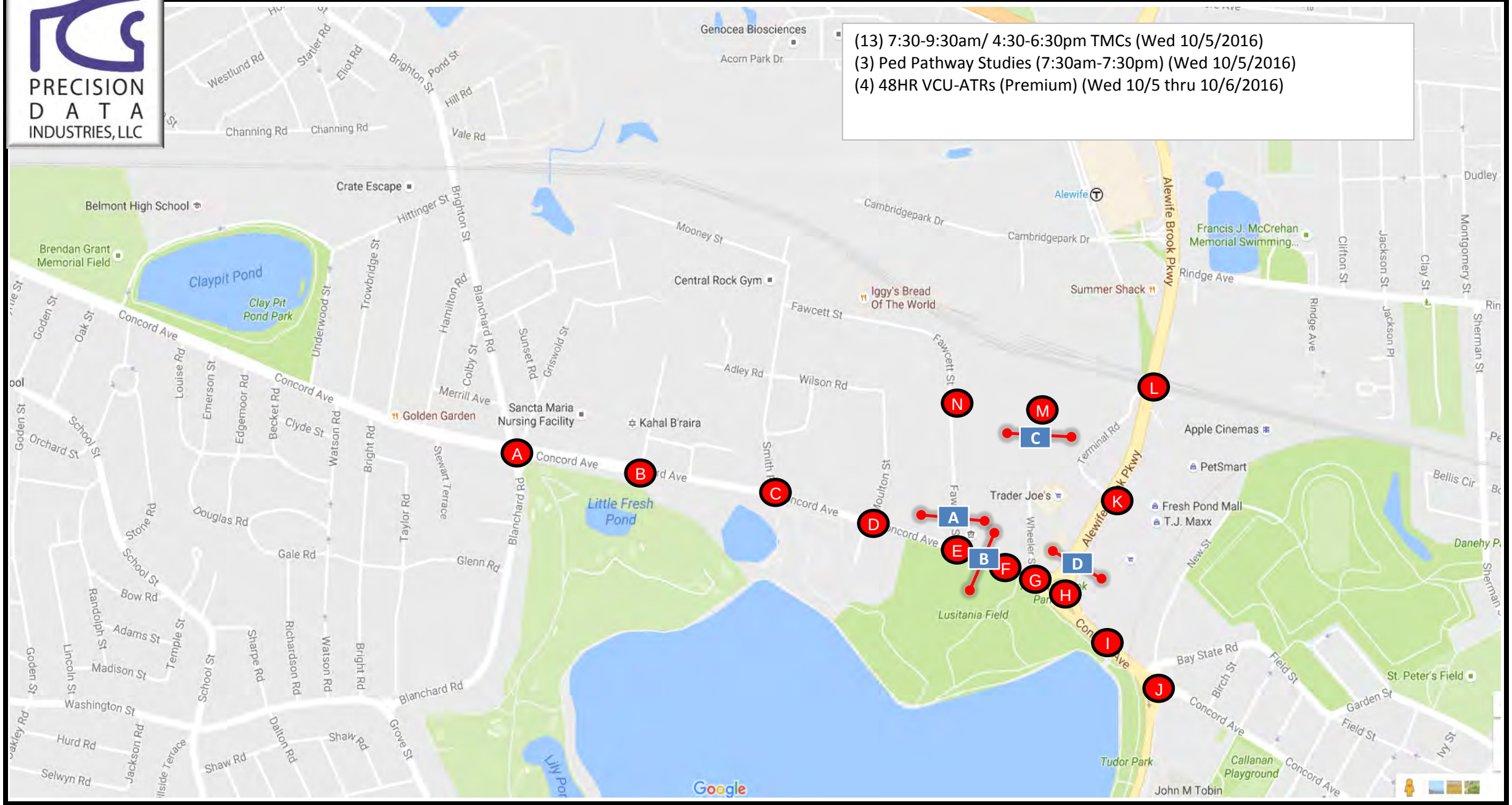
Start Time	Bicycles	Motorcycles	Cars	Light Trucks	Buses	Single Unit Heavy	Articulated Trucks	Total
10/06/16	0	1	149	2	0	2	0	154
01:00	0	0	87	2	0	0	1	90
02:00	0	0	48	5	0	2	0	55
03:00	0	0	51	5	0	8	2	66
04:00	0	1	161	5	2	13	0	182
05:00	0	5	843	137	3	14	2	1004
06:00	3	6	1727	249	4	31	4	2024
07:00	5	2	1656	152	17	34	3	1869
08:00	9	2	1408	106	9	31	3	1568
09:00	5	2	1519	113	4	52	5	1700
10:00	4	2	1570	156	4	59	8	1803
11:00	0	2	1453	140	7	48	5	1655
12 PM	1	3	1365	104	7	45	3	1528
13:00	2	2	1384	113	10	50	4	1565
14:00	1	5	1353	127	11	34	5	1536
15:00	1	6	1664	109	14	25	4	1823
16:00	4	7	1692	63	7	8	1	1782
17:00	2	7	1585	59	8	2	0	1663
18:00	3	6	1635	45	4	6	1	1700
19:00	4	4	1470	52	6	3	3	1542
20:00	0	0	1016	20	2	2	1	1041
21:00	0	3	890	10	1	1	1	906
22:00	0	0	634	9	0	5	0	648
23:00	0	1	354	10	0	4	0	369
Total	44	67	25714	1793	120	479	56	28273
Percent	0.2%	0.2%	90.9%	6.3%	0.4%	1.7%	0.2%	0.0%
AM Peak	08:00	06:00	06:00	06:00	07:00	10:00	10:00	06:00
Vol.	9	6	1727	249	17	59	8	2024
PM Peak	16:00	16:00	16:00	14:00	15:00	13:00	14:00	15:00
Vol.	4	7	1692	127	14	50	5	1823

Turning Movement Counts

Location Map: 165280 Cambridge, MA

Precision Data Industries, LLC 46 Morton Street, Framingham, MA 01702 ph: 508-875-0100 email: datarequests@pdillc.com

(13) 7:30-9:30am/ 4:30-6:30pm TMCs (Wed 10/5/2016)
(3) Ped Pathway Studies (7:30am-7:30pm) (Wed 10/5/2016)
(4) 48HR VCU-ATRs (Premium) (Wed 10/5 thru 10/6/2016)



Client:	Engineer:	Site Code:	Date:	PDI Job #	City, State:
VHB	S. Mandzo	TBA	Wed 10/5 thru Thurs 10/6/2016	165280	Cambridge, MA

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 A
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
07:30 AM	6	93	39	0	0	0	2	4	8	0	3	30	60	27	0	56	0	57	1	0	9	84	0	6	0	485
07:45 AM	2	80	55	0	0	0	3	0	7	0	0	26	54	28	0	57	4	57	3	0	7	101	0	3	0	487
Total	8	173	94	0	0	0	5	4	15	0	3	56	114	55	0	113	4	114	4	0	16	185	0	9	0	972
08:00 AM	2	64	63	0	0	0	0	3	6	0	5	39	66	36	1	64	2	59	3	0	5	137	0	7	1	563
08:15 AM	2	69	68	0	0	0	0	0	9	0	2	45	66	35	0	68	0	68	0	0	1	140	0	2	0	575
08:30 AM	4	82	65	0	0	0	0	1	4	0	1	43	57	27	0	60	0	52	2	0	4	128	1	3	0	534
08:45 AM	4	67	65	0	0	1	0	2	5	0	1	35	67	38	0	79	0	44	3	0	6	132	0	9	0	558
Total	12	282	261	0	0	1	0	6	24	0	9	162	256	136	1	271	2	223	8	0	16	537	1	21	1	2230
09:00 AM	1	61	77	0	0	0	3	0	3	0	3	36	62	42	0	54	0	38	1	0	10	107	0	7	1	506
09:15 AM	3	73	62	0	0	0	2	0	1	0	1	22	42	34	0	58	0	45	4	0	3	85	1	2	0	438
Grand Total	24	589	494	0	0	1	10	10	43	0	16	276	474	267	1	496	6	420	17	0	45	914	2	39	2	4146
Apprch %	2.2	53.2	44.6	0	0	1.6	15.6	15.6	67.2	0	1.5	26.7	45.8	25.8	0.1	52.8	0.6	44.7	1.8	0	4.5	91.2	0.2	3.9	0.2	
Total %	0.6	14.2	11.9	0	0	0	0.2	0.2	1	0	0.4	6.7	11.4	6.4	0	12	0.1	10.1	0.4	0	1.1	22	0	0.9	0	
Cars	23	582	475	0	0	1	9	10	43	0	11	259	459	236	1	478	5	405	16	0	45	901	2	35	2	3998
% Cars	95.8	98.8	96.2	0	0	100	90	100	100	0	68.8	93.8	96.8	88.4	100	96.4	83.3	96.4	94.1	0	100	98.6	100	89.7	100	96.4
Heavy Vehicles	1	7	19	0	0	0	1	0	0	0	5	17	15	31	0	18	1	15	1	0	0	13	0	4	0	148
% Heavy Vehicles	4.2	1.2	3.8	0	0	0	10	0	0	0	31.2	6.2	3.2	11.6	0	3.6	16.7	3.6	5.9	0	0	1.4	0	10.3	0	3.6

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	64	63	0	0	129	0	0	3	6	0	9	5	39	66	36	1	147	64	2	59	3	0	128	5	137	0	7	1	150	563
08:15 AM	2	69	68	0	0	139	0	0	0	9	0	9	2	45	66	35	0	148	68	0	68	0	0	136	1	140	0	2	0	143	575
08:30 AM	4	82	65	0	0	151	0	0	1	4	0	5	1	43	57	27	0	128	60	0	52	2	0	114	4	128	1	3	0	136	534
08:45 AM	4	67	65	0	0	136	1	0	2	5	0	8	1	35	67	38	0	141	79	0	44	3	0	126	6	132	0	9	0	147	558
Total Volume	12	282	261	0	0	555	1	0	6	24	0	31	9	162	256	136	1	564	271	2	223	8	0	504	16	537	1	21	1	576	2230
% App. Total	2.2	50.8	47	0	0		3.2	0	19.4	77.4	0		1.6	28.7	45.4	24.1	0.2		53.8	0.4	44.2	1.6	0		2.8	93.2	0.2	3.6	0.2		
PHF	.750	.860	.960	.000	.000	.919	.250	.000	.500	.667	.000	.861	.450	.900	.955	.895	.250	.953	.858	.250	.820	.667	.000	.926	.667	.959	.250	.583	.250	.960	.970
Cars	12	277	255	0	0	544	1	0	6	24	0	31	5	150	252	123	1	531	262	2	217	7	0	488	16	531	1	19	1	568	2162
% Cars	100	98.2	97.7	0	0	98.0	100	0	100	100	0	100	55.6	92.6	98.4	90.4	100	94.1	96.7	100	97.3	87.5	0	96.8	100	98.9	100	90.5	100	98.6	97.0
Heavy Vehicles	0	5	6	0	0	11	0	0	0	0	0	0	4	12	4	13	0	33	9	0	6	1	0	16	0	6	0	2	0	8	68
% Heavy Vehicles	0	1.8	2.3	0	0	2.0	0	0	0	0	0	0	44.4	7.4	1.6	9.6	0	5.9	3.3	0	2.7	12.5	0	3.2	0	1.1	0	9.5	0	1.4	3.0

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 A
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
07:30 AM	6	92	38	0	0	0	2	4	8	0	2	30	58	20	0	53	0	57	1	0	9	81	0	6	0	467
07:45 AM	2	80	50	0	0	0	3	0	7	0	0	23	48	23	0	57	3	56	3	0	7	101	0	3	0	466
Total	8	172	88	0	0	0	5	4	15	0	2	53	106	43	0	110	3	113	4	0	16	182	0	9	0	933
08:00 AM	2	62	61	0	0	0	0	3	6	0	2	35	65	31	1	63	2	55	3	0	5	137	0	5	1	539
08:15 AM	2	66	67	0	0	0	0	0	9	0	2	41	65	33	0	65	0	67	0	0	1	139	0	2	0	559
08:30 AM	4	82	63	0	0	0	0	1	4	0	0	40	56	26	0	58	0	51	1	0	4	126	1	3	0	520
08:45 AM	4	67	64	0	0	1	0	2	5	0	1	34	66	33	0	76	0	44	3	0	6	129	0	9	0	544
Total	12	277	255	0	0	1	0	6	24	0	5	150	252	123	1	262	2	217	7	0	16	531	1	19	1	2162
09:00 AM	0	60	75	0	0	0	2	0	3	0	3	35	61	39	0	53	0	37	1	0	10	106	0	5	1	491
09:15 AM	3	73	57	0	0	0	2	0	1	0	1	21	40	31	0	53	0	38	4	0	3	82	1	2	0	412
Grand Total	23	582	475	0	0	1	9	10	43	0	11	259	459	236	1	478	5	405	16	0	45	901	2	35	2	3998
Apprch %	2.1	53.9	44	0	0	1.6	14.3	15.9	68.3	0	1.1	26.8	47.5	24.4	0.1	52.9	0.6	44.8	1.8	0	4.6	91.5	0.2	3.6	0.2	
Total %	0.6	14.6	11.9	0	0	0	0.2	0.3	1.1	0	0.3	6.5	11.5	5.9	0	12	0.1	10.1	0.4	0	1.1	22.5	0.1	0.9	0.1	

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	62	61	0	0	125	0	0	3	6	0	9	2	35	65	31	1	134	63	2	55	3	0	123	5	137	0	5	1	148	539
08:15 AM	2	66	67	0	0	135	0	0	0	9	0	9	2	41	65	33	0	141	65	0	67	0	0	132	1	139	0	2	0	142	559
08:30 AM	4	82	63	0	0	149	0	0	1	4	0	5	0	40	56	26	0	122	58	0	51	1	0	110	4	126	1	3	0	134	520
08:45 AM	4	67	64	0	0	135	1	0	2	5	0	8	1	34	66	33	0	134	76	0	44	3	0	123	6	129	0	9	0	144	544
Total Volume	12	277	255	0	0	544	1	0	6	24	0	31	5	150	252	123	1	531	262	2	217	7	0	488	16	531	1	19	1	568	2162
% App. Total	2.2	50.9	46.9	0	0		3.2	0	19.4	77.4	0		0.9	28.2	47.5	23.2	0.2		53.7	0.4	44.5	1.4	0		2.8	93.5	0.2	3.3	0.2		
PHF	.750	.845	.951	.000	.000	.913	.250	.000	.500	.667	.000	.861	.625	.915	.955	.932	.250	.941	.862	.250	.810	.583	.000	.924	.667	.955	.250	.528	.250	.959	.967

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Groups Printed- Heavy Vehicles

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
07:30 AM	0	1	1	0	0	0	0	0	0	0	1	0	2	7	0	3	0	0	0	0	0	3	0	0	0	18
07:45 AM	0	0	5	0	0	0	0	0	0	0	0	3	6	5	0	0	1	1	0	0	0	0	0	0	0	21
Total	0	1	6	0	0	0	0	0	0	0	1	3	8	12	0	3	1	1	0	0	0	3	0	0	0	39
08:00 AM	0	2	2	0	0	0	0	0	0	0	3	4	1	5	0	1	0	4	0	0	0	0	0	2	0	24
08:15 AM	0	3	1	0	0	0	0	0	0	0	0	4	1	2	0	3	0	1	0	0	0	1	0	0	0	16
08:30 AM	0	0	2	0	0	0	0	0	0	0	1	3	1	1	0	2	0	1	1	0	0	2	0	0	0	14
08:45 AM	0	0	1	0	0	0	0	0	0	0	0	1	1	5	0	3	0	0	0	0	0	3	0	0	0	14
Total	0	5	6	0	0	0	0	0	0	0	4	12	4	13	0	9	0	6	1	0	0	6	0	2	0	68
09:00 AM	1	1	2	0	0	0	1	0	0	0	0	1	1	3	0	1	0	1	0	0	0	1	0	2	0	15
09:15 AM	0	0	5	0	0	0	0	0	0	0	0	1	2	3	0	5	0	7	0	0	0	3	0	0	0	26
Grand Total	1	7	19	0	0	0	1	0	0	0	5	17	15	31	0	18	1	15	1	0	0	13	0	4	0	148
Apprch %	3.7	25.9	70.4	0	0	0	100	0	0	0	7.4	25	22.1	45.6	0	51.4	2.9	42.9	2.9	0	0	76.5	0	23.5	0	
Total %	0.7	4.7	12.8	0	0	0	0.7	0	0	0	3.4	11.5	10.1	20.9	0	12.2	0.7	10.1	0.7	0	0	8.8	0	2.7	0	

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	1	1	0	0	2	0	0	0	0	0	0	1	0	2	7	0	10	3	0	0	0	0	3	0	3	0	0	0	3	18
07:45 AM	0	0	5	0	0	5	0	0	0	0	0	0	0	3	6	5	0	14	0	1	1	0	0	2	0	0	0	0	0	0	21
08:00 AM	0	2	2	0	0	4	0	0	0	0	0	0	3	4	1	5	0	13	1	0	4	0	0	5	0	0	0	2	0	2	24
08:15 AM	0	3	1	0	0	4	0	0	0	0	0	0	0	4	1	2	0	7	3	0	1	0	0	4	0	1	0	0	0	1	16
Total Volume	0	6	9	0	0	15	0	0	0	0	0	0	4	11	10	19	0	44	7	1	6	0	0	14	0	4	0	2	0	6	79
% App. Total	0	40	60	0	0		0	0	0	0	0		9.1	25	22.7	43.2	0		50	7.1	42.9	0	0		0	66.7	0	33.3	0		
PHF	.000	.500	.450	.000	.000	.750	.000	.000	.000	.000	.000	.000	.333	.688	.417	.679	.000	.786	.583	.250	.375	.000	.000	.700	.000	.333	.000	.250	.000	.500	.823

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 A
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	CW EB	CW WB	Hard Right	Bear Right	Bear Left	Hard Left	CW EB	CW WB	Hard Right	Right	Thru	Left	CW SB	CW NB	Right	Bear Right	Thru	Left	CW WB	CW EB	Right	Thru	Bear Left	Left	CW NB	CW SB	Int. Total
07:30 AM	0	1	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	1	2	0	1	0	0	0	0	7	0	0	0	0	16
07:45 AM	0	5	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	2	0	1	0	0	0	0	3	0	0	0	0	14
Total	0	6	0	0	0	1	0	0	1	4	0	1	0	0	0	0	0	1	4	0	2	0	0	0	0	10	0	0	0	0	30
08:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	2	2	0	0	0	0	9	0	0	0	0	17
08:15 AM	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	3	0	0	0	0	5	0	0	0	0	12
08:30 AM	0	3	1	0	0	0	0	0	0	1	1	0	0	0	1	0	0	0	1	0	1	1	0	0	0	13	0	0	0	0	23
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	0	1	0	0	0	0	2	0	0	0	1	8
Total	0	3	3	0	0	0	0	0	0	2	1	0	2	0	2	0	1	0	6	2	7	1	0	0	0	29	0	0	0	1	60
09:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	4
09:15 AM	0	3	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0	1	0	0	11
Grand Total	0	12	4	0	0	2	0	0	1	6	1	2	2	1	3	0	1	1	10	2	9	1	0	0	0	45	0	1	0	1	105
Apprch %	0	66.7	22.2	0	0	11.1	0	0	10	60	10	20	25	12.5	37.5	0	12.5	12.5	45.5	9.1	40.9	4.5	0	0	0	95.7	0	2.1	0	2.1	
Total %	0	11.4	3.8	0	0	1.9	0	0	1	5.7	1	1.9	1.9	1	2.9	0	1	1	9.5	1.9	8.6	1	0	0	0	42.9	0	1	0	1	

	Blanchard Road From North							Griswold Street From Northeast							Concord Avenue From East							Blanchard Road From South							Concord Avenue From West							
Start Time	Right	Thru	Left	Hard Left	CW EB	CW WB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	CW EB	CW WB	App. Total	Hard Right	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Bear Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Bear Left	Left	CW NB	CW SB	App. Total	Int. 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	5	0	0	0	1	6	0	0	0	2	0	0	2	0	0	0	0	0	0	0	2	0	1	0	0	0	3	0	3	0	0	0	0	3	14
08:00 AM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	2	2	0	0	0	6	0	9	0	0	0	0	9	17
08:15 AM	0	0	1	0	0	0	1	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	3	0	0	0	3	0	5	0	0	0	0	5	12
08:30 AM	0	3	1	0	0	0	4	0	0	0	1	1	0	2	0	0	1	0	0	0	1	1	0	1	1	0	0	3	0	13	0	0	0	0	13	23
Total Volume																														30	0	0	0	0	30	66
% App. Total		66.7	25	0	0	8.3		0	0	0	80	20	0		25	0	50		25	0		33.3	13.3	46.7	6.7	0	0		0	100	0	0	0	0		
PHF	.000	.400	.750	.000	.000	.250	.500	.000	.000	.000	.500	.250	.000	.625	.250	.000	.500	.000	.250	.000	.500	.625	.250	.583	.250	.000	.000	.625	.000	.577	.000	.000	.000	.000	.577	.717

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

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E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 A
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	Peds EB	Peds WB	Hard Right	Bear Right	Bear Left	Hard Left	Peds EB	Peds WB	Hard Right	Right	Thru	Left	Peds SB	Peds NB	Right	Bear Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Bear Left	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	0	3	1	0	0	0	0	0	6	0	0	0	0	0	2	16
Total	0	0	0	0	1	0	0	0	0	0	3	2	0	0	0	0	6	1	0	0	0	0	0	7	0	0	0	0	0	2	22
08:00 AM	0	0	0	0	1	0	0	0	0	0	5	1	0	0	0	0	2	1	0	0	0	0	0	4	0	0	0	0	0	0	14
08:15 AM	0	0	0	0	2	0	0	0	0	0	6	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	1	11
08:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	5
08:45 AM	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	4	1	0	0	0	0	0	4	0	0	0	0	0	2	17
Total	0	0	0	0	6	0	0	0	0	0	16	1	0	0	0	0	9	3	0	0	0	0	0	9	0	0	0	0	0	3	47
09:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	4
09:15 AM	0	0	0	0	1	1	0	0	0	0	2	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	0	0	0	8	1	0	0	0	0	22	6	0	0	0	0	16	5	0	0	0	0	0	17	0	0	0	0	0	5	80
Apprch %	0	0	0	0	88.9	11.1	0	0	0	0	78.6	21.4	0	0	0	0	76.2	23.8	0	0	0	0	0	100	0	0	0	0	0	100	
Total %	0	0	0	0	10	1.2	0	0	0	0	27.5	7.5	0	0	0	0	20	6.2	0	0	0	0	0	21.2	0	0	0	0	0	6.2	

	Blanchard Road From North							Griswold Street From Northeast							Concord Avenue From East							Blanchard Road From South							Concord Avenue From West							
Start Time	Right	Thru	Left	Hard Left	Peds EB	Peds WB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds EB	Peds WB	App. Total	Hard Right	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Bear Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Bear Left	Left	Peds NB	Peds SB	App. Total	Int. 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	1	0	1	0	0	0	0	0	1	1	0	0	0	0	3	0	3	0	0	0	0	0	1	1	0	0	0	0	0	0	0	6
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	0	3	1	4	0	0	0	0	0	6	6	0	0	0	0	0	2	2	16
08:00 AM	0	0	0	0	1	0	1	0	0	0	0	5	1	6	0	0	0	0	2	1	3	0	0	0	0	0	4	4	0	0	0	0	0	0	0	14
08:15 AM	0	0	0	0	2	0	2	0	0	0	0	6	0	6	0	0	0	0	1	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	11
Total Volume	0	0	0	0	4	0	4	0	0	0	0	14	3	17	0	0	0	0	9	2	11	0	0	0	0	0	12	12	0	0	0	0	0	3	3	47
% App. Total					100							82.4	17.6		0	0	0	0	81.8	18.2							100		0	0	0	0	0	100		
PHF	.000	.000	.000	.000	.500	.000	.500	.000	.000	.000	.000	.583	.750	.708	.000	.000	.000	.000	.750	.500	.688	.000	.000	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.375	.375	.734

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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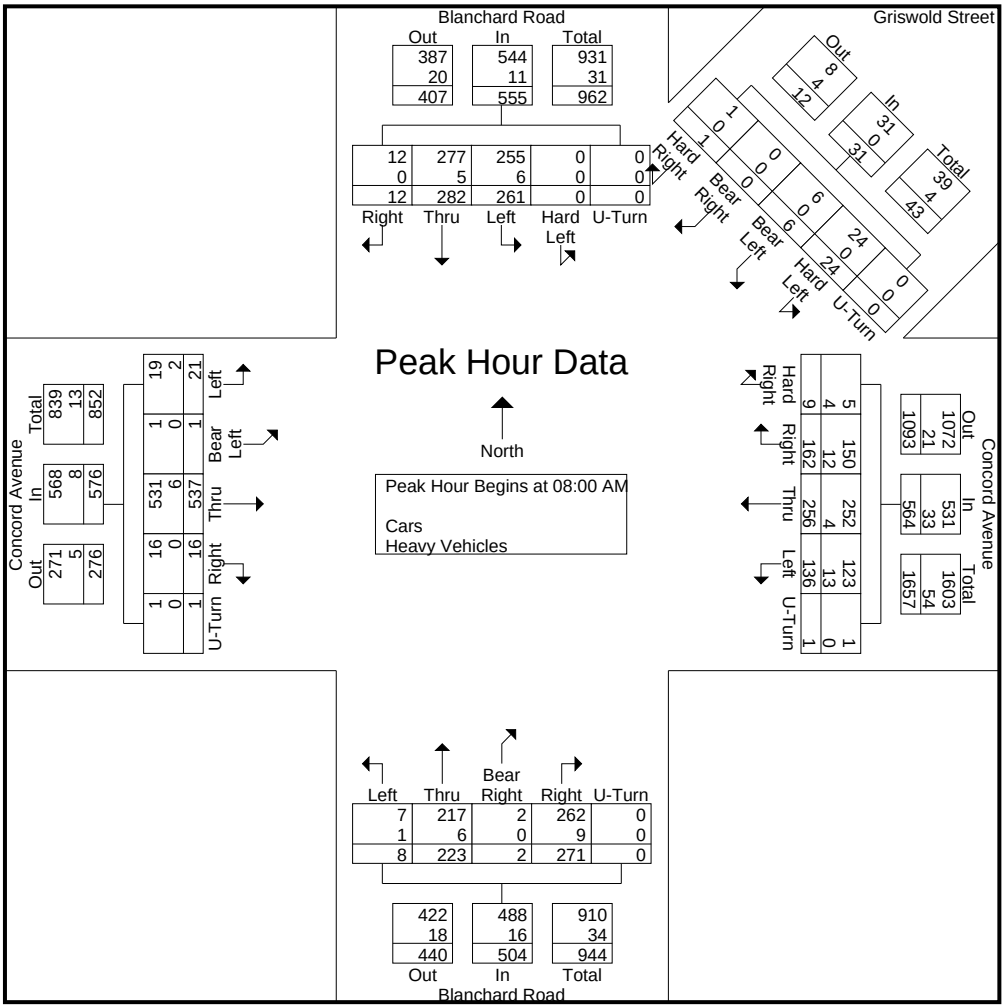
	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	64	63	0	0	129	0	0	3	6	0	9	5	39	66	36	1	147	64	2	59	3	0	128	5	137	0	7	1	150	563
08:15 AM	2	69	68	0	0	139	0	0	0	9	0	9	2	45	66	35	0	148	68	0	68	0	0	136	1	140	0	2	0	143	575
08:30 AM	4	82	65	0	0	151	0	0	1	4	0	5	1	43	57	27	0	128	60	0	52	2	0	114	4	128	1	3	0	136	534
08:45 AM	4	67	65	0	0	136	1	0	2	5	0	8	1	35	67	38	0	141	79	0	44	3	0	126	6	132	0	9	0	147	558
Total Volume	12	282	261	0	0	555	1	0	6	24	0	31	9	162	256	136	1	564	271	2	223	8	0	504	16	537	1	21	1	576	2230
% App. Total	2.2	50.8	47	0	0		3.2	0	19.4	77.4	0		1.6	28.7	45.4	24.1	0.2		53.8	0.4	44.2	1.6	0		2.8	93.2	0.2	3.6	0.2		
PHF	.750	.860	.960	.000	.000	.919	.250	.000	.500	.667	.000	.861	.450	.900	.955	.895	.250	.953	.858	.250	.820	.667	.000	.926	.667	.959	.250	.583	.250	.960	.970
Cars	12	277	255	0	0	544	1	0	6	24	0	31	5	150	252	123	1	531	262	2	217	7	0	488	16	531	1	19	1	568	2162
% Cars	100	98.2	97.7	0	0	98.0	100	0	100	100	0	100	55.6	92.6	98.4	90.4	100	94.1	96.7	100	97.3	87.5	0	96.8	100	98.9	100	90.5	100	98.6	97.0
Heavy Vehicles	0	5	6	0	0	11	0	0	0	0	0	0	4	12	4	13	0	33	9	0	6	1	0	16	0	6	0	2	0	8	68
% Heavy Vehicles	0	1.8	2.3	0	0	2.0	0	0	0	0	0	0	44.4	7.4	1.6	9.6	0	5.9	3.3	0	2.7	12.5	0	3.2	0	1.1	0	9.5	0	1.4	3.0



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File Name : 165280 AA
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
04:30 PM	3	67	32	0	0	0	1	1	1	0	1	75	60	29	0	26	3	105	1	0	7	58	0	7	0	477
04:45 PM	4	82	39	0	0	0	4	0	3	0	6	57	85	48	0	30	0	87	2	0	4	81	1	11	1	545
Total	7	149	71	0	0	0	5	1	4	0	7	132	145	77	0	56	3	192	3	0	11	139	1	18	1	1022
05:00 PM	4	68	29	0	0	0	1	0	0	0	7	70	94	54	0	22	1	108	2	0	12	64	0	9	0	545
05:15 PM	4	86	31	0	0	0	0	0	0	0	3	64	69	32	0	26	0	95	1	0	9	65	0	21	2	508
05:30 PM	3	81	31	0	0	0	0	1	1	0	3	66	81	48	0	16	1	83	2	0	11	78	0	15	0	521
05:45 PM	2	72	29	0	0	0	1	1	1	0	5	61	86	51	0	34	0	91	2	0	11	64	1	14	1	527
Total	13	307	120	0	0	0	2	2	2	0	18	261	330	185	0	98	2	377	7	0	43	271	1	59	3	2101
06:00 PM	4	83	32	0	0	0	0	0	2	0	6	61	72	42	0	25	4	74	7	0	13	72	0	15	1	513
06:15 PM	7	65	50	0	0	0	1	0	0	0	7	51	86	46	0	32	2	82	6	0	13	84	0	15	0	547
Grand Total	31	604	273	0	0	0	8	3	8	0	38	505	633	350	0	211	11	725	23	0	80	566	2	107	5	4183
Apprch %	3.4	66.5	30.1	0	0	0	42.1	15.8	42.1	0	2.5	33.1	41.5	22.9	0	21.8	1.1	74.7	2.4	0	10.5	74.5	0.3	14.1	0.7	
Total %	0.7	14.4	6.5	0	0	0	0.2	0.1	0.2	0	0.9	12.1	15.1	8.4	0	5	0.3	17.3	0.5	0	1.9	13.5	0	2.6	0.1	
Cars	31	591	264	0	0	0	8	3	8	0	37	494	629	341	0	204	11	719	23	0	79	555	2	106	5	4110
% Cars	100	97.8	96.7	0	0	0	100	100	100	0	97.4	97.8	99.4	97.4	0	96.7	100	99.2	100	0	98.8	98.1	100	99.1	100	98.3
Heavy Vehicles	0	13	9	0	0	0	0	0	0	0	1	11	4	9	0	7	0	6	0	0	1	11	0	1	0	73
% Heavy Vehicles	0	2.2	3.3	0	0	0	0	0	0	0	2.6	2.2	0.6	2.6	0	3.3	0	0.8	0	0	1.2	1.9	0	0.9	0	1.7

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	4	82	39	0	0	125	0	4	0	3	0	7	6	57	85	48	0	196	30	0	87	2	0	119	4	81	1	11	1	98	545
05:00 PM	4	68	29	0	0	101	0	1	0	0	0	1	7	70	94	54	0	225	22	1	108	2	0	133	12	64	0	9	0	85	545
05:15 PM	4	86	31	0	0	121	0	0	0	0	0	0	3	64	69	32	0	168	26	0	95	1	0	122	9	65	0	21	2	97	508
05:30 PM	3	81	31	0	0	115	0	0	1	1	0	2	3	66	81	48	0	198	16	1	83	2	0	102	11	78	0	15	0	104	521
Total Volume	15	317	130	0	0	462	0	5	1	4	0	10	19	257	329	182	0	787	94	2	373	7	0	476	36	288	1	56	3	384	2119
% App. Total	3.2	68.6	28.1	0	0		0	50	10	40	0		2.4	32.7	41.8	23.1	0		19.7	0.4	78.4	1.5	0		9.4	75	0.3	14.6	0.8		
PHF	.938	.922	.833	.000	.000	.924	.000	.313	.250	.333	.000	.357	.679	.918	.875	.843	.000	.874	.783	.500	.863	.875	.000	.895	.750	.889	.250	.667	.375	.923	.972
Cars	15	311	123	0	0	449	0	5	1	4	0	10	18	250	327	178	0	773	89	2	368	7	0	466	36	281	1	56	3	377	2075
% Cars	100	98.1	94.6	0	0	97.2	0	100	100	100	0	100	94.7	97.3	99.4	97.8	0	98.2	94.7	100	98.7	100	0	97.9	100	97.6	100	100	100	98.2	97.9
Heavy Vehicles	0	6	7	0	0	13	0	0	0	0	0	0	1	7	2	4	0	14	5	0	5	0	0	10	0	7	0	0	0	7	44
% Heavy Vehicles	0	1.9	5.4	0	0	2.8	0	0	0	0	0	0	5.3	2.7	0.6	2.2	0	1.8	5.3	0	1.3	0	0	2.1	0	2.4	0	0	0	1.8	2.1

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 AA
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
04:30 PM	3	65	32	0	0	0	1	1	1	0	1	73	59	29	0	26	3	104	1	0	7	56	0	7	0	469
04:45 PM	4	80	36	0	0	0	4	0	3	0	6	55	85	48	0	28	0	86	2	0	4	79	1	11	1	533
Total	7	145	68	0	0	0	5	1	4	0	7	128	144	77	0	54	3	190	3	0	11	135	1	18	1	1002
05:00 PM	4	67	27	0	0	0	1	0	0	0	7	69	93	51	0	20	1	106	2	0	12	63	0	9	0	532
05:15 PM	4	84	30	0	0	0	0	0	0	0	2	62	69	31	0	26	0	94	1	0	9	63	0	21	2	498
05:30 PM	3	80	30	0	0	0	0	1	1	0	3	64	80	48	0	15	1	82	2	0	11	76	0	15	0	512
05:45 PM	2	70	29	0	0	0	1	1	1	0	5	61	85	49	0	33	0	91	2	0	10	62	1	14	1	518
Total	13	301	116	0	0	0	2	2	2	0	17	256	327	179	0	94	2	373	7	0	42	264	1	59	3	2060
06:00 PM	4	81	31	0	0	0	0	0	2	0	6	61	72	42	0	25	4	74	7	0	13	72	0	15	1	510
06:15 PM	7	64	49	0	0	0	1	0	0	0	7	49	86	43	0	31	2	82	6	0	13	84	0	14	0	538
Grand Total	31	591	264	0	0	0	8	3	8	0	37	494	629	341	0	204	11	719	23	0	79	555	2	106	5	4110
Apprch %	3.5	66.7	29.8	0	0	0	42.1	15.8	42.1	0	2.5	32.9	41.9	22.7	0	21.3	1.1	75.1	2.4	0	10.6	74.3	0.3	14.2	0.7	
Total %	0.8	14.4	6.4	0	0	0	0.2	0.1	0.2	0	0.9	12	15.3	8.3	0	5	0.3	17.5	0.6	0	1.9	13.5	0	2.6	0.1	

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	3	80	30	0	0	113	0	0	1	1	0	2	3	64	80	48	0	195	15	1	82	2	0	100	11	76	0	15	0	102	512
05:45 PM	2	70	29	0	0	101	0	1	1	1	0	3	5	61	85	49	0	200	33	0	91	2	0	126	10	62	1	14	1	88	518
06:00 PM	4	81	31	0	0	116	0	0	0	2	0	2	6	61	72	42	0	181	25	4	74	7	0	110	13	72	0	15	1	101	510
06:15 PM	7	64	49	0	0	120	0	1	0	0	0	1	7	49	86	43	0	185	31	2	82	6	0	121	13	84	0	14	0	111	538
Total Volume	16	295	139	0	0	450	0	2	2	4	0	8	21	235	323	182	0	761	104	7	329	17	0	457	47	294	1	58	2	402	2078
% App. Total	3.6	65.6	30.9	0	0		0	25	25	50	0		2.8	30.9	42.4	23.9	0		22.8	1.5	72	3.7	0		11.7	73.1	0.2	14.4	0.5		
PHF	.571	.910	.709	.000	.000	.938	.000	.500	.500	.500	.000	.667	.750	.918	.939	.929	.000	.951	.788	.438	.904	.607	.000	.907	.904	.875	.250	.967	.500	.905	.966

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 AA
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Blanchard Road From North					Griswold Street From Northeast					Concord Avenue From East					Blanchard Road From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Right	Thru	Bear Left	Left	U-Turn	Int. Total
04:30 PM	0	2	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	1	0	0	0	2	0	0	0	8
04:45 PM	0	2	3	0	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	0	2	0	0	0	12
Total	0	4	3	0	0	0	0	0	0	0	0	4	1	0	0	2	0	2	0	0	0	4	0	0	0	20
05:00 PM	0	1	2	0	0	0	0	0	0	0	0	1	1	3	0	2	0	2	0	0	0	1	0	0	0	13
05:15 PM	0	2	1	0	0	0	0	0	0	0	1	2	0	1	0	0	0	1	0	0	0	2	0	0	0	10
05:30 PM	0	1	1	0	0	0	0	0	0	0	0	2	1	0	0	1	0	1	0	0	0	2	0	0	0	9
05:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	1	2	0	0	0	9
Total	0	6	4	0	0	0	0	0	0	0	1	5	3	6	0	4	0	4	0	0	1	7	0	0	0	41
06:00 PM	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
06:15 PM	0	1	1	0	0	0	0	0	0	0	0	2	0	3	0	1	0	0	0	0	0	0	0	1	0	9
Grand Total	0	13	9	0	0	0	0	0	0	0	1	11	4	9	0	7	0	6	0	0	1	11	0	1	0	73
Apprch %	0	59.1	40.9	0	0	0	0	0	0	0	4	44	16	36	0	53.8	0	46.2	0	0	7.7	84.6	0	7.7	0	
Total %	0	17.8	12.3	0	0	0	0	0	0	0	1.4	15.1	5.5	12.3	0	9.6	0	8.2	0	0	1.4	15.1	0	1.4	0	

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	0	2	3	0	0	5	0	0	0	0	0	0	0	2	0	0	0	2	2	0	1	0	0	3	0	2	0	0	0	2	12
05:00 PM	0	1	2	0	0	3	0	0	0	0	0	0	0	1	1	3	0	5	2	0	2	0	0	4	0	1	0	0	0	1	13
05:15 PM	0	2	1	0	0	3	0	0	0	0	0	0	1	2	0	1	0	4	0	0	1	0	0	1	0	2	0	0	0	2	10
05:30 PM	0	1	1	0	0	2	0	0	0	0	0	0	0	2	1	0	0	3	1	0	1	0	0	2	0	2	0	0	0	2	9
Total Volume	0	6	7	0	0	13	0	0	0	0	0	0	1	7	2	4	0	14	5	0	5	0	0	10	0	7	0	0	0	7	44
% App. Total	0	46.2	53.8	0	0		0	0	0	0	0		7.1	50	14.3	28.6	0		50	0	50	0	0		0	100	0	0	0		
PHF	.000	.750	.583	.000	.000	.650	.000	.000	.000	.000	.000	.000	.250	.875	.500	.333	.000	.700	.625	.000	.625	.000	.000	.625	.000	.875	.000	.000	.000	.875	.846

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
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Client: VHB/ S. Mandzo

File Name : 165280 AA
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	CW EB	CW WB	Hard Right	Bear Right	Bear Left	Hard Left	CW EB	CW WB	Hard Right	Right	Thru	Left	CW SB	CW NB	Right	Bear Right	Thru	Left	CW WB	CW EB	Right	Thru	Bear Left	Left	CW NB	CW SB	Int. Total
04:30 PM	0	2	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	3	0	0	0	1	11
04:45 PM	0	3	0	0	2	0	0	0	0	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	1	0	0	0	0	10
Total	0	5	2	0	2	1	0	0	0	0	0	0	0	1	1	0	0	0	1	0	2	1	0	0	0	4	0	0	0	1	21
05:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	4	1	0	0	0	0	1	0	1	0	0	0	0	4	0	0	0	0	12
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	1	5	1	2	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	14
05:30 PM	0	1	0	0	0	1	0	0	0	0	1	2	0	1	5	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	14
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	3	1	2	5	0	0	0	1	2	0	1	0	1	2	0	0	0	0	21
Total	0	3	0	0	0	1	0	0	0	0	1	6	12	4	9	5	0	0	2	1	4	0	1	0	2	10	0	0	0	0	61
06:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	0	1	0	3	0	0	0	0	2	0	1	0	0	14
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	4	0	0	1	0	0	1	0	0	0	0	2	0	0	0	0	10
Grand Total	0	9	2	0	2	2	0	0	0	0	1	6	13	7	19	5	0	1	4	1	10	1	1	0	2	18	0	1	0	1	106
Apprch %	0	60	13.3	0	13.3	13.3	0	0	0	0	14.3	85.7	28.9	15.6	42.2	11.1	0	2.2	23.5	5.9	58.8	5.9	5.9	0	9.1	81.8	0	4.5	0	4.5	
Total %	0	8.5	1.9	0	1.9	1.9	0	0	0	0	0.9	5.7	12.3	6.6	17.9	4.7	0	0.9	3.8	0.9	9.4	0.9	0.9	0	1.9	17	0	0.9	0	0.9	

	Blanchard Road From North							Griswold Street From Northeast							Concord Avenue From East							Blanchard Road From South							Concord Avenue From West							
Start Time	Right	Thru	Left	Hard Left	CW EB	CW WB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	CW EB	CW WB	App. Total	Hard Right	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Bear Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Bear Left	Left	CW NB	CW SB	App. Total	Int. 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	1	0	0	0	0	1	0	0	0	0	0	1	1	5	1	2	0	0	0	8	0	0	1	0	0	0	1	0	3	0	0	0	0	3	14
05:30 PM	0	1	0	0	0	1	2	0	0	0	0	1	2	3	0	1	5	0	0	0	6	1	0	0	0	0	0	1	1	1	0	0	0	0	2	14
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	3	3	3	1	2	5	0	0	11	0	1	2	0	1	0	4	1	2	0	0	0	0	3	21
06:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	0	1	0	5	0	0	0	6	1	0	3	0	0	0	4	0	2	0	1	0	0	3	14
Total Volume	0	3	0	0	0	1	4	0	0	0	0	1	6	7	9	3	14	5	0	0	31	2	1	6	0	1	0	10	2	8	0	1	0	0	11	63
% App. Total	0	75	0	0	0	25		0	0	0	0	14.3	85.7		29	9.7	45.2	16.1	0	0		20	10	60	0	10	0		18.2	72.7	0	9.1	0	0		
PHF	.000	.750	.000	.000	.000	.250	.500	.000	.000	.000	.000	.250	.500	.583	.450	.750	.700	.250	.000	.000	.705	.500	.250	.500	.000	.250	.000	.625	.500	.667	.000	.250	.000	.000	.917	.750

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File Name : 165280 AA
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Page No : 1

Groups Printed- Pedestrians

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	Peds EB	Peds WB	Hard Right	Bear Right	Bear Left	Hard Left	Peds EB	Peds WB	Hard Right	Right	Thru	Left	Peds SB	Peds NB	Right	Bear Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Bear Left	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	0	0	2	0	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	7
04:45 PM	0	0	0	0	1	2	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Total	0	0	0	0	1	4	0	0	0	0	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	17
05:00 PM	0	0	0	0	0	5	0	0	0	0	1	5	0	0	0	0	2	1	0	0	0	0	3	1	0	0	0	0	0	0	18
05:15 PM	0	0	0	0	0	1	0	0	0	0	3	4	0	0	0	0	5	1	0	0	0	0	0	1	0	0	0	0	0	2	17
05:30 PM	0	0	0	0	0	5	0	0	0	0	2	5	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	15
05:45 PM	0	0	0	0	3	2	0	0	0	0	4	5	0	0	0	0	0	1	0	0	0	0	2	1	0	0	0	0	2	1	21
Total	0	0	0	0	3	13	0	0	0	0	10	19	0	0	0	0	7	4	0	0	0	0	5	5	0	0	0	0	2	3	71
06:00 PM	0	0	0	0	0	3	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	4	1	0	0	0	0	4	2	20
06:15 PM	0	0	0	0	0	2	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	7
Grand Total	0	0	0	0	4	22	0	0	0	0	15	32	0	0	0	0	9	6	0	0	0	0	10	6	0	0	0	0	6	5	115
Apprch %	0	0	0	0	15.4	84.6	0	0	0	0	31.9	68.1	0	0	0	0	60	40	0	0	0	0	62.5	37.5	0	0	0	0	54.5	45.5	
Total %	0	0	0	0	3.5	19.1	0	0	0	0	13	27.8	0	0	0	0	7.8	5.2	0	0	0	0	8.7	5.2	0	0	0	0	5.2	4.3	

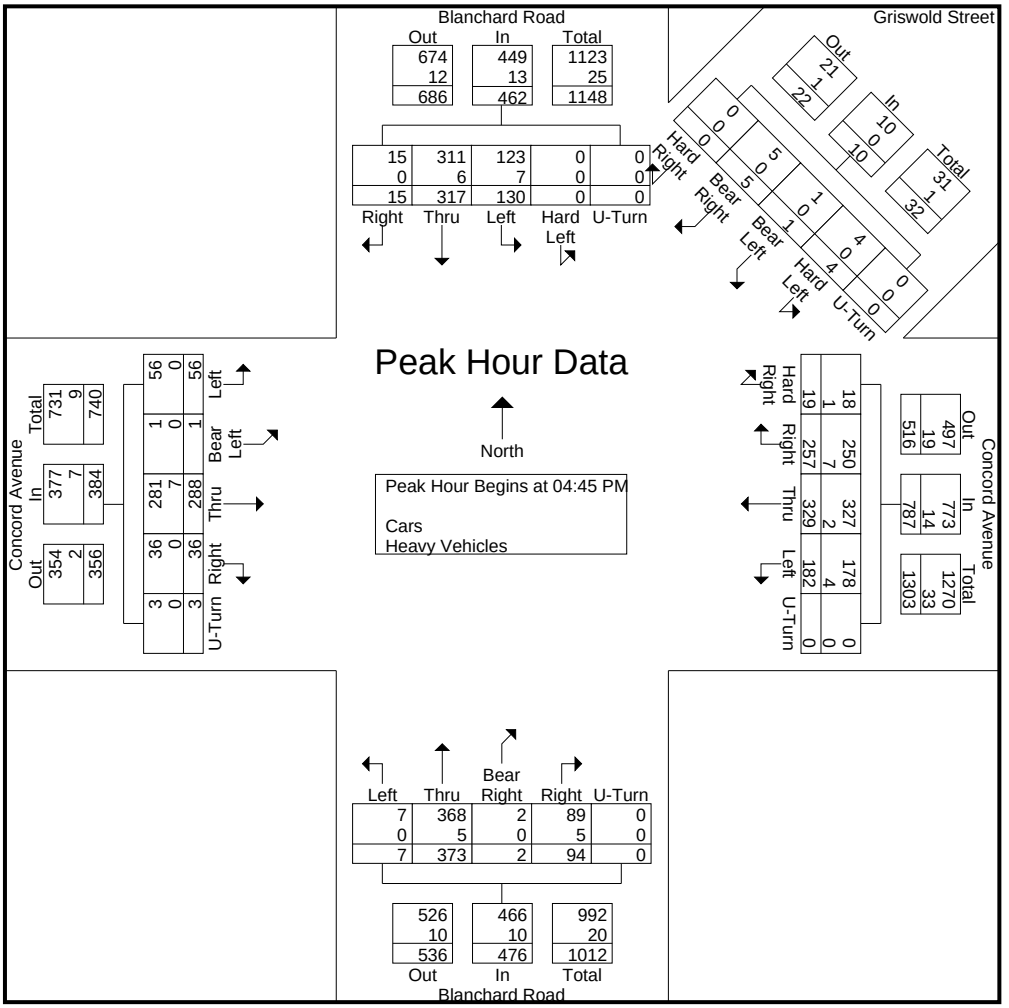
	Blanchard Road From North							Griswold Street From Northeast							Concord Avenue From East							Blanchard Road From South							Concord Avenue From West							
Start Time	Right	Thru	Left	Hard Left	Peds EB	Peds WB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds EB	Peds WB	App. Total	Hard Right	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Bear Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Bear Left	Left	Peds NB	Peds SB	App. Total	Int. 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	1	1	0	0	0	0	3	4	7	0	0	0	0	5	1	6	0	0	0	0	0	1	1	0	0	0	0	2	2	17
05:30 PM	0	0	0	0	0	5	5	0	0	0	0	2	5	7	0	0	0	0	0	1	1	0	0	0	0	0	2	2	0	0	0	0	0	0	15
05:45 PM	0	0	0	0	3	2	5	0	0	0	0	4	5	9	0	0	0	0	0	1	1	0	0	0	0	2	1	3	0	0	0	0	2	1	3	21
06:00 PM	0	0	0	0	0	3	3	0	0	0	0	0	4	4	0	0	0	0	0	2	2	0	0	0	0	4	1	5	0	0	0	0	4	2	6	20
Total Volume	0	0	0	0	3	11	14	0	0	0	0	9	18	27	0	0	0	0	5	5	10	0	0	0	0	6	5	11	0	0	0	0	6	5	11	73
% App. Total					21.4	78.6		0	0	0	0	33.3	66.7		0	0	0	0	50	50						54.5	45.5		0	0	0	0	54.5	45.5		
PHF	.000	.000	.000	.000	.250	.550	.700	.000	.000	.000	.000	.563	.900	.750	.000	.000	.000	.000	.250	.625	.417	.000	.000	.000	.000	.375	.625	.550	.000	.000	.000	.000	.375	.625	.458	.869

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S/NE: Blanchard Road/ Griswold Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 AA
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Blanchard Road From North						Griswold Street From Northeast						Concord Avenue From East						Blanchard Road From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Right	Thru	Bear Left	Left	U-Turn	App. Total	Int. 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	4	82	39	0	0	125	0	4	0	3	0	7	6	57	85	48	0	196	30	0	87	2	0	119	4	81	1	11	1	98	545
05:00 PM	4	68	29	0	0	101	0	1	0	0	0	1	7	70	94	54	0	225	22	1	108	2	0	133	12	64	0	9	0	85	545
05:15 PM	4	86	31	0	0	121	0	0	0	0	0	0	3	64	69	32	0	168	26	0	95	1	0	122	9	65	0	21	2	97	508
05:30 PM	3	81	31	0	0	115	0	0	1	1	0	2	3	66	81	48	0	198	16	1	83	2	0	102	11	78	0	15	0	104	521
Total Volume	15	317	130	0	0	462	0	5	1	4	0	10	19	257	329	182	0	787	94	2	373	7	0	476	36	288	1	56	3	384	2119
% App. Total	3.2	68.6	28.1	0	0		0	50	10	40	0		2.4	32.7	41.8	23.1	0		19.7	0.4	78.4	1.5	0		9.4	75	0.3	14.6	0.8		
PHF	.938	.922	.833	.000	.000	.924	.000	.313	.250	.333	.000	.357	.679	.918	.875	.843	.000	.874	.783	.500	.863	.875	.000	.895	.750	.889	.250	.667	.375	.923	.972
Cars	15	311	123	0	0	449	0	5	1	4	0	10	18	250	327	178	0	773	89	2	368	7	0	466	36	281	1	56	3	377	2075
% Cars	100	98.1	94.6	0	0	97.2	0	100	100	100	0	100	94.7	97.3	99.4	97.8	0	98.2	94.7	100	98.7	100	0	97.9	100	97.6	100	100	100	98.2	97.9
Heavy Vehicles	0	6	7	0	0	13	0	0	0	0	0	0	1	7	2	4	0	14	5	0	5	0	0	10	0	7	0	0	0	7	44
% Heavy Vehicles	0	1.9	5.4	0	0	2.8	0	0	0	0	0	0	5.3	2.7	0.6	2.2	0	1.8	5.3	0	1.3	0	0	2.1	0	2.4	0	0	0	1.8	2.1



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 B
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	2	1	0	5	111	0	170	8	0	297
07:45 AM	1	1	0	9	122	0	204	6	0	343
Total	3	2	0	14	233	0	374	14	0	640
08:00 AM	8	5	0	14	150	0	237	10	0	424
08:15 AM	11	16	0	9	147	0	235	19	0	437
08:30 AM	19	17	0	12	134	0	227	9	0	418
08:45 AM	8	10	0	11	130	0	258	12	0	429
Total	46	48	0	46	561	0	957	50	0	1708
09:00 AM	4	11	0	8	121	0	220	12	0	376
09:15 AM	2	1	0	11	113	0	195	15	0	337
Grand Total	55	62	0	79	1028	0	1746	91	0	3061
Apprch %	47	53	0	7.1	92.9	0	95	5	0	
Total %	1.8	2	0	2.6	33.6	0	57	3	0	
Cars	52	61	0	75	958	0	1701	90	0	2937
% Cars	94.5	98.4	0	94.9	93.2	0	97.4	98.9	0	95.9
Heavy Vehicles	3	1	0	4	70	0	45	1	0	124
% Heavy Vehicles	5.5	1.6	0	5.1	6.8	0	2.6	1.1	0	4.1

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	5	0	13	14	150	0	164	237	10	0	247	424
08:15 AM	11	16	0	27	9	147	0	156	235	19	0	254	437
08:30 AM	19	17	0	36	12	134	0	146	227	9	0	236	418
08:45 AM	8	10	0	18	11	130	0	141	258	12	0	270	429
Total Volume	46	48	0	94	46	561	0	607	957	50	0	1007	1708
% App. Total	48.9	51.1	0		7.6	92.4	0		95	5	0		
PHF	.605	.706	.000	.653	.821	.935	.000	.925	.927	.658	.000	.932	.977
Cars	43	48	0	91	42	531	0	573	934	50	0	984	1648
% Cars	93.5	100	0	96.8	91.3	94.7	0	94.4	97.6	100	0	97.7	96.5
Heavy Vehicles	3	0	0	3	4	30	0	34	23	0	0	23	60
% Heavy Vehicles	6.5	0	0	3.2	8.7	5.3	0	5.6	2.4	0	0	2.3	3.5

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N: Spinelli Place
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Client: VHB/ S. Mandzo

File Name : 165280 B
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	2	1	0	5	100	0	166	8	0	282
07:45 AM	1	1	0	9	105	0	200	6	0	322
Total	3	2	0	14	205	0	366	14	0	604
08:00 AM	7	5	0	14	139	0	232	10	0	407
08:15 AM	11	16	0	8	141	0	232	19	0	427
08:30 AM	17	17	0	11	127	0	220	9	0	401
08:45 AM	8	10	0	9	124	0	250	12	0	413
Total	43	48	0	42	531	0	934	50	0	1648
09:00 AM	4	10	0	8	115	0	216	12	0	365
09:15 AM	2	1	0	11	107	0	185	14	0	320
Grand Total	52	61	0	75	958	0	1701	90	0	2937
Apprch %	46	54	0	7.3	92.7	0	95	5	0	
Total %	1.8	2.1	0	2.6	32.6	0	57.9	3.1	0	

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	7	5	0	12	14	139	0	153	232	10	0	242	407
08:15 AM	11	16	0	27	8	141	0	149	232	19	0	251	427
08:30 AM	17	17	0	34	11	127	0	138	220	9	0	229	401
08:45 AM	8	10	0	18	9	124	0	133	250	12	0	262	413
Total Volume	43	48	0	91	42	531	0	573	934	50	0	984	1648
% App. Total	47.3	52.7	0		7.3	92.7	0		94.9	5.1	0		
PHF	.632	.706	.000	.669	.750	.941	.000	.936	.934	.658	.000	.939	.965

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
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File Name : 165280 B
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	11	0	4	0	0	15
07:45 AM	0	0	0	0	17	0	4	0	0	21
Total	0	0	0	0	28	0	8	0	0	36
08:00 AM	1	0	0	0	11	0	5	0	0	17
08:15 AM	0	0	0	1	6	0	3	0	0	10
08:30 AM	2	0	0	1	7	0	7	0	0	17
08:45 AM	0	0	0	2	6	0	8	0	0	16
Total	3	0	0	4	30	0	23	0	0	60
09:00 AM	0	1	0	0	6	0	4	0	0	11
09:15 AM	0	0	0	0	6	0	10	1	0	17
Grand Total	3	1	0	4	70	0	45	1	0	124
Apprch %	75	25	0	5.4	94.6	0	97.8	2.2	0	
Total %	2.4	0.8	0	3.2	56.5	0	36.3	0.8	0	

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	17	0	17	4	0	0	4	21
08:00 AM	1	0	0	1	0	11	0	11	5	0	0	5	17
08:15 AM	0	0	0	0	1	6	0	7	3	0	0	3	10
08:30 AM	2	0	0	2	1	7	0	8	7	0	0	7	17
Total Volume	3	0	0	3	2	41	0	43	19	0	0	19	65
% App. Total	100	0	0		4.7	95.3	0		100	0	0		
PHF	.375	.000	.000	.375	.500	.603	.000	.632	.679	.000	.000	.679	.774

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
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City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 B
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	0	1	1	0	0	8	0	0	0	10
07:45 AM	0	0	0	0	2	3	0	0	4	0	0	0	9
Total	0	0	0	0	3	4	0	0	12	0	0	0	19
08:00 AM	0	0	0	0	1	3	0	0	6	0	0	0	10
08:15 AM	0	0	0	0	0	1	0	0	4	0	0	0	5
08:30 AM	1	0	1	0	0	3	1	0	14	0	0	0	20
08:45 AM	0	0	4	0	2	0	2	1	4	1	1	0	15
Total	1	0	5	0	3	7	3	1	28	1	1	0	50
09:00 AM	0	0	0	0	0	2	0	0	2	1	0	0	5
09:15 AM	0	0	0	0	0	1	0	0	4	1	0	0	6
Grand Total	1	0	5	0	6	14	3	1	46	3	1	0	80
Apprch %	16.7	0	83.3	0	25	58.3	12.5	4.2	92	6	2	0	
Total %	1.2	0	6.2	0	7.5	17.5	3.8	1.2	57.5	3.8	1.2	0	

	Spinelli Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. 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	1	3	0	0	4	6	0	0	0	6	10
08:15 AM	0	0	0	0	0	0	1	0	0	1	4	0	0	0	4	5
08:30 AM	1	0	1	0	2	0	3	1	0	4	14	0	0	0	14	20
08:45 AM	0	0	4	0	4	2	0	2	1	5	4	1	1	0	6	15
Total Volume	1	0	5	0	6	3	7	3	1	14	28	1	1	0	30	50
% App. Total	16.7	0	83.3	0		21.4	50	21.4	7.1		93.3	3.3	3.3	0		
PHF	.250	.000	.313	.000	.375	.375	.583	.375	.250	.700	.500	.250	.250	.000	.536	.625

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N: Spinelli Place
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Groups Printed- Pedestrians

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	1	0	0	0	1	1	0	0	0	0	3
07:45 AM	0	0	3	2	0	0	1	0	0	0	0	0	6
Total	0	0	4	2	0	0	2	1	0	0	0	0	9
08:00 AM	0	0	1	2	0	0	0	4	0	0	1	0	8
08:15 AM	0	0	5	0	0	0	2	0	0	0	0	0	7
08:30 AM	0	0	3	6	0	0	2	1	0	0	0	0	12
08:45 AM	0	0	3	1	0	0	1	1	0	0	0	0	6
Total	0	0	12	9	0	0	5	6	0	0	1	0	33
09:00 AM	0	0	2	2	0	0	1	0	0	0	0	0	5
09:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
Grand Total	0	0	18	14	0	0	8	7	0	0	1	0	48
Apprch %	0	0	56.2	43.8	0	0	53.3	46.7	0	0	100	0	
Total %	0	0	37.5	29.2	0	0	16.7	14.6	0	0	2.1	0	

	Spinelli Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	3	2	5	0	0	1	0	1	0	0	0	0	0	6
08:00 AM	0	0	1	2	3	0	0	0	4	4	0	0	1	0	1	8
08:15 AM	0	0	5	0	5	0	0	2	0	2	0	0	0	0	0	7
08:30 AM	0	0	3	6	9	0	0	2	1	3	0	0	0	0	0	12
Total Volume	0	0	12	10	22	0	0	5	5	10	0	0	1	0	1	33
% App. Total	0	0	54.5	45.5		0	0	50	50		0	0	100	0		
PHF	.000	.000	.600	.417	.611	.000	.000	.625	.313	.625	.000	.000	.250	.000	.250	.688

PRECISION
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46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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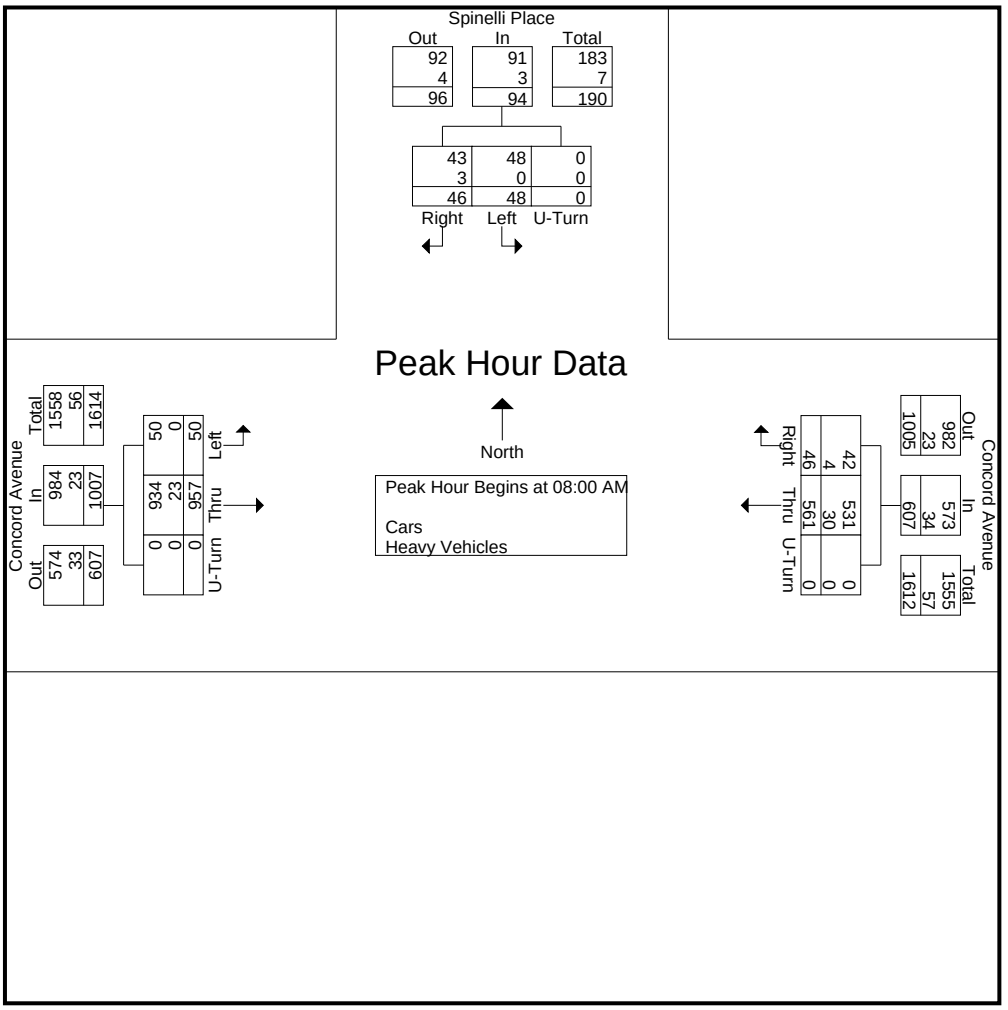
	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	8	5	0	13	14	150	0	164	237	10	0	247	424
08:15 AM	11	16	0	27	9	147	0	156	235	19	0	254	437
08:30 AM	19	17	0	36	12	134	0	146	227	9	0	236	418
08:45 AM	8	10	0	18	11	130	0	141	258	12	0	270	429
Total Volume	46	48	0	94	46	561	0	607	957	50	0	1007	1708
% App. Total	48.9	51.1	0		7.6	92.4	0		95	5	0		
PHF	.605	.706	.000	.653	.821	.935	.000	.925	.927	.658	.000	.932	.977
Cars	43	48	0	91	42	531	0	573	934	50	0	984	1648
% Cars	93.5	100	0	96.8	91.3	94.7	0	94.4	97.6	100	0	97.7	96.5
Heavy Vehicles	3	0	0	3	4	30	0	34	23	0	0	23	60
% Heavy Vehicles	6.5	0	0	3.2	8.7	5.3	0	5.6	2.4	0	0	2.3	3.5



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Groups Printed- Cars - Heavy Vehicles

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	15	10	0	2	192	0	116	4	0	339
04:45 PM	12	4	0	4	163	0	146	5	0	334
Total	27	14	0	6	355	0	262	9	0	673
05:00 PM	20	15	0	1	188	0	117	1	0	342
05:15 PM	16	12	0	0	156	0	123	1	0	308
05:30 PM	17	7	0	4	187	0	122	4	0	341
05:45 PM	14	8	0	2	183	0	122	2	0	331
Total	67	42	0	7	714	0	484	8	0	1322
06:00 PM	10	10	0	2	166	0	139	1	0	328
06:15 PM	12	6	0	4	190	0	162	4	0	378
Grand Total	116	72	0	19	1425	0	1047	22	0	2701
Apprch %	61.7	38.3	0	1.3	98.7	0	97.9	2.1	0	
Total %	4.3	2.7	0	0.7	52.8	0	38.8	0.8	0	
Cars	114	72	0	18	1403	0	1021	22	0	2650
% Cars	98.3	100	0	94.7	98.5	0	97.5	100	0	98.1
Heavy Vehicles	2	0	0	1	22	0	26	0	0	51
% Heavy Vehicles	1.7	0	0	5.3	1.5	0	2.5	0	0	1.9

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	17	7	0	24	4	187	0	191	122	4	0	126	341
05:45 PM	14	8	0	22	2	183	0	185	122	2	0	124	331
06:00 PM	10	10	0	20	2	166	0	168	139	1	0	140	328
06:15 PM	12	6	0	18	4	190	0	194	162	4	0	166	378
Total Volume	53	31	0	84	12	726	0	738	545	11	0	556	1378
% App. Total	63.1	36.9	0		1.6	98.4	0		98	2	0		
PHF	.779	.775	.000	.875	.750	.955	.000	.951	.841	.688	.000	.837	.911
Cars	52	31	0	83	12	715	0	727	535	11	0	546	1356
% Cars	98.1	100	0	98.8	100	98.5	0	98.5	98.2	100	0	98.2	98.4
Heavy Vehicles	1	0	0	1	0	11	0	11	10	0	0	10	22
% Heavy Vehicles	1.9	0	0	1.2	0	1.5	0	1.5	1.8	0	0	1.8	1.6

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 BB
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	14	10	0	1	188	0	115	4	0	332
04:45 PM	12	4	0	4	162	0	139	5	0	326
Total	26	14	0	5	350	0	254	9	0	658
05:00 PM	20	15	0	1	183	0	112	1	0	332
05:15 PM	16	12	0	0	155	0	120	1	0	304
05:30 PM	17	7	0	4	184	0	119	4	0	335
05:45 PM	14	8	0	2	181	0	118	2	0	325
Total	67	42	0	7	703	0	469	8	0	1296
06:00 PM	9	10	0	2	165	0	138	1	0	325
06:15 PM	12	6	0	4	185	0	160	4	0	371
Grand Total	114	72	0	18	1403	0	1021	22	0	2650
Apprch %	61.3	38.7	0	1.3	98.7	0	97.9	2.1	0	
Total %	4.3	2.7	0	0.7	52.9	0	38.5	0.8	0	

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	17	7	0	24	4	184	0	188	119	4	0	123	335
05:45 PM	14	8	0	22	2	181	0	183	118	2	0	120	325
06:00 PM	9	10	0	19	2	165	0	167	138	1	0	139	325
06:15 PM	12	6	0	18	4	185	0	189	160	4	0	164	371
Total Volume	52	31	0	83	12	715	0	727	535	11	0	546	1356
% App. Total	62.7	37.3	0		1.7	98.3	0		98	2	0		
PHF	.765	.775	.000	.865	.750	.966	.000	.962	.836	.688	.000	.832	.914

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
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Groups Printed- Heavy Vehicles

	Spinelli Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	1	0	0	1	4	0	1	0	0	7
04:45 PM	0	0	0	0	1	0	7	0	0	8
Total	1	0	0	1	5	0	8	0	0	15
05:00 PM	0	0	0	0	5	0	5	0	0	10
05:15 PM	0	0	0	0	1	0	3	0	0	4
05:30 PM	0	0	0	0	3	0	3	0	0	6
05:45 PM	0	0	0	0	2	0	4	0	0	6
Total	0	0	0	0	11	0	15	0	0	26
06:00 PM	1	0	0	0	1	0	1	0	0	3
06:15 PM	0	0	0	0	5	0	2	0	0	7
Grand Total	2	0	0	1	22	0	26	0	0	51
Apprch %	100	0	0	4.3	95.7	0	100	0	0	
Total %	3.9	0	0	2	43.1	0	51	0	0	

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	1	0	0	1	1	4	0	5	1	0	0	1	7
04:45 PM	0	0	0	0	0	1	0	1	7	0	0	7	8
05:00 PM	0	0	0	0	0	5	0	5	5	0	0	5	10
05:15 PM	0	0	0	0	0	1	0	1	3	0	0	3	4
Total Volume	1	0	0	1	1	11	0	12	16	0	0	16	29
% App. Total	100	0	0		8.3	91.7	0		100	0	0		
PHF	.250	.000	.000	.250	.250	.550	.000	.600	.571	.000	.000	.571	.725

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
E/W: Concord Avenue
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File Name : 165280 BB
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	1	0	0	5	0	0	0	6
04:45 PM	0	1	1	0	0	1	1	1	4	0	0	0	9
Total	0	1	1	0	0	2	1	1	9	0	0	0	15
05:00 PM	1	0	0	0	1	7	2	0	4	0	0	0	15
05:15 PM	4	0	0	0	0	11	1	0	7	0	0	0	23
05:30 PM	3	0	0	0	0	6	2	0	2	0	0	0	13
05:45 PM	0	0	0	0	0	16	2	0	4	0	0	0	22
Total	8	0	0	0	1	40	7	0	17	0	0	0	73
06:00 PM	0	0	0	0	0	7	0	0	4	0	0	0	11
06:15 PM	0	0	0	0	0	5	0	0	4	0	0	0	9
Grand Total	8	1	1	0	1	54	8	1	34	0	0	0	108
Apprch %	80	10	10	0	1.6	84.4	12.5	1.6	100	0	0	0	
Total %	7.4	0.9	0.9	0	0.9	50	7.4	0.9	31.5	0	0	0	

	Spinelli Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	1	0	0	0	1	1	7	2	0	10	4	0	0	0	4	15
05:15 PM	4	0	0	0	4	0	11	1	0	12	7	0	0	0	7	23
05:30 PM	3	0	0	0	3	0	6	2	0	8	2	0	0	0	2	13
05:45 PM	0	0	0	0	0	0	16	2	0	18	4	0	0	0	4	22
Total Volume	8	0	0	0	8	1	40	7	0	48	17	0	0	0	17	73
% App. Total	100	0	0	0		2.1	83.3	14.6	0		100	0	0	0		
PHF	.500	.000	.000	.000	.500	.250	.625	.875	.000	.667	.607	.000	.000	.000	.607	.793

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 BB
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	5	0	0	0	3	0	0	0	0	0	8
04:45 PM	0	0	5	2	0	0	7	1	0	0	0	0	15
Total	0	0	10	2	0	0	10	1	0	0	0	0	23
05:00 PM	0	0	2	1	0	0	4	0	0	0	0	0	7
05:15 PM	0	0	3	0	0	0	2	0	0	0	0	0	5
05:30 PM	0	0	0	4	0	0	0	1	0	0	0	0	5
05:45 PM	0	0	5	5	0	0	2	0	0	0	0	0	12
Total	0	0	10	10	0	0	8	1	0	0	0	0	29
06:00 PM	0	0	1	10	0	0	1	4	0	0	0	0	16
06:15 PM	0	0	1	8	0	0	0	0	0	0	0	0	9
Grand Total	0	0	22	30	0	0	19	6	0	0	0	0	77
Apprch %	0	0	42.3	57.7	0	0	76	24	0	0	0	0	
Total %	0	0	28.6	39	0	0	24.7	7.8	0	0	0	0	

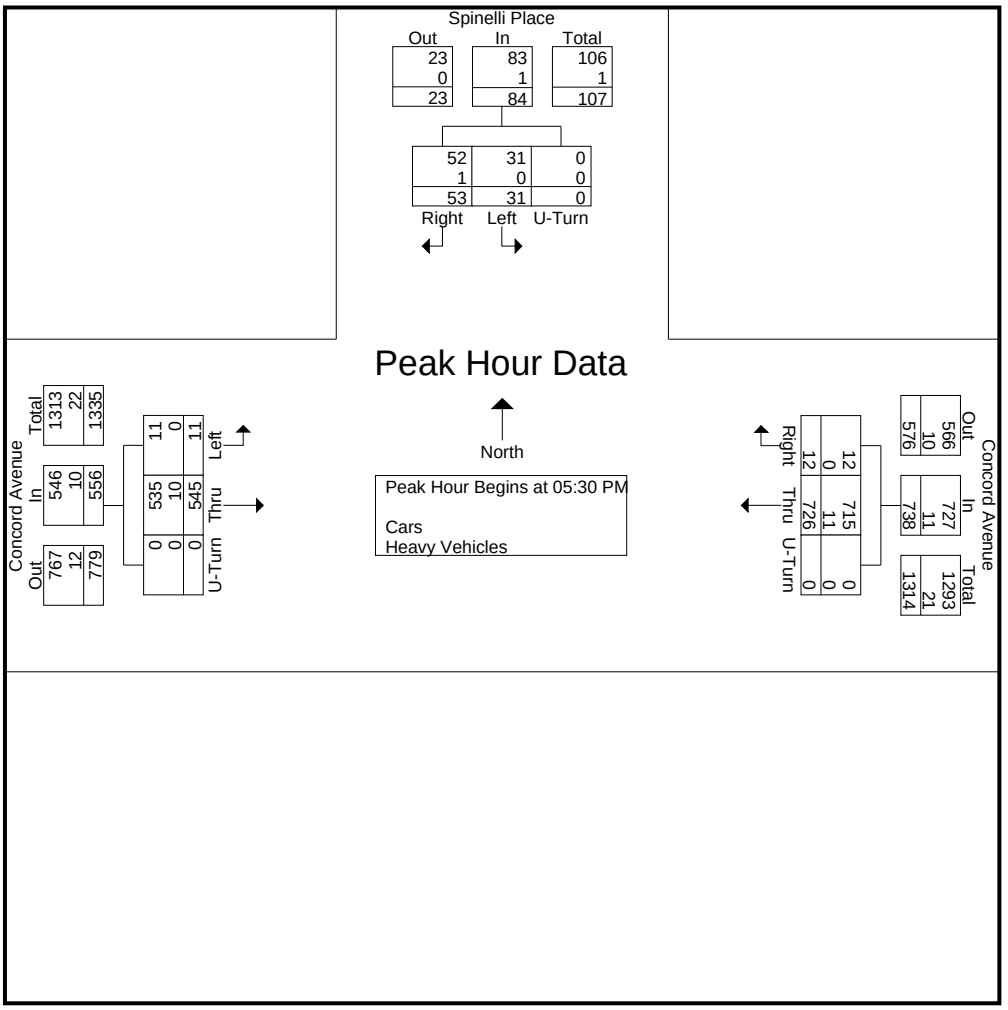
	Spinelli Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:30 PM																
05:30 PM	0	0	0	4	4	0	0	0	1	1	0	0	0	0	0	5
05:45 PM	0	0	5	5	10	0	0	2	0	2	0	0	0	0	0	12
06:00 PM	0	0	1	10	11	0	0	1	4	5	0	0	0	0	0	16
06:15 PM	0	0	1	8	9	0	0	0	0	0	0	0	0	0	0	9
Total Volume	0	0	7	27	34	0	0	3	5	8	0	0	0	0	0	42
% App. Total	0	0	20.6	79.4		0	0	37.5	62.5		0	0	0	0		
PHF	.000	.000	.350	.675	.773	.000	.000	.375	.313	.400	.000	.000	.000	.000	.000	.656

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Spinelli Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 BB
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Spinelli Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	17	7	0	24	4	187	0	191	122	4	0	126	341
05:45 PM	14	8	0	22	2	183	0	185	122	2	0	124	331
06:00 PM	10	10	0	20	2	166	0	168	139	1	0	140	328
06:15 PM	12	6	0	18	4	190	0	194	162	4	0	166	378
Total Volume	53	31	0	84	12	726	0	738	545	11	0	556	1378
% App. Total	63.1	36.9	0		1.6	98.4	0		98	2	0		
PHF	.779	.775	.000	.875	.750	.955	.000	.951	.841	.688	.000	.837	.911
Cars	52	31	0	83	12	715	0	727	535	11	0	546	1356
% Cars	98.1	100	0	98.8	100	98.5	0	98.5	98.2	100	0	98.2	98.4
Heavy Vehicles	1	0	0	1	0	11	0	11	10	0	0	10	22
% Heavy Vehicles	1.9	0	0	1.2	0	1.5	0	1.5	1.8	0	0	1.8	1.6



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 C
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	16	7	0	13	106	0	133	29	0	304
07:45 AM	21	8	0	11	111	0	170	25	0	346
Total	37	15	0	24	217	0	303	54	0	650
08:00 AM	17	8	0	19	159	0	202	27	0	432
08:15 AM	21	9	0	11	136	0	214	22	0	413
08:30 AM	12	17	0	13	135	0	208	21	0	406
08:45 AM	18	15	0	13	134	0	237	24	0	441
Total	68	49	0	56	564	0	861	94	0	1692
09:00 AM	11	17	0	10	126	0	190	26	0	380
09:15 AM	14	21	0	12	108	0	153	25	0	333
Grand Total	130	102	0	102	1015	0	1507	199	0	3055
Apprch %	56	44	0	9.1	90.9	0	88.3	11.7	0	
Total %	4.3	3.3	0	3.3	33.2	0	49.3	6.5	0	
Cars	104	76	0	84	970	0	1475	186	0	2895
% Cars	80	74.5	0	82.4	95.6	0	97.9	93.5	0	94.8
Heavy Vehicles	26	26	0	18	45	0	32	13	0	160
% Heavy Vehicles	20	25.5	0	17.6	4.4	0	2.1	6.5	0	5.2

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	8	0	25	19	159	0	178	202	27	0	229	432
08:15 AM	21	9	0	30	11	136	0	147	214	22	0	236	413
08:30 AM	12	17	0	29	13	135	0	148	208	21	0	229	406
08:45 AM	18	15	0	33	13	134	0	147	237	24	0	261	441
Total Volume	68	49	0	117	56	564	0	620	861	94	0	955	1692
% App. Total	58.1	41.9	0		9	91	0		90.2	9.8	0		
PHF	.810	.721	.000	.886	.737	.887	.000	.871	.908	.870	.000	.915	.959
Cars	55	40	0	95	45	545	0	590	848	85	0	933	1618
% Cars	80.9	81.6	0	81.2	80.4	96.6	0	95.2	98.5	90.4	0	97.7	95.6
Heavy Vehicles	13	9	0	22	11	19	0	30	13	9	0	22	74
% Heavy Vehicles	19.1	18.4	0	18.8	19.6	3.4	0	4.8	1.5	9.6	0	2.3	4.4

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N: Smith Place
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File Name : 165280 C
Site Code : TBA
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Groups Printed- Cars

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	13	4	0	12	100	0	131	27	0	287
07:45 AM	13	7	0	10	102	0	166	25	0	323
Total	26	11	0	22	202	0	297	52	0	610
08:00 AM	14	5	0	17	151	0	200	24	0	411
08:15 AM	17	8	0	8	135	0	214	20	0	402
08:30 AM	9	15	0	8	130	0	202	18	0	382
08:45 AM	15	12	0	12	129	0	232	23	0	423
Total	55	40	0	45	545	0	848	85	0	1618
09:00 AM	11	11	0	7	119	0	186	25	0	359
09:15 AM	12	14	0	10	104	0	144	24	0	308
Grand Total	104	76	0	84	970	0	1475	186	0	2895
Apprch %	57.8	42.2	0	8	92	0	88.8	11.2	0	
Total %	3.6	2.6	0	2.9	33.5	0	50.9	6.4	0	

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	14	5	0	19	17	151	0	168	200	24	0	224	411
08:15 AM	17	8	0	25	8	135	0	143	214	20	0	234	402
08:30 AM	9	15	0	24	8	130	0	138	202	18	0	220	382
08:45 AM	15	12	0	27	12	129	0	141	232	23	0	255	423
Total Volume	55	40	0	95	45	545	0	590	848	85	0	933	1618
% App. Total	57.9	42.1	0		7.6	92.4	0		90.9	9.1	0		
PHF	.809	.667	.000	.880	.662	.902	.000	.878	.914	.885	.000	.915	.956

PRECISION
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Groups Printed- Heavy Vehicles

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	3	3	0	1	6	0	2	2	0	17
07:45 AM	8	1	0	1	9	0	4	0	0	23
Total	11	4	0	2	15	0	6	2	0	40
08:00 AM	3	3	0	2	8	0	2	3	0	21
08:15 AM	4	1	0	3	1	0	0	2	0	11
08:30 AM	3	2	0	5	5	0	6	3	0	24
08:45 AM	3	3	0	1	5	0	5	1	0	18
Total	13	9	0	11	19	0	13	9	0	74
09:00 AM	0	6	0	3	7	0	4	1	0	21
09:15 AM	2	7	0	2	4	0	9	1	0	25
Grand Total	26	26	0	18	45	0	32	13	0	160
Apprch %	50	50	0	28.6	71.4	0	71.1	28.9	0	
Total %	16.2	16.2	0	11.2	28.1	0	20	8.1	0	

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	3	2	0	5	5	5	0	10	6	3	0	9	24
08:45 AM	3	3	0	6	1	5	0	6	5	1	0	6	18
09:00 AM	0	6	0	6	3	7	0	10	4	1	0	5	21
09:15 AM	2	7	0	9	2	4	0	6	9	1	0	10	25
Total Volume	8	18	0	26	11	21	0	32	24	6	0	30	88
% App. Total	30.8	69.2	0		34.4	65.6	0		80	20	0		
PHF	.667	.643	.000	.722	.550	.750	.000	.800	.667	.500	.000	.750	.880

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 C
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	1	0	0	3	0	0	0	0	0	0	4
07:45 AM	0	0	0	0	0	4	0	0	0	1	0	0	5
Total	0	0	1	0	0	7	0	0	0	1	0	0	9
08:00 AM	0	0	0	0	0	5	0	0	0	0	0	0	5
08:15 AM	0	0	0	0	0	1	0	0	2	0	0	0	3
08:30 AM	0	0	0	1	1	5	0	0	1	0	0	0	8
08:45 AM	0	0	1	0	0	3	0	0	1	1	0	0	6
Total	0	0	1	1	1	14	0	0	4	1	0	0	22
09:00 AM	0	0	0	0	0	2	0	0	2	0	0	0	4
09:15 AM	0	0	0	0	0	2	0	0	3	1	0	0	6
Grand Total	0	0	2	1	1	25	0	0	9	3	0	0	41
Apprch %	0	0	66.7	33.3	3.8	96.2	0	0	75	25	0	0	
Total %	0	0	4.9	2.4	2.4	61	0	0	22	7.3	0	0	

	Smith Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	0	1	1	1	5	0	0	6	1	0	0	0	1	8
08:45 AM	0	0	1	0	1	0	3	0	0	3	1	1	0	0	2	6
09:00 AM	0	0	0	0	0	0	2	0	0	2	2	0	0	0	2	4
09:15 AM	0	0	0	0	0	0	2	0	0	2	3	1	0	0	4	6
Total Volume	0	0	1	1	2	1	12	0	0	13	7	2	0	0	9	24
% App. Total	0	0	50	50		7.7	92.3	0	0		77.8	22.2	0	0		
PHF	.000	.000	.250	.250	.500	.250	.600	.000	.000	.542	.583	.500	.000	.000	.563	.750

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
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File Name : 165280 C
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Page No : 1

Groups Printed- Pedestrians

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	1	5	0	0	0	0	0	0	0	0	6
Total	0	0	2	5	0	0	0	0	0	0	0	0	7
08:00 AM	0	0	1	4	0	0	0	0	0	0	1	3	9
08:15 AM	0	0	1	2	0	0	0	0	0	0	1	2	6
08:30 AM	0	0	3	7	0	0	1	0	0	0	0	1	12
08:45 AM	0	0	3	5	0	0	0	0	0	0	3	0	11
Total	0	0	8	18	0	0	1	0	0	0	5	6	38
09:00 AM	0	0	3	3	0	0	0	0	0	0	0	1	7
09:15 AM	0	0	3	1	0	0	0	0	0	0	2	0	6
Grand Total	0	0	16	27	0	0	1	0	0	0	7	7	58
Apprch %	0	0	37.2	62.8	0	0	100	0	0	0	50	50	
Total %	0	0	27.6	46.6	0	0	1.7	0	0	0	12.1	12.1	

	Smith Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	1	4	5	0	0	0	0	0	0	0	1	3	4	9
08:15 AM	0	0	1	2	3	0	0	0	0	0	0	0	1	2	3	6
08:30 AM	0	0	3	7	10	0	0	1	0	1	0	0	0	1	1	12
08:45 AM	0	0	3	5	8	0	0	0	0	0	0	0	3	0	3	11
Total Volume	0	0	8	18	26	0	0	1	0	1	0	0	5	6	11	38
% App. Total	0	0	30.8	69.2		0	0	100	0		0	0	45.5	54.5		
PHF	.000	.000	.667	.643	.650	.000	.000	.250	.000	.250	.000	.000	.417	.500	.688	.792

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
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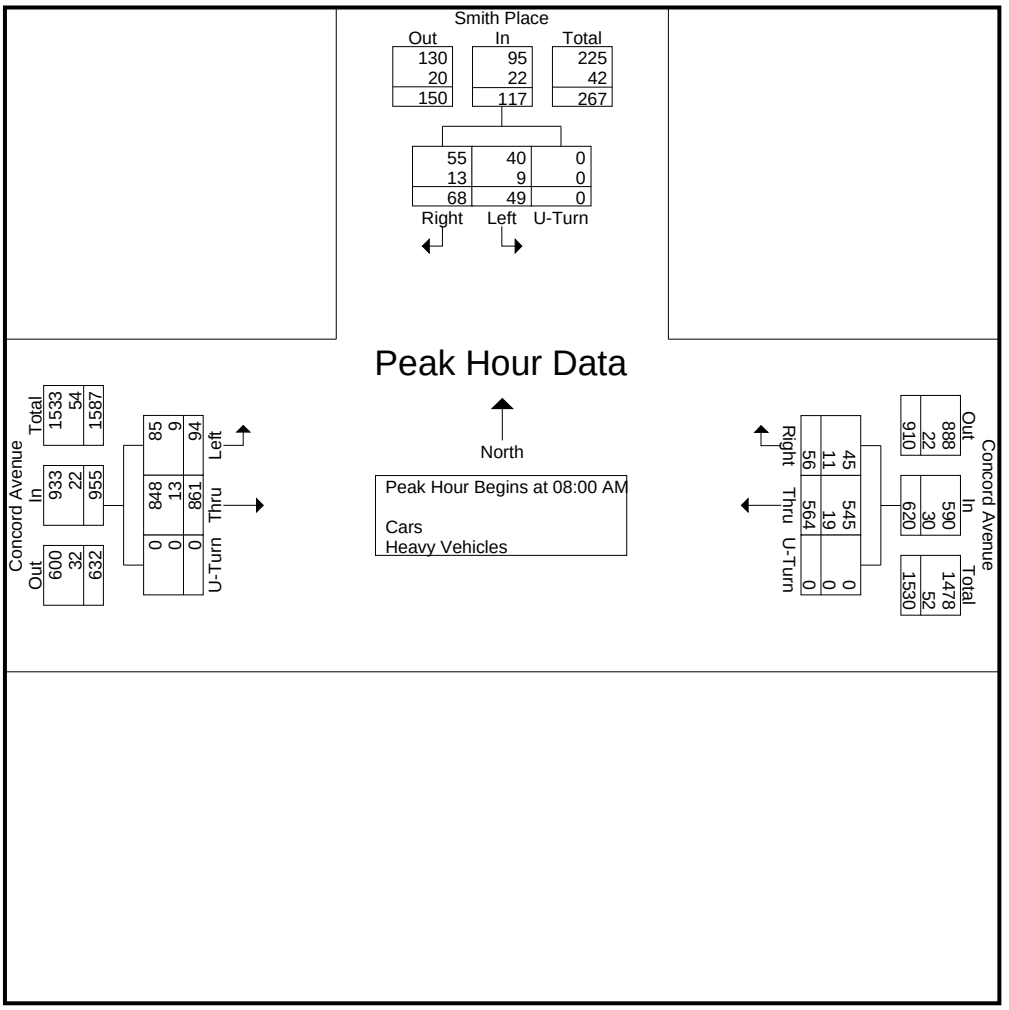
	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	17	8	0	25	19	159	0	178	202	27	0	229	432
08:15 AM	21	9	0	30	11	136	0	147	214	22	0	236	413
08:30 AM	12	17	0	29	13	135	0	148	208	21	0	229	406
08:45 AM	18	15	0	33	13	134	0	147	237	24	0	261	441
Total Volume	68	49	0	117	56	564	0	620	861	94	0	955	1692
% App. Total	58.1	41.9	0		9	91	0		90.2	9.8	0		
PHF	.810	.721	.000	.886	.737	.887	.000	.871	.908	.870	.000	.915	.959
Cars	55	40	0	95	45	545	0	590	848	85	0	933	1618
% Cars	80.9	81.6	0	81.2	80.4	96.6	0	95.2	98.5	90.4	0	97.7	95.6
Heavy Vehicles	13	9	0	22	11	19	0	30	13	9	0	22	74
% Heavy Vehicles	19.1	18.4	0	18.8	19.6	3.4	0	4.8	1.5	9.6	0	2.3	4.4



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Groups Printed- Cars - Heavy Vehicles

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	51	22	0	11	136	0	128	11	0	359
04:45 PM	20	18	0	15	127	0	145	13	0	338
Total	71	40	0	26	263	0	273	24	0	697
05:00 PM	29	21	0	5	151	0	122	11	0	339
05:15 PM	27	15	0	6	116	0	127	14	0	305
05:30 PM	35	11	0	5	149	0	125	10	0	335
05:45 PM	25	10	0	7	168	1	115	13	0	339
Total	116	57	0	23	584	1	489	48	0	1318
06:00 PM	27	13	0	5	123	0	142	9	0	319
06:15 PM	28	6	0	8	165	0	154	11	0	372
Grand Total	242	116	0	62	1135	1	1058	92	0	2706
Apprch %	67.6	32.4	0	5.2	94.7	0.1	92	8	0	
Total %	8.9	4.3	0	2.3	41.9	0	39.1	3.4	0	
Cars	239	113	0	57	1119	1	1041	84	0	2654
% Cars	98.8	97.4	0	91.9	98.6	100	98.4	91.3	0	98.1
Heavy Vehicles	3	3	0	5	16	0	17	8	0	52
% Heavy Vehicles	1.2	2.6	0	8.1	1.4	0	1.6	8.7	0	1.9

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	35	11	0	46	5	149	0	154	125	10	0	135	335
05:45 PM	25	10	0	35	7	168	1	176	115	13	0	128	339
06:00 PM	27	13	0	40	5	123	0	128	142	9	0	151	319
06:15 PM	28	6	0	34	8	165	0	173	154	11	0	165	372
Total Volume	115	40	0	155	25	605	1	631	536	43	0	579	1365
% App. Total	74.2	25.8	0		4	95.9	0.2		92.6	7.4	0		
PHF	.821	.769	.000	.842	.781	.900	.250	.896	.870	.827	.000	.877	.917
Cars	114	40	0	154	23	596	1	620	529	41	0	570	1344
% Cars	99.1	100	0	99.4	92.0	98.5	100	98.3	98.7	95.3	0	98.4	98.5
Heavy Vehicles	1	0	0	1	2	9	0	11	7	2	0	9	21
% Heavy Vehicles	0.9	0	0	0.6	8.0	1.5	0	1.7	1.3	4.7	0	1.6	1.5

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
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File Name : 165280 CC
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	50	20	0	10	134	0	128	10	0	352
04:45 PM	19	18	0	14	127	0	140	12	0	330
Total	69	38	0	24	261	0	268	22	0	682
05:00 PM	29	21	0	5	147	0	118	9	0	329
05:15 PM	27	14	0	5	115	0	126	12	0	299
05:30 PM	34	11	0	4	147	0	123	9	0	328
05:45 PM	25	10	0	7	167	1	112	12	0	334
Total	115	56	0	21	576	1	479	42	0	1290
06:00 PM	27	13	0	4	122	0	141	9	0	316
06:15 PM	28	6	0	8	160	0	153	11	0	366
Grand Total	239	113	0	57	1119	1	1041	84	0	2654
Apprch %	67.9	32.1	0	4.8	95.1	0.1	92.5	7.5	0	
Total %	9	4.3	0	2.1	42.2	0	39.2	3.2	0	

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	34	11	0	45	4	147	0	151	123	9	0	132	328
05:45 PM	25	10	0	35	7	167	1	175	112	12	0	124	334
06:00 PM	27	13	0	40	4	122	0	126	141	9	0	150	316
06:15 PM	28	6	0	34	8	160	0	168	153	11	0	164	366
Total Volume	114	40	0	154	23	596	1	620	529	41	0	570	1344
% App. Total	74	26	0		3.7	96.1	0.2		92.8	7.2	0		
PHF	.838	.769	.000	.856	.719	.892	.250	.886	.864	.854	.000	.869	.918

PRECISION
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N: Smith Place
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Groups Printed- Heavy Vehicles

	Smith Place From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	1	2	0	1	2	0	0	1	0	7
04:45 PM	1	0	0	1	0	0	5	1	0	8
Total	2	2	0	2	2	0	5	2	0	15
05:00 PM	0	0	0	0	4	0	4	2	0	10
05:15 PM	0	1	0	1	1	0	1	2	0	6
05:30 PM	1	0	0	1	2	0	2	1	0	7
05:45 PM	0	0	0	0	1	0	3	1	0	5
Total	1	1	0	2	8	0	10	6	0	28
06:00 PM	0	0	0	1	1	0	1	0	0	3
06:15 PM	0	0	0	0	5	0	1	0	0	6
Grand Total	3	3	0	5	16	0	17	8	0	52
Apprch %	50	50	0	23.8	76.2	0	68	32	0	
Total %	5.8	5.8	0	9.6	30.8	0	32.7	15.4	0	

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	1	2	0	3	1	2	0	3	0	1	0	1	7
04:45 PM	1	0	0	1	1	0	0	1	5	1	0	6	8
05:00 PM	0	0	0	0	0	4	0	4	4	2	0	6	10
05:15 PM	0	1	0	1	1	1	0	2	1	2	0	3	6
Total Volume	2	3	0	5	3	7	0	10	10	6	0	16	31
% App. Total	40	60	0		30	70	0		62.5	37.5	0		
PHF	.500	.375	.000	.417	.750	.438	.000	.625	.500	.750	.000	.667	.775

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Groups Printed- Bicycles

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	4	0	0	1	5
04:45 PM	0	0	0	0	0	2	0	0	4	0	0	0	6
Total	0	0	0	0	0	2	0	0	8	0	0	1	11
05:00 PM	0	3	1	0	0	11	0	0	4	0	0	3	22
05:15 PM	0	0	0	0	0	8	0	0	10	0	0	0	18
05:30 PM	0	0	1	1	0	8	0	0	4	0	0	0	14
05:45 PM	0	0	0	0	0	12	0	0	4	0	0	1	17
Total	0	3	2	1	0	39	0	0	22	0	0	4	71
06:00 PM	0	0	2	1	0	7	0	0	3	0	0	1	14
06:15 PM	0	0	0	0	0	4	0	1	1	0	0	0	6
Grand Total	0	3	4	2	0	52	0	1	34	0	0	6	102
Apprch %	0	33.3	44.4	22.2	0	98.1	0	1.9	85	0	0	15	
Total %	0	2.9	3.9	2	0	51	0	1	33.3	0	0	5.9	

	Smith Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	0	3	1	0	4	0	11	0	0	11	4	0	0	3	7	22
05:15 PM	0	0	0	0	0	0	8	0	0	8	10	0	0	0	10	18
05:30 PM	0	0	1	1	2	0	8	0	0	8	4	0	0	0	4	14
05:45 PM	0	0	0	0	0	0	12	0	0	12	4	0	0	1	5	17
Total Volume	0	3	2	1	6	0	39	0	0	39	22	0	0	4	26	71
% App. Total	0	50	33.3	16.7		0	100	0	0		84.6	0	0	15.4		
PHF	.000	.250	.500	.250	.375	.000	.813	.000	.000	.813	.550	.000	.000	.333	.650	.807

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Groups Printed- Pedestrians

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	6	0	0	0	0	0	0	0	5	1	12
04:45 PM	0	0	3	2	0	0	0	0	0	0	3	2	10
Total	0	0	9	2	0	0	0	0	0	0	8	3	22
05:00 PM	0	0	4	1	0	0	0	0	0	0	1	4	10
05:15 PM	0	0	1	2	0	0	0	0	0	0	2	4	9
05:30 PM	0	0	1	3	0	0	0	0	0	0	0	5	9
05:45 PM	0	0	1	3	0	0	0	0	0	0	0	3	7
Total	0	0	7	9	0	0	0	0	0	0	3	16	35
06:00 PM	0	0	3	3	0	0	0	0	0	0	0	3	9
06:15 PM	0	0	1	5	0	0	1	0	0	0	3	2	12
Grand Total	0	0	20	19	0	0	1	0	0	0	14	24	78
Apprch %	0	0	51.3	48.7	0	0	100	0	0	0	36.8	63.2	
Total %	0	0	25.6	24.4	0	0	1.3	0	0	0	17.9	30.8	

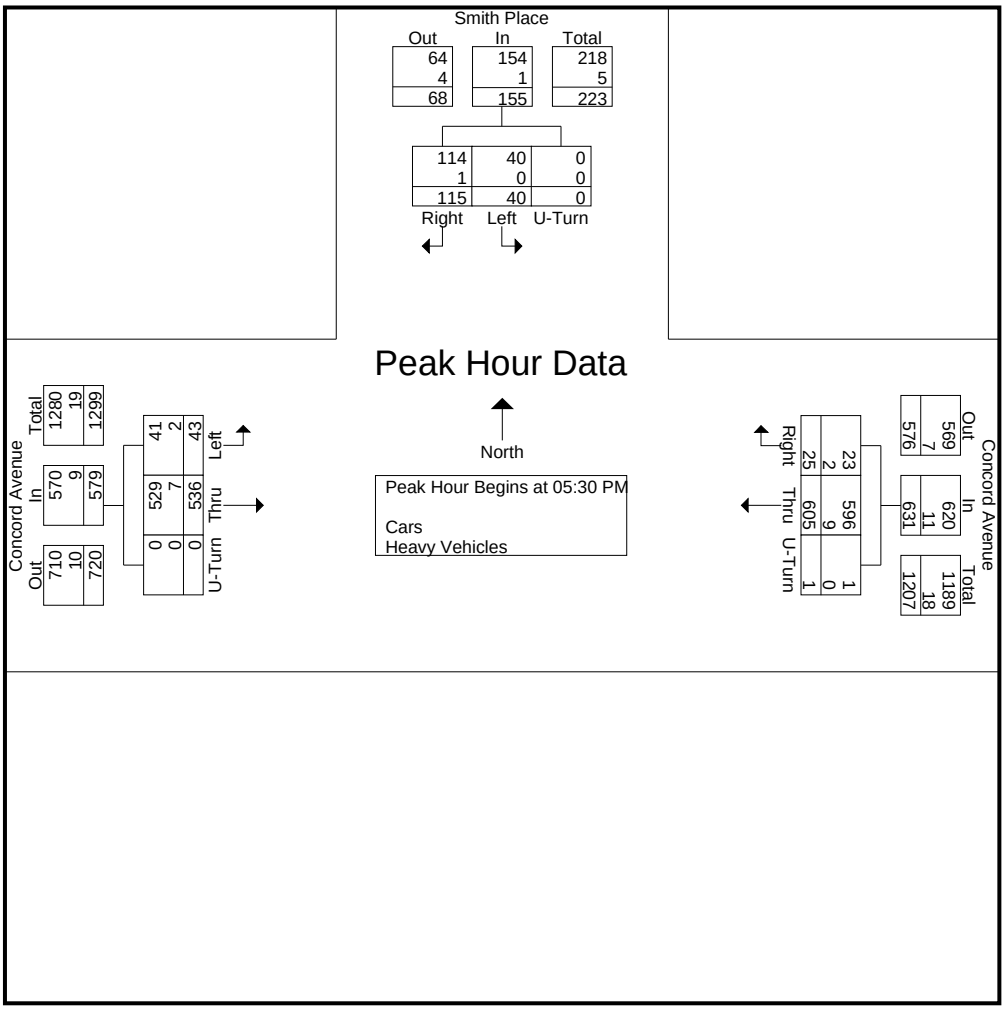
	Smith Place From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 04:30 PM																
04:30 PM	0	0	6	0	6	0	0	0	0	0	0	0	5	1	6	12
04:45 PM	0	0	3	2	5	0	0	0	0	0	0	0	3	2	5	10
05:00 PM	0	0	4	1	5	0	0	0	0	0	0	0	1	4	5	10
05:15 PM	0	0	1	2	3	0	0	0	0	0	0	0	2	4	6	9
Total Volume	0	0	14	5	19	0	0	0	0	0	0	0	11	11	22	41
% App. Total	0	0	73.7	26.3		0	0	0	0		0	0	50	50		
PHF	.000	.000	.583	.625	.792	.000	.000	.000	.000	.000	.000	.000	.550	.688	.917	.854

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Smith Place
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 CC
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Smith Place From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	35	11	0	46	5	149	0	154	125	10	0	135	335
05:45 PM	25	10	0	35	7	168	1	176	115	13	0	128	339
06:00 PM	27	13	0	40	5	123	0	128	142	9	0	151	319
06:15 PM	28	6	0	34	8	165	0	173	154	11	0	165	372
Total Volume	115	40	0	155	25	605	1	631	536	43	0	579	1365
% App. Total	74.2	25.8	0		4	95.9	0.2		92.6	7.4	0		
PHF	.821	.769	.000	.842	.781	.900	.250	.896	.870	.827	.000	.877	.917
Cars	114	40	0	154	23	596	1	620	529	41	0	570	1344
% Cars	99.1	100	0	99.4	92.0	98.5	100	98.3	98.7	95.3	0	98.4	98.5
Heavy Vehicles	1	0	0	1	2	9	0	11	7	2	0	9	21
% Heavy Vehicles	0.9	0	0	0.6	8.0	1.5	0	1.7	1.3	4.7	0	1.6	1.5



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	1	0	8	0	10	126	2	0	6	0	1	0	3	136	2	0	295
07:45 AM	2	0	10	0	18	128	7	0	2	0	0	0	3	167	3	0	340
Total	3	0	18	0	28	254	9	0	8	0	1	0	6	303	5	0	635
08:00 AM	5	0	7	0	24	170	3	0	1	0	0	0	3	205	3	0	421
08:15 AM	0	0	7	0	28	149	5	0	0	0	0	0	3	216	5	0	413
08:30 AM	2	1	10	0	23	158	3	0	3	0	1	0	6	205	6	0	418
08:45 AM	2	0	7	0	18	142	3	0	1	0	1	0	3	233	6	0	416
Total	9	1	31	0	93	619	14	0	5	0	2	0	15	859	20	0	1668
09:00 AM	4	0	11	0	12	139	5	0	2	0	3	0	4	189	7	0	376
09:15 AM	1	0	12	0	17	119	3	0	4	0	1	0	3	166	8	0	334
Grand Total	17	1	72	0	150	1131	31	0	19	0	7	0	28	1517	40	0	3013
Apprch %	18.9	1.1	80	0	11.4	86.2	2.4	0	73.1	0	26.9	0	1.8	95.7	2.5	0	
Total %	0.6	0	2.4	0	5	37.5	1	0	0.6	0	0.2	0	0.9	50.3	1.3	0	
Cars	13	0	57	0	147	1072	30	0	18	0	6	0	28	1460	38	0	2869
% Cars	76.5	0	79.2	0	98	94.8	96.8	0	94.7	0	85.7	0	100	96.2	95	0	95.2
Heavy Vehicles	4	1	15	0	3	59	1	0	1	0	1	0	0	57	2	0	144
% Heavy Vehicles	23.5	100	20.8	0	2	5.2	3.2	0	5.3	0	14.3	0	0	3.8	5	0	4.8

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	12	24	170	3	0	197	1	0	0	0	1	3	205	3	0	211	421
08:15 AM	0	0	7	0	7	28	149	5	0	182	0	0	0	0	0	3	216	5	0	224	413
08:30 AM	2	1	10	0	13	23	158	3	0	184	3	0	1	0	4	6	205	6	0	217	418
08:45 AM	2	0	7	0	9	18	142	3	0	163	1	0	1	0	2	3	233	6	0	242	416
Total Volume	9	1	31	0	41	93	619	14	0	726	5	0	2	0	7	15	859	20	0	894	1668
% App. Total	22	2.4	75.6	0		12.8	85.3	1.9	0		71.4	0	28.6	0		1.7	96.1	2.2	0		
PHF	.450	.250	.775	.000	.788	.830	.910	.700	.000	.921	.417	.000	.500	.000	.438	.625	.922	.833	.000	.924	.990
Cars	7	0	23	0	30	91	592	13	0	696	4	0	1	0	5	15	841	18	0	874	1605
% Cars	77.8	0	74.2	0	73.2	97.8	95.6	92.9	0	95.9	80.0	0	50.0	0	71.4	100	97.9	90.0	0	97.8	96.2
Heavy Vehicles	2	1	8	0	11	2	27	1	0	30	1	0	1	0	2	0	18	2	0	20	63
% Heavy Vehicles	22.2	100	25.8	0	26.8	2.2	4.4	7.1	0	4.1	20.0	0	50.0	0	28.6	0	2.1	10.0	0	2.2	3.8

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	5	0	10	120	2	0	6	0	1	0	3	129	2	0	278
07:45 AM	1	0	7	0	17	118	7	0	2	0	0	0	3	161	3	0	319
Total	1	0	12	0	27	238	9	0	8	0	1	0	6	290	5	0	597
08:00 AM	3	0	5	0	24	162	3	0	1	0	0	0	3	201	2	0	404
08:15 AM	0	0	5	0	28	146	4	0	0	0	0	0	3	215	5	0	406
08:30 AM	2	0	8	0	22	148	3	0	2	0	0	0	6	197	6	0	394
08:45 AM	2	0	5	0	17	136	3	0	1	0	1	0	3	228	5	0	401
Total	7	0	23	0	91	592	13	0	4	0	1	0	15	841	18	0	1605
09:00 AM	4	0	11	0	12	129	5	0	2	0	3	0	4	179	7	0	356
09:15 AM	1	0	11	0	17	113	3	0	4	0	1	0	3	150	8	0	311
Grand Total	13	0	57	0	147	1072	30	0	18	0	6	0	28	1460	38	0	2869
Apprch %	18.6	0	81.4	0	11.8	85.8	2.4	0	75	0	25	0	1.8	95.7	2.5	0	
Total %	0.5	0	2	0	5.1	37.4	1	0	0.6	0	0.2	0	1	50.9	1.3	0	

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	3	0	5	0	8	24	162	3	0	189	1	0	0	0	1	3	201	2	0	206	404
08:15 AM	0	0	5	0	5	28	146	4	0	178	0	0	0	0	0	3	215	5	0	223	406
08:30 AM	2	0	8	0	10	22	148	3	0	173	2	0	0	0	2	6	197	6	0	209	394
08:45 AM	2	0	5	0	7	17	136	3	0	156	1	0	1	0	2	3	228	5	0	236	401
Total Volume	7	0	23	0	30	91	592	13	0	696	4	0	1	0	5	15	841	18	0	874	1605
% App. Total	23.3	0	76.7	0		13.1	85.1	1.9	0		80	0	20	0		1.7	96.2	2.1	0		
PHF	.583	.000	.719	.000	.750	.813	.914	.813	.000	.921	.500	.000	.250	.000	.625	.625	.922	.750	.000	.926	.988

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	1	0	3	0	0	6	0	0	0	0	0	0	0	7	0	0	17
07:45 AM	1	0	3	0	1	10	0	0	0	0	0	0	0	6	0	0	21
Total	2	0	6	0	1	16	0	0	0	0	0	0	0	13	0	0	38
08:00 AM	2	0	2	0	0	8	0	0	0	0	0	0	0	4	1	0	17
08:15 AM	0	0	2	0	0	3	1	0	0	0	0	0	0	1	0	0	7
08:30 AM	0	1	2	0	1	10	0	0	1	0	1	0	0	8	0	0	24
08:45 AM	0	0	2	0	1	6	0	0	0	0	0	0	0	5	1	0	15
Total	2	1	8	0	2	27	1	0	1	0	1	0	0	18	2	0	63
09:00 AM	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0	0	20
09:15 AM	0	0	1	0	0	6	0	0	0	0	0	0	0	16	0	0	23
Grand Total	4	1	15	0	3	59	1	0	1	0	1	0	0	57	2	0	144
Apprch %	20	5	75	0	4.8	93.7	1.6	0	50	0	50	0	0	96.6	3.4	0	
Total %	2.8	0.7	10.4	0	2.1	41	0.7	0	0.7	0	0.7	0	0	39.6	1.4	0	

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	1	2	0	3	1	10	0	0	11	1	0	1	0	2	0	8	0	0	8	24
08:45 AM	0	0	2	0	2	1	6	0	0	7	0	0	0	0	0	0	5	1	0	6	15
09:00 AM	0	0	0	0	0	0	10	0	0	10	0	0	0	0	0	0	10	0	0	10	20
09:15 AM	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	0	16	0	0	16	23
Total Volume	0	1	5	0	6	2	32	0	0	34	1	0	1	0	2	0	39	1	0	40	82
% App. Total	0	16.7	83.3	0		5.9	94.1	0	0		50	0	50	0		0	97.5	2.5	0		
PHF	.000	.250	.625	.000	.500	.500	.800	.000	.000	.773	.250	.000	.250	.000	.250	.000	.609	.250	.000	.625	.854

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	1	0	1	3	0	0	0	0	1	0	1	1	1	11	0	0	0	20
07:45 AM	0	0	1	1	0	2	4	0	0	1	0	0	0	0	1	0	4	0	0	0	14
Total	0	0	1	2	0	3	7	0	0	1	0	1	0	1	2	1	15	0	0	0	34
08:00 AM	0	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	11	0	0	0	16
08:15 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5	0	0	0	7
08:30 AM	0	0	0	1	3	2	5	1	0	0	0	0	0	1	0	0	18	0	0	0	31
08:45 AM	0	0	1	0	0	1	3	0	0	0	0	0	0	0	1	0	9	0	0	0	15
Total	0	0	1	1	3	4	14	1	0	0	0	0	0	1	1	0	43	0	0	0	69
09:00 AM	0	0	0	0	0	0	3	0	0	0	0	0	0	1	0	0	2	0	0	0	6
09:15 AM	0	0	0	0	0	1	2	0	0	0	0	0	0	1	0	0	3	0	0	0	7
Grand Total	0	0	2	3	3	8	26	1	0	1	0	1	0	4	3	1	63	0	0	0	116
Apprch %	0	0	25	37.5	37.5	22.2	72.2	2.8	0	2.8	0	12.5	0	50	37.5	1.6	98.4	0	0	0	
Total %	0	0	1.7	2.6	2.6	6.9	22.4	0.9	0	0.9	0	0.9	0	3.4	2.6	0.9	54.3	0	0	0	

	Moulten Street From North						Concord Avenue From East						Neville Manor From South						Concord Avenue From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	5	0	0	0	5	0	0	0	0	0	0	0	11	0	0	0	11	16
08:15 AM	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	5	0	0	0	5	7
08:30 AM	0	0	0	1	3	4	2	5	1	0	0	8	0	0	0	1	0	1	0	18	0	0	0	18	31
08:45 AM	0	0	1	0	0	1	1	3	0	0	0	4	0	0	0	0	1	1	0	9	0	0	0	9	15
Total Volume	0	0	1	1	3	5	4	14	1	0	0	19	0	0	0	1	1	2	0	43	0	0	0	43	69
% App. Total	0	0	20	20	60		21.1	73.7	5.3	0	0		0	0	0	50	50		0	100	0	0	0		
PHF	.000	.000	.250	.250	.250	.313	.500	.700	.250	.000	.000	.594	.000	.000	.000	.250	.250	.500	.000	.597	.000	.000	.000	.597	.556

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	4	4	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	12
07:45 AM	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	6
Total	0	0	0	4	9	0	0	0	1	1	0	0	0	1	2	0	0	0	0	0	18
08:00 AM	0	0	0	6	1	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	10
08:15 AM	0	0	0	1	2	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	6
08:30 AM	0	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4
08:45 AM	0	0	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
Total	0	0	0	9	10	0	0	0	0	0	0	0	0	2	4	0	0	0	1	1	27
09:00 AM	0	0	0	3	0	0	0	0	1	1	0	0	0	0	3	0	0	0	2	0	10
09:15 AM	0	0	0	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5
Grand Total	0	0	0	17	20	0	0	0	5	2	0	0	0	3	9	0	0	0	3	1	60
Apprch %	0	0	0	45.9	54.1	0	0	0	71.4	28.6	0	0	0	25	75	0	0	0	75	25	
Total %	0	0	0	28.3	33.3	0	0	0	8.3	3.3	0	0	0	5	15	0	0	0	5	1.7	

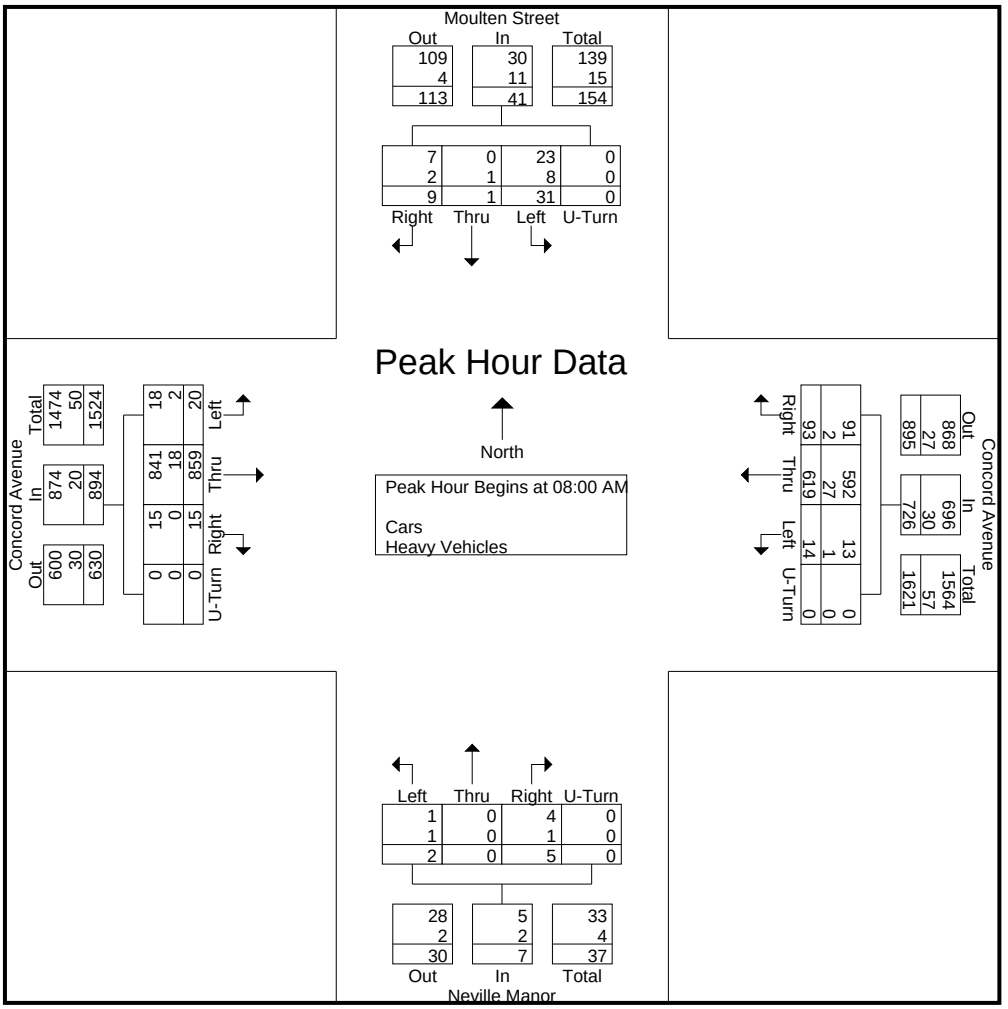
	Moulten Street From North						Concord Avenue From East						Neville Manor From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	4	4	8	0	0	0	1	1	2	0	0	0	1	1	2	0	0	0	0	0	0	12
07:45 AM	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	6
08:00 AM	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	1	0	1	10
08:15 AM	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	0	0	6
Total Volume	0	0	0	11	12	23	0	0	0	1	1	2	0	0	0	3	5	8	0	0	0	1	0	1	34
% App. Total	0	0	0	47.8	52.2		0	0	0	50	50		0	0	0	37.5	62.5		0	0	0	100	0		
PHF	.000	.000	.000	.458	.600	.719	.000	.000	.000	.250	.250	.250	.000	.000	.000	.375	.625	.667	.000	.000	.000	.250	.000	.250	.708

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 D
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	12	24	170	3	0	197	1	0	0	0	1	3	205	3	0	211	421
08:15 AM	0	0	7	0	7	28	149	5	0	182	0	0	0	0	0	3	216	5	0	224	413
08:30 AM	2	1	10	0	13	23	158	3	0	184	3	0	1	0	4	6	205	6	0	217	418
08:45 AM	2	0	7	0	9	18	142	3	0	163	1	0	1	0	2	3	233	6	0	242	416
Total Volume	9	1	31	0	41	93	619	14	0	726	5	0	2	0	7	15	859	20	0	894	1668
% App. Total	22	2.4	75.6	0		12.8	85.3	1.9	0		71.4	0	28.6	0		1.7	96.1	2.2	0		
PHF	.450	.250	.775	.000	.788	.830	.910	.700	.000	.921	.417	.000	.500	.000	.438	.625	.922	.833	.000	.924	.990
Cars	7	0	23	0	30	91	592	13	0	696	4	0	1	0	5	15	841	18	0	874	1605
% Cars	77.8	0	74.2	0	73.2	97.8	95.6	92.9	0	95.9	80.0	0	50.0	0	71.4	100	97.9	90.0	0	97.8	96.2
Heavy Vehicles	2	1	8	0	11	2	27	1	0	30	1	0	1	0	2	0	18	2	0	20	63
% Heavy Vehicles	22.2	100	25.8	0	26.8	2.2	4.4	7.1	0	4.1	20.0	0	50.0	0	28.6	0	2.1	10.0	0	2.2	3.8



PRECISION
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INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 DD
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	6	0	28	0	7	143	11	0	7	0	10	0	9	132	0	0	353
04:45 PM	5	0	27	0	1	136	6	0	7	0	4	0	4	156	0	0	346
Total	11	0	55	0	8	279	17	0	14	0	14	0	13	288	0	0	699
05:00 PM	9	0	51	0	3	148	3	0	8	0	5	0	3	141	1	0	372
05:15 PM	11	0	22	0	1	115	4	0	4	0	3	0	1	132	0	0	293
05:30 PM	14	0	31	0	3	149	1	0	2	0	1	0	4	124	2	0	331
05:45 PM	16	0	28	0	3	161	4	0	3	0	2	0	0	123	0	0	340
Total	50	0	132	0	10	573	12	0	17	0	11	0	8	520	3	0	1336
06:00 PM	7	0	30	0	0	121	2	1	2	0	1	0	3	142	0	1	310
06:15 PM	14	0	6	0	2	158	3	0	17	0	9	0	3	157	0	0	369
Grand Total	82	0	223	0	20	1131	34	1	50	0	35	0	27	1107	3	1	2714
Apprch %	26.9	0	73.1	0	1.7	95.4	2.9	0.1	58.8	0	41.2	0	2.4	97.3	0.3	0.1	
Total %	3	0	8.2	0	0.7	41.7	1.3	0	1.8	0	1.3	0	1	40.8	0.1	0	
Cars	82	0	221	0	18	1110	34	1	50	0	34	0	27	1087	3	1	2668
% Cars	100	0	99.1	0	90	98.1	100	100	100	0	97.1	0	100	98.2	100	100	98.3
Heavy Vehicles	0	0	2	0	2	21	0	0	0	0	1	0	0	20	0	0	46
% Heavy Vehicles	0	0	0.9	0	10	1.9	0	0	0	0	2.9	0	0	1.8	0	0	1.7

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	6	0	28	0	34	7	143	11	0	161	7	0	10	0	17	9	132	0	0	141	353
04:45 PM	5	0	27	0	32	1	136	6	0	143	7	0	4	0	11	4	156	0	0	160	346
05:00 PM	9	0	51	0	60	3	148	3	0	154	8	0	5	0	13	3	141	1	0	145	372
05:15 PM	11	0	22	0	33	1	115	4	0	120	4	0	3	0	7	1	132	0	0	133	293
Total Volume	31	0	128	0	159	12	542	24	0	578	26	0	22	0	48	17	561	1	0	579	1364
% App. Total	19.5	0	80.5	0		2.1	93.8	4.2	0		54.2	0	45.8	0		2.9	96.9	0.2	0		
PHF	.705	.000	.627	.000	.663	.429	.916	.545	.000	.898	.813	.000	.550	.000	.706	.472	.899	.250	.000	.905	.917
Cars	31	0	127	0	158	12	532	24	0	568	26	0	21	0	47	17	548	1	0	566	1339
% Cars	100	0	99.2	0	99.4	100	98.2	100	0	98.3	100	0	95.5	0	97.9	100	97.7	100	0	97.8	98.2
Heavy Vehicles	0	0	1	0	1	0	10	0	0	10	0	0	1	0	1	0	13	0	0	13	25
% Heavy Vehicles	0	0	0.8	0	0.6	0	1.8	0	0	1.7	0	0	4.5	0	2.1	0	2.3	0	0	2.2	1.8

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 DD
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	6	0	28	0	7	140	11	0	7	0	9	0	9	132	0	0	349
04:45 PM	5	0	27	0	1	134	6	0	7	0	4	0	4	149	0	0	337
Total	11	0	55	0	8	274	17	0	14	0	13	0	13	281	0	0	686
05:00 PM	9	0	50	0	3	145	3	0	8	0	5	0	3	137	1	0	364
05:15 PM	11	0	22	0	1	113	4	0	4	0	3	0	1	130	0	0	289
05:30 PM	14	0	31	0	2	146	1	0	2	0	1	0	4	123	2	0	326
05:45 PM	16	0	28	0	2	160	4	0	3	0	2	0	0	119	0	0	334
Total	50	0	131	0	8	564	12	0	17	0	11	0	8	509	3	0	1313
06:00 PM	7	0	29	0	0	119	2	1	2	0	1	0	3	142	0	1	307
06:15 PM	14	0	6	0	2	153	3	0	17	0	9	0	3	155	0	0	362
Grand Total	82	0	221	0	18	1110	34	1	50	0	34	0	27	1087	3	1	2668
Apprch %	27.1	0	72.9	0	1.5	95.4	2.9	0.1	59.5	0	40.5	0	2.4	97.2	0.3	0.1	
Total %	3.1	0	8.3	0	0.7	41.6	1.3	0	1.9	0	1.3	0	1	40.7	0.1	0	

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	6	0	28	0	34	7	140	11	0	158	7	0	9	0	16	9	132	0	0	141	349
04:45 PM	5	0	27	0	32	1	134	6	0	141	7	0	4	0	11	4	149	0	0	153	337
05:00 PM	9	0	50	0	59	3	145	3	0	151	8	0	5	0	13	3	137	1	0	141	364
05:15 PM	11	0	22	0	33	1	113	4	0	118	4	0	3	0	7	1	130	0	0	131	289
Total Volume	31	0	127	0	158	12	532	24	0	568	26	0	21	0	47	17	548	1	0	566	1339
% App. Total	19.6	0	80.4	0		2.1	93.7	4.2	0		55.3	0	44.7	0		3	96.8	0.2	0		
PHF	.705	.000	.635	.000	.669	.429	.917	.545	.000	.899	.813	.000	.583	.000	.734	.472	.919	.250	.000	.925	.920

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 DD
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Moulten Street From North				Concord Avenue From East				Neville Manor From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4
04:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	7	0	0	9
Total	0	0	0	0	0	5	0	0	0	0	1	0	0	7	0	0	13
05:00 PM	0	0	1	0	0	3	0	0	0	0	0	0	0	4	0	0	8
05:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
05:30 PM	0	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0	5
05:45 PM	0	0	0	0	1	1	0	0	0	0	0	0	0	4	0	0	6
Total	0	0	1	0	2	9	0	0	0	0	0	0	0	11	0	0	23
06:00 PM	0	0	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
06:15 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	7
Grand Total	0	0	2	0	2	21	0	0	0	0	1	0	0	20	0	0	46
Apprch %	0	0	100	0	8.7	91.3	0	0	0	0	100	0	0	100	0	0	
Total %	0	0	4.3	0	4.3	45.7	0	0	0	0	2.2	0	0	43.5	0	0	

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	7	0	0	7	9
05:00 PM	0	0	1	0	1	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	8
05:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
05:30 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total Volume	0	0	1	0	1	1	10	0	0	11	0	0	0	0	0	0	14	0	0	14	26
% App. Total	0	0	100	0		9.1	90.9	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.250	.000	.250	.250	.833	.000	.000	.688	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.722

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
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Client: VHB/ S. Mandzo

File Name : 165280 DD
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8
04:45 PM	0	0	0	1	0	0	3	0	1	0	0	0	0	0	0	0	3	0	0	0	8
Total	0	0	0	1	0	0	3	0	1	0	0	0	0	0	0	0	11	0	0	0	16
05:00 PM	0	0	0	0	1	0	10	0	0	0	1	0	0	0	1	0	6	0	1	0	20
05:15 PM	0	0	0	0	0	0	8	0	0	0	0	0	0	1	1	0	8	0	0	0	18
05:30 PM	0	0	2	2	0	0	12	0	0	0	0	0	0	1	1	0	4	0	0	0	22
05:45 PM	0	0	0	0	0	1	13	0	0	0	0	0	0	4	0	0	5	0	0	0	23
Total	0	0	2	2	1	1	43	0	0	0	1	0	0	6	3	0	23	0	1	0	83
06:00 PM	0	0	0	3	0	0	7	0	0	0	0	0	0	1	0	0	4	0	0	0	15
06:15 PM	0	0	1	0	0	0	6	0	0	0	0	0	0	1	0	0	3	0	0	0	11
Grand Total	0	0	3	6	1	1	59	0	1	0	1	0	0	8	3	0	41	0	1	0	125
Apprch %	0	0	30	60	10	1.6	96.7	0	1.6	0	8.3	0	0	66.7	25	0	97.6	0	2.4	0	
Total %	0	0	2.4	4.8	0.8	0.8	47.2	0	0.8	0	0.8	0	0	6.4	2.4	0	32.8	0	0.8	0	

	Moulten Street From North						Concord Avenue From East						Neville Manor From South						Concord Avenue From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 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	10	0	0	0	10	1	0	0	0	1	2	0	6	0	1	0	7	20
05:15 PM	0	0	0	0	0	0	0	8	0	0	0	8	0	0	0	1	1	2	0	8	0	0	0	8	18
05:30 PM	0	0	2	2	0	4	0	12	0	0	0	12	0	0	0	1	1	2	0	4	0	0	0	4	22
05:45 PM	0	0	0	0	0	0	1	13	0	0	0	14	0	0	0	4	0	4	0	5	0	0	0	5	23
Total Volume	0	0	2	2	1	5	1	43	0	0	0	44	1	0	0	6	3	10	0	23	0	1	0	24	83
% App. Total	0	0	40	40	20		2.3	97.7	0	0	0		10	0	0	60	30		0	95.8	0	4.2	0		
PHF	.000	.000	.250	.250	.250	.313	.250	.827	.000	.000	.000	.786	.250	.000	.000	.375	.750	.625	.000	.719	.000	.250	.000	.750	.902

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File Name : 165280 DD
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Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	4	2	0	0	0	0	2	0	0	0	0	4	0	0	0	0	0	12
04:45 PM	0	0	0	7	1	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	11
Total	0	0	0	11	3	0	0	0	1	2	0	0	0	1	5	0	0	0	0	0	23
05:00 PM	0	0	0	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	8
05:15 PM	0	0	0	2	2	0	0	0	3	1	0	0	0	4	0	0	0	0	0	1	13
05:30 PM	0	0	0	3	5	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	11
05:45 PM	0	0	0	2	4	0	0	0	1	2	0	0	0	2	2	0	0	0	1	0	14
Total	0	0	0	12	12	0	0	0	7	3	0	0	0	7	2	0	0	0	2	1	46
06:00 PM	0	0	0	3	13	0	0	0	1	0	0	0	0	1	1	0	0	0	0	0	19
06:15 PM	0	0	0	2	4	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	9
Grand Total	0	0	0	28	32	0	0	0	9	7	0	0	0	10	8	0	0	0	2	1	97
Apprch %	0	0	0	46.7	53.3	0	0	0	56.2	43.8	0	0	0	55.6	44.4	0	0	0	66.7	33.3	
Total %	0	0	0	28.9	33	0	0	0	9.3	7.2	0	0	0	10.3	8.2	0	0	0	2.1	1	

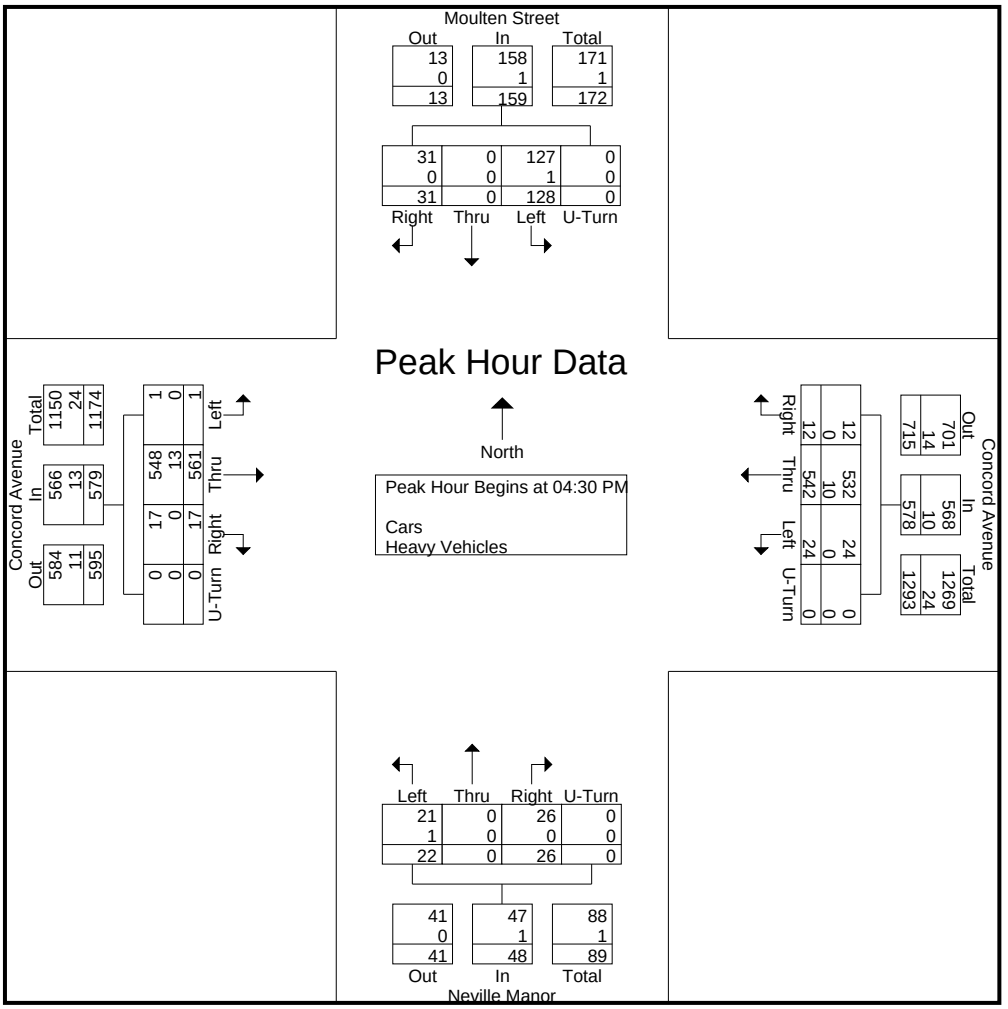
	Moulten Street From North						Concord Avenue From East						Neville Manor From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	2	4	0	0	0	3	1	4	0	0	0	4	0	4	0	0	0	0	1	1	13
05:30 PM	0	0	0	3	5	8	0	0	0	2	0	2	0	0	0	1	0	1	0	0	0	0	0	0	11
05:45 PM	0	0	0	2	4	6	0	0	0	1	2	3	0	0	0	2	2	4	0	0	0	1	0	1	14
06:00 PM	0	0	0	3	13	16	0	0	0	1	0	1	0	0	0	1	1	2	0	0	0	0	0	0	19
Total Volume	0	0	0	10	24	34	0	0	0	7	3	10	0	0	0	8	3	11	0	0	0	1	1	2	57
% App. Total	0	0	0	29.4	70.6		0	0	0	70	30		0	0	0	72.7	27.3		0	0	0	50	50		
PHF	.000	.000	.000	.833	.462	.531	.000	.000	.000	.583	.375	.625	.000	.000	.000	.500	.375	.688	.000	.000	.000	.250	.250	.500	.750

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Moulten Street/ Neville Manor
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 DD
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Moulten Street From North					Concord Avenue From East					Neville Manor From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	6	0	28	0	34	7	143	11	0	161	7	0	10	0	17	9	132	0	0	141	353
04:45 PM	5	0	27	0	32	1	136	6	0	143	7	0	4	0	11	4	156	0	0	160	346
05:00 PM	9	0	51	0	60	3	148	3	0	154	8	0	5	0	13	3	141	1	0	145	372
05:15 PM	11	0	22	0	33	1	115	4	0	120	4	0	3	0	7	1	132	0	0	133	293
Total Volume	31	0	128	0	159	12	542	24	0	578	26	0	22	0	48	17	561	1	0	579	1364
% App. Total	19.5	0	80.5	0		2.1	93.8	4.2	0		54.2	0	45.8	0		2.9	96.9	0.2	0		
PHF	.705	.000	.627	.000	.663	.429	.916	.545	.000	.898	.813	.000	.550	.000	.706	.472	.899	.250	.000	.905	.917
Cars	31	0	127	0	158	12	532	24	0	568	26	0	21	0	47	17	548	1	0	566	1339
% Cars	100	0	99.2	0	99.4	100	98.2	100	0	98.3	100	0	95.5	0	97.9	100	97.7	100	0	97.8	98.2
Heavy Vehicles	0	0	1	0	1	0	10	0	0	10	0	0	1	0	1	0	13	0	0	13	25
% Heavy Vehicles	0	0	0.8	0	0.6	0	1.8	0	0	1.7	0	0	4.5	0	2.1	0	2.3	0	0	2.2	1.8



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 E
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	6	37	0	25	134	0	139	2	0	343
07:45 AM	2	21	0	32	154	0	171	3	0	383
Total	8	58	0	57	288	0	310	5	0	726
08:00 AM	11	22	0	35	183	0	195	4	0	450
08:15 AM	4	16	0	32	185	0	222	9	0	468
08:30 AM	6	15	0	39	171	0	179	9	0	419
08:45 AM	4	21	0	35	167	0	228	8	0	463
Total	25	74	0	141	706	0	824	30	0	1800
09:00 AM	8	12	0	44	149	0	203	8	0	424
09:15 AM	4	30	0	34	142	0	151	9	0	370
Grand Total	45	174	0	276	1285	0	1488	52	0	3320
Apprch %	20.5	79.5	0	17.7	82.3	0	96.6	3.4	0	
Total %	1.4	5.2	0	8.3	38.7	0	44.8	1.6	0	
Cars	43	163	0	235	1223	0	1431	51	0	3146
% Cars	95.6	93.7	0	85.1	95.2	0	96.2	98.1	0	94.8
Heavy Vehicles	2	11	0	41	62	0	57	1	0	174
% Heavy Vehicles	4.4	6.3	0	14.9	4.8	0	3.8	1.9	0	5.2

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	11	22	0	33	35	183	0	218	195	4	0	199	450
08:15 AM	4	16	0	20	32	185	0	217	222	9	0	231	468
08:30 AM	6	15	0	21	39	171	0	210	179	9	0	188	419
08:45 AM	4	21	0	25	35	167	0	202	228	8	0	236	463
Total Volume	25	74	0	99	141	706	0	847	824	30	0	854	1800
% App. Total	25.3	74.7	0		16.6	83.4	0		96.5	3.5	0		
PHF	.568	.841	.000	.750	.904	.954	.000	.971	.904	.833	.000	.905	.962
Cars	24	71	0	95	123	677	0	800	805	29	0	834	1729
% Cars	96.0	95.9	0	96.0	87.2	95.9	0	94.5	97.7	96.7	0	97.7	96.1
Heavy Vehicles	1	3	0	4	18	29	0	47	19	1	0	20	71
% Heavy Vehicles	4.0	4.1	0	4.0	12.8	4.1	0	5.5	2.3	3.3	0	2.3	3.9

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INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 E
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	6	34	0	21	128	0	131	2	0	322
07:45 AM	2	18	0	30	143	0	160	3	0	356
Total	8	52	0	51	271	0	291	5	0	678
08:00 AM	11	21	0	32	176	0	189	4	0	433
08:15 AM	4	16	0	23	181	0	220	9	0	453
08:30 AM	5	14	0	35	162	0	172	9	0	397
08:45 AM	4	20	0	33	158	0	224	7	0	446
Total	24	71	0	123	677	0	805	29	0	1729
09:00 AM	8	11	0	35	141	0	196	8	0	399
09:15 AM	3	29	0	26	134	0	139	9	0	340
Grand Total	43	163	0	235	1223	0	1431	51	0	3146
Apprch %	20.9	79.1	0	16.1	83.9	0	96.6	3.4	0	
Total %	1.4	5.2	0	7.5	38.9	0	45.5	1.6	0	

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	11	21	0	32	32	176	0	208	189	4	0	193	433
08:15 AM	4	16	0	20	23	181	0	204	220	9	0	229	453
08:30 AM	5	14	0	19	35	162	0	197	172	9	0	181	397
08:45 AM	4	20	0	24	33	158	0	191	224	7	0	231	446
Total Volume	24	71	0	95	123	677	0	800	805	29	0	834	1729
% App. Total	25.3	74.7	0		15.4	84.6	0		96.5	3.5	0		
PHF	.545	.845	.000	.742	.879	.935	.000	.962	.898	.806	.000	.903	.954

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 E
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	0	3	0	4	6	0	8	0	0	21
07:45 AM	0	3	0	2	11	0	11	0	0	27
Total	0	6	0	6	17	0	19	0	0	48
08:00 AM	0	1	0	3	7	0	6	0	0	17
08:15 AM	0	0	0	9	4	0	2	0	0	15
08:30 AM	1	1	0	4	9	0	7	0	0	22
08:45 AM	0	1	0	2	9	0	4	1	0	17
Total	1	3	0	18	29	0	19	1	0	71
09:00 AM	0	1	0	9	8	0	7	0	0	25
09:15 AM	1	1	0	8	8	0	12	0	0	30
Grand Total	2	11	0	41	62	0	57	1	0	174
Apprch %	15.4	84.6	0	39.8	60.2	0	98.3	1.7	0	
Total %	1.1	6.3	0	23.6	35.6	0	32.8	0.6	0	

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	1	0	2	4	9	0	13	7	0	0	7	22
08:45 AM	0	1	0	1	2	9	0	11	4	1	0	5	17
09:00 AM	0	1	0	1	9	8	0	17	7	0	0	7	25
09:15 AM	1	1	0	2	8	8	0	16	12	0	0	12	30
Total Volume	2	4	0	6	23	34	0	57	30	1	0	31	94
% App. Total	33.3	66.7	0		40.4	59.6	0		96.8	3.2	0		
PHF	.500	1.00	.000	.750	.639	.944	.000	.838	.625	.250	.000	.646	.783

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 E
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	0	2	4	0	0	8	0	0	0	14
07:45 AM	0	0	0	0	2	7	0	0	3	0	0	0	12
Total	0	0	0	0	4	11	0	0	11	0	0	0	26
08:00 AM	0	0	0	0	0	5	0	0	11	0	0	0	16
08:15 AM	0	0	0	0	4	2	0	0	5	0	0	0	11
08:30 AM	0	0	0	2	1	7	0	0	6	0	0	1	17
08:45 AM	0	0	0	0	5	4	0	0	1	0	0	0	10
Total	0	0	0	2	10	18	0	0	23	0	0	1	54
09:00 AM	0	1	0	0	3	5	0	0	2	0	0	2	13
09:15 AM	0	0	0	0	4	2	0	0	0	0	0	0	6
Grand Total	0	1	0	2	21	36	0	0	36	0	0	3	99
Apprch %	0	33.3	0	66.7	36.8	63.2	0	0	92.3	0	0	7.7	
Total %	0	1	0	2	21.2	36.4	0	0	36.4	0	0	3	

	Fawcett Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. 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	7	0	0	9	3	0	0	0	3	12
08:00 AM	0	0	0	0	0	0	5	0	0	5	11	0	0	0	11	16
08:15 AM	0	0	0	0	0	4	2	0	0	6	5	0	0	0	5	11
08:30 AM	0	0	0	2	2	1	7	0	0	8	6	0	0	1	7	17
Total Volume	0	0	0	2	2	7	21	0	0	28	25	0	0	1	26	56
% App. Total	0	0	0	100		25	75	0	0		96.2	0	0	3.8		
PHF	.000	.000	.000	.250	.250	.438	.750	.000	.000	.778	.568	.000	.000	.250	.591	.824

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 E
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	3	4	0	0	0	0	0	0	0	3	10
07:45 AM	0	0	0	5	0	0	0	0	0	0	0	3	8
Total	0	0	3	9	0	0	0	0	0	0	0	6	18
08:00 AM	0	0	4	1	0	0	0	0	0	0	0	4	9
08:15 AM	0	0	2	3	0	0	0	0	0	0	1	4	10
08:30 AM	0	0	1	5	0	0	0	0	0	0	1	2	9
08:45 AM	0	0	1	4	0	0	0	0	0	0	1	3	9
Total	0	0	8	13	0	0	0	0	0	0	3	13	37
09:00 AM	0	0	3	4	0	0	0	0	0	0	2	4	13
09:15 AM	0	0	2	2	0	0	0	0	0	0	0	3	7
Grand Total	0	0	16	28	0	0	0	0	0	0	5	26	75
Apprch %	0	0	36.4	63.6	0	0	0	0	0	0	16.1	83.9	
Total %	0	0	21.3	37.3	0	0	0	0	0	0	6.7	34.7	

	Fawcett Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 08:15 AM																
08:15 AM	0	0	2	3	5	0	0	0	0	0	0	0	1	4	5	10
08:30 AM	0	0	1	5	6	0	0	0	0	0	0	0	1	2	3	9
08:45 AM	0	0	1	4	5	0	0	0	0	0	0	0	1	3	4	9
09:00 AM	0	0	3	4	7	0	0	0	0	0	0	0	2	4	6	13
Total Volume	0	0	7	16	23	0	0	0	0	0	0	0	5	13	18	41
% App. Total	0	0	30.4	69.6		0	0	0	0		0	0	27.8	72.2		
PHF	.000	.000	.583	.800	.821	.000	.000	.000	.000	.000	.000	.000	.625	.813	.750	.788

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N: Fawcett Street
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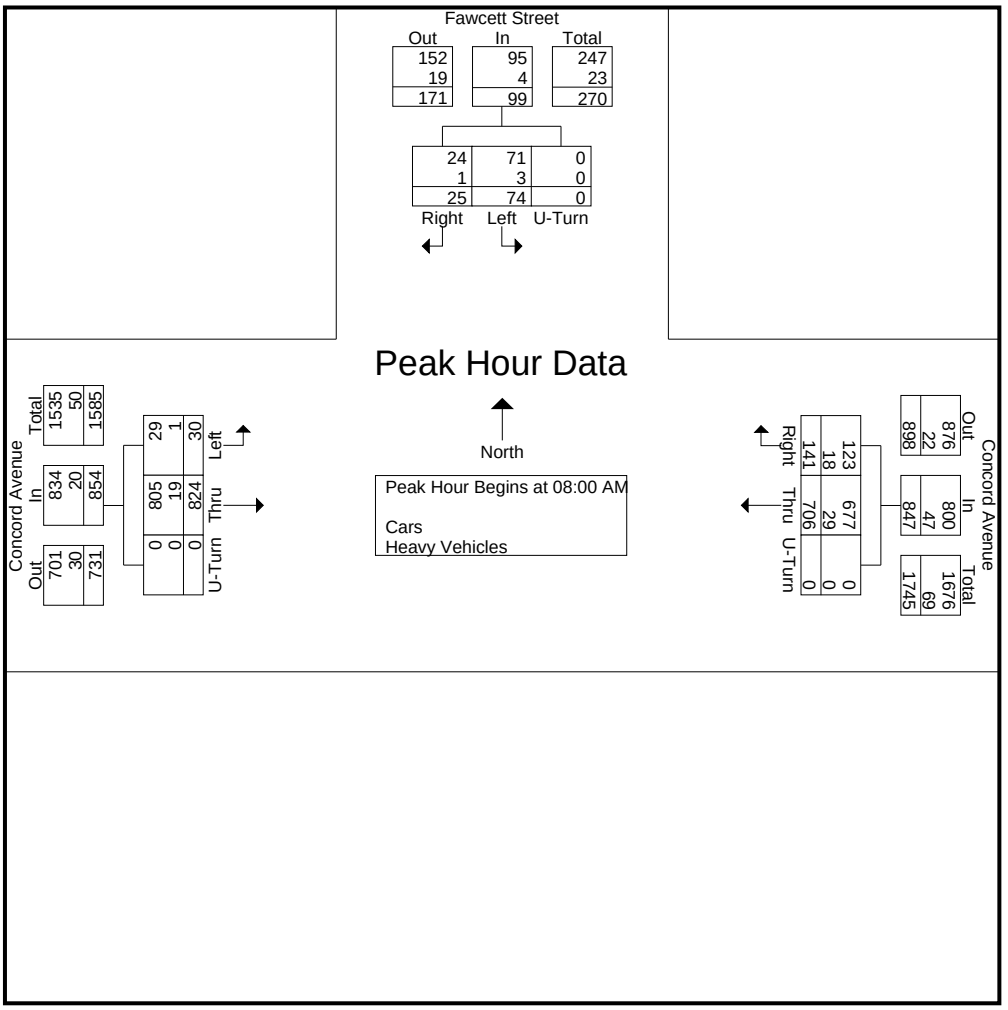
	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 08:00 AM													
08:00 AM	11	22	0	33	35	183	0	218	195	4	0	199	450
08:15 AM	4	16	0	20	32	185	0	217	222	9	0	231	468
08:30 AM	6	15	0	21	39	171	0	210	179	9	0	188	419
08:45 AM	4	21	0	25	35	167	0	202	228	8	0	236	463
Total Volume	25	74	0	99	141	706	0	847	824	30	0	854	1800
% App. Total	25.3	74.7	0		16.6	83.4	0		96.5	3.5	0		
PHF	.568	.841	.000	.750	.904	.954	.000	.971	.904	.833	.000	.905	.962
Cars	24	71	0	95	123	677	0	800	805	29	0	834	1729
% Cars	96.0	95.9	0	96.0	87.2	95.9	0	94.5	97.7	96.7	0	97.7	96.1
Heavy Vehicles	1	3	0	4	18	29	0	47	19	1	0	20	71
% Heavy Vehicles	4.0	4.1	0	4.0	12.8	4.1	0	5.5	2.3	3.3	0	2.3	3.9



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D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
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File Name : 165280 EE
Site Code : TBA
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	4	16	0	23	147	0	161	5	0	356
04:45 PM	7	15	0	28	141	0	187	5	0	383
Total	11	31	0	51	288	0	348	10	0	739
05:00 PM	8	14	0	12	144	0	188	2	0	368
05:15 PM	6	14	0	32	107	0	167	2	0	328
05:30 PM	7	19	0	28	139	0	139	1	0	333
05:45 PM	9	24	0	21	149	0	167	5	0	375
Total	30	71	0	93	539	0	661	10	0	1404
06:00 PM	3	9	0	25	118	0	153	4	0	312
06:15 PM	6	11	0	13	146	0	161	6	0	343
Grand Total	50	122	0	182	1091	0	1323	30	0	2798
Apprch %	29.1	70.9	0	14.3	85.7	0	97.8	2.2	0	
Total %	1.8	4.4	0	6.5	39	0	47.3	1.1	0	
Cars	47	118	0	167	1068	0	1304	28	0	2732
% Cars	94	96.7	0	91.8	97.9	0	98.6	93.3	0	97.6
Heavy Vehicles	3	4	0	15	23	0	19	2	0	66
% Heavy Vehicles	6	3.3	0	8.2	2.1	0	1.4	6.7	0	2.4

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	4	16	0	20	23	147	0	170	161	5	0	166	356
04:45 PM	7	15	0	22	28	141	0	169	187	5	0	192	383
05:00 PM	8	14	0	22	12	144	0	156	188	2	0	190	368
05:15 PM	6	14	0	20	32	107	0	139	167	2	0	169	328
Total Volume	25	59	0	84	95	539	0	634	703	14	0	717	1435
% App. Total	29.8	70.2	0		15	85	0		98	2	0		
PHF	.781	.922	.000	.955	.742	.917	.000	.932	.935	.700	.000	.934	.937
Cars	23	56	0	79	84	528	0	612	691	12	0	703	1394
% Cars	92.0	94.9	0	94.0	88.4	98.0	0	96.5	98.3	85.7	0	98.0	97.1
Heavy Vehicles	2	3	0	5	11	11	0	22	12	2	0	14	41
% Heavy Vehicles	8.0	5.1	0	6.0	11.6	2.0	0	3.5	1.7	14.3	0	2.0	2.9

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 EE
Site Code : TBA
Start Date : 10/5/2016
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Groups Printed- Cars

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	4	15	0	15	142	0	160	5	0	341
04:45 PM	7	14	0	28	140	0	182	5	0	376
Total	11	29	0	43	282	0	342	10	0	717
05:00 PM	7	14	0	9	140	0	184	1	0	355
05:15 PM	5	13	0	32	106	0	165	1	0	322
05:30 PM	7	19	0	27	135	0	138	1	0	327
05:45 PM	9	23	0	21	147	0	163	5	0	368
Total	28	69	0	89	528	0	650	8	0	1372
06:00 PM	3	9	0	24	116	0	153	4	0	309
06:15 PM	5	11	0	11	142	0	159	6	0	334
Grand Total	47	118	0	167	1068	0	1304	28	0	2732
Apprch %	28.5	71.5	0	13.5	86.5	0	97.9	2.1	0	
Total %	1.7	4.3	0	6.1	39.1	0	47.7	1	0	

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	4	15	0	19	15	142	0	157	160	5	0	165	341
04:45 PM	7	14	0	21	28	140	0	168	182	5	0	187	376
05:00 PM	7	14	0	21	9	140	0	149	184	1	0	185	355
05:15 PM	5	13	0	18	32	106	0	138	165	1	0	166	322
Total Volume	23	56	0	79	84	528	0	612	691	12	0	703	1394
% App. Total	29.1	70.9	0		13.7	86.3	0		98.3	1.7	0		
PHF	.821	.933	.000	.940	.656	.930	.000	.911	.939	.600	.000	.940	.927

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D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
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Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Fawcett Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	0	1	0	8	5	0	1	0	0	15
04:45 PM	0	1	0	0	1	0	5	0	0	7
Total	0	2	0	8	6	0	6	0	0	22
05:00 PM	1	0	0	3	4	0	4	1	0	13
05:15 PM	1	1	0	0	1	0	2	1	0	6
05:30 PM	0	0	0	1	4	0	1	0	0	6
05:45 PM	0	1	0	0	2	0	4	0	0	7
Total	2	2	0	4	11	0	11	2	0	32
06:00 PM	0	0	0	1	2	0	0	0	0	3
06:15 PM	1	0	0	2	4	0	2	0	0	9
Grand Total	3	4	0	15	23	0	19	2	0	66
Apprch %	42.9	57.1	0	39.5	60.5	0	90.5	9.5	0	
Total %	4.5	6.1	0	22.7	34.8	0	28.8	3	0	

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	8	5	0	13	1	0	0	1	15
04:45 PM	0	1	0	1	0	1	0	1	5	0	0	5	7
05:00 PM	1	0	0	1	3	4	0	7	4	1	0	5	13
05:15 PM	1	1	0	2	0	1	0	1	2	1	0	3	6
Total Volume	2	3	0	5	11	11	0	22	12	2	0	14	41
% App. Total	40	60	0		50	50	0		85.7	14.3	0		
PHF	.500	.750	.000	.625	.344	.550	.000	.423	.600	.500	.000	.700	.683

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D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
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File Name : 165280 EE
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Page No : 1

Groups Printed- Bicycles

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	5	0	0	0	5
04:45 PM	0	0	2	0	0	3	0	0	4	0	0	0	9
Total	0	0	2	0	0	3	0	0	9	0	0	0	14
05:00 PM	0	0	0	1	0	8	0	0	10	0	0	2	21
05:15 PM	0	0	1	0	1	9	0	0	9	0	0	0	20
05:30 PM	0	0	1	0	0	9	0	0	6	0	0	1	17
05:45 PM	0	0	0	0	1	13	0	0	2	0	0	1	17
Total	0	0	2	1	2	39	0	0	27	0	0	4	75
06:00 PM	0	0	0	0	2	7	0	0	10	0	2	2	23
06:15 PM	0	0	1	0	1	5	0	0	4	0	0	2	13
Grand Total	0	0	5	1	5	54	0	0	50	0	2	8	125
Apprch %	0	0	83.3	16.7	8.5	91.5	0	0	83.3	0	3.3	13.3	
Total %	0	0	4	0.8	4	43.2	0	0	40	0	1.6	6.4	

	Fawcett Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	1	1	9	0	0	10	9	0	0	0	9	20
05:30 PM	0	0	1	0	1	0	9	0	0	9	6	0	0	1	7	17
05:45 PM	0	0	0	0	0	1	13	0	0	14	2	0	0	1	3	17
06:00 PM	0	0	0	0	0	2	7	0	0	9	10	0	2	2	14	23
Total Volume	0	0	2	0	2	4	38	0	0	42	27	0	2	4	33	77
% App. Total	0	0	100	0		9.5	90.5	0	0		81.8	0	6.1	12.1		
PHF	.000	.000	.500	.000	.500	.500	.731	.000	.000	.750	.675	.000	.250	.500	.589	.837

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 EE
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	4	3	0	0	0	0	0	0	0	0	7
04:45 PM	0	0	7	2	0	0	0	0	0	0	0	3	12
Total	0	0	11	5	0	0	0	0	0	0	0	3	19
05:00 PM	0	0	3	2	0	0	0	0	0	0	0	1	6
05:15 PM	0	0	6	2	0	0	0	0	0	0	0	4	12
05:30 PM	0	0	7	6	0	0	0	0	0	0	1	0	14
05:45 PM	0	0	7	5	0	0	0	0	0	0	0	0	12
Total	0	0	23	15	0	0	0	0	0	0	1	5	44
06:00 PM	0	0	4	12	0	0	0	0	0	0	0	2	18
06:15 PM	0	0	5	5	0	0	0	0	0	0	0	2	12
Grand Total	0	0	43	37	0	0	0	0	0	0	1	12	93
Apprch %	0	0	53.8	46.2	0	0	0	0	0	0	7.7	92.3	
Total %	0	0	46.2	39.8	0	0	0	0	0	0	1.1	12.9	

	Fawcett Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	6	2	8	0	0	0	0	0	0	0	0	4	4	12
05:30 PM	0	0	7	6	13	0	0	0	0	0	0	0	1	0	1	14
05:45 PM	0	0	7	5	12	0	0	0	0	0	0	0	0	0	0	12
06:00 PM	0	0	4	12	16	0	0	0	0	0	0	0	0	2	2	18
Total Volume	0	0	24	25	49	0	0	0	0	0	0	0	1	6	7	56
% App. Total	0	0	49	51		0	0	0	0		0	0	14.3	85.7		
PHF	.000	.000	.857	.521	.766	.000	.000	.000	.000	.000	.000	.000	.250	.375	.438	.778

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Fawcett Street
E/W: Concord Avenue
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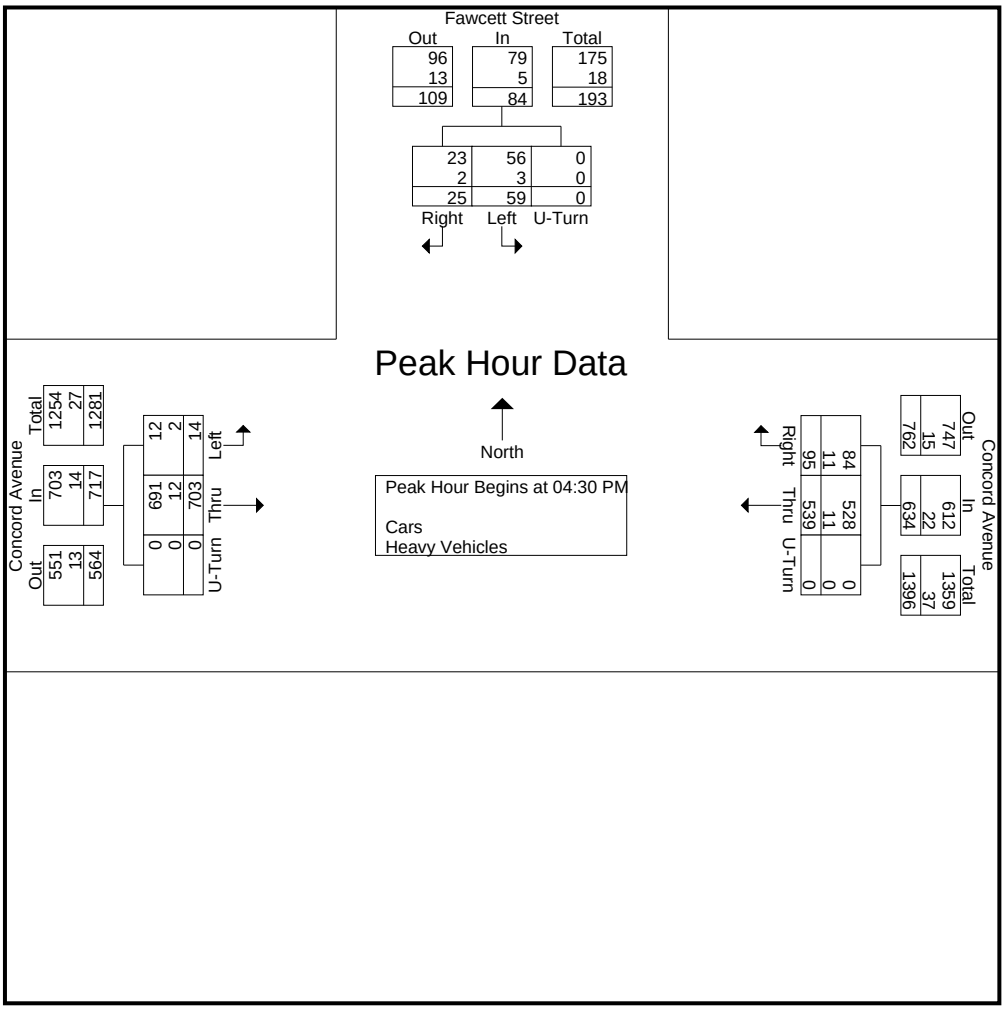
File Name : 165280 EE
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Fawcett Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	4	16	0	20	23	147	0	170	161	5	0	166	356
04:45 PM	7	15	0	22	28	141	0	169	187	5	0	192	383
05:00 PM	8	14	0	22	12	144	0	156	188	2	0	190	368
05:15 PM	6	14	0	20	32	107	0	139	167	2	0	169	328
Total Volume	25	59	0	84	95	539	0	634	703	14	0	717	1435
% App. Total	29.8	70.2	0		15	85	0		98	2	0		
PHF	.781	.922	.000	.955	.742	.917	.000	.932	.935	.700	.000	.934	.937
Cars	23	56	0	79	84	528	0	612	691	12	0	703	1394
% Cars	92.0	94.9	0	94.0	88.4	98.0	0	96.5	98.3	85.7	0	98.0	97.1
Heavy Vehicles	2	3	0	5	11	11	0	22	12	2	0	14	41
% Heavy Vehicles	8.0	5.1	0	6.0	11.6	2.0	0	3.5	1.7	14.3	0	2.0	2.9



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 G
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	12	3	0	6	145	0	177	5	0	348
07:45 AM	22	4	0	8	164	0	193	12	0	403
Total	34	7	0	14	309	0	370	17	0	751
08:00 AM	20	5	0	15	203	0	208	10	0	461
08:15 AM	22	6	0	12	190	0	217	8	0	455
08:30 AM	23	0	0	14	193	0	185	12	0	427
08:45 AM	17	8	0	34	187	0	221	15	0	482
Total	82	19	0	75	773	0	831	45	0	1825
09:00 AM	13	4	0	23	174	0	202	14	1	431
09:15 AM	13	8	0	26	164	0	177	20	0	408
Grand Total	142	38	0	138	1420	0	1580	96	1	3415
Apprch %	78.9	21.1	0	8.9	91.1	0	94.2	5.7	0.1	
Total %	4.2	1.1	0	4	41.6	0	46.3	2.8	0	
Cars	134	37	0	133	1327	0	1498	94	1	3224
% Cars	94.4	97.4	0	96.4	93.5	0	94.8	97.9	100	94.4
Heavy Vehicles	8	1	0	5	93	0	82	2	0	191
% Heavy Vehicles	5.6	2.6	0	3.6	6.5	0	5.2	2.1	0	5.6

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	20	5	0	25	15	203	0	218	208	10	0	218	461
08:15 AM	22	6	0	28	12	190	0	202	217	8	0	225	455
08:30 AM	23	0	0	23	14	193	0	207	185	12	0	197	427
08:45 AM	17	8	0	25	34	187	0	221	221	15	0	236	482
Total Volume	82	19	0	101	75	773	0	848	831	45	0	876	1825
% App. Total	81.2	18.8	0		8.8	91.2	0		94.9	5.1	0		
PHF	.891	.594	.000	.902	.551	.952	.000	.959	.940	.750	.000	.928	.947
Cars	78	18	0	96	72	730	0	802	801	44	0	845	1743
% Cars	95.1	94.7	0	95.0	96.0	94.4	0	94.6	96.4	97.8	0	96.5	95.5
Heavy Vehicles	4	1	0	5	3	43	0	46	30	1	0	31	82
% Heavy Vehicles	4.9	5.3	0	5.0	4.0	5.6	0	5.4	3.6	2.2	0	3.5	4.5

PRECISION
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Groups Printed- Cars

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	12	3	0	6	134	0	167	5	0	327
07:45 AM	22	4	0	8	151	0	178	12	0	375
Total	34	7	0	14	285	0	345	17	0	702
08:00 AM	20	5	0	14	193	0	200	10	0	442
08:15 AM	21	5	0	12	179	0	214	8	0	439
08:30 AM	21	0	0	14	182	0	175	11	0	403
08:45 AM	16	8	0	32	176	0	212	15	0	459
Total	78	18	0	72	730	0	801	44	0	1743
09:00 AM	9	4	0	21	162	0	190	13	1	400
09:15 AM	13	8	0	26	150	0	162	20	0	379
Grand Total	134	37	0	133	1327	0	1498	94	1	3224
Apprch %	78.4	21.6	0	9.1	90.9	0	94	5.9	0.1	
Total %	4.2	1.1	0	4.1	41.2	0	46.5	2.9	0	

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	20	5	0	25	14	193	0	207	200	10	0	210	442
08:15 AM	21	5	0	26	12	179	0	191	214	8	0	222	439
08:30 AM	21	0	0	21	14	182	0	196	175	11	0	186	403
08:45 AM	16	8	0	24	32	176	0	208	212	15	0	227	459
Total Volume	78	18	0	96	72	730	0	802	801	44	0	845	1743
% App. Total	81.2	18.8	0		9	91	0		94.8	5.2	0		
PHF	.929	.563	.000	.923	.563	.946	.000	.964	.936	.733	.000	.931	.949

PRECISION
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Groups Printed- Heavy Vehicles

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	11	0	10	0	0	21
07:45 AM	0	0	0	0	13	0	15	0	0	28
Total	0	0	0	0	24	0	25	0	0	49
08:00 AM	0	0	0	1	10	0	8	0	0	19
08:15 AM	1	1	0	0	11	0	3	0	0	16
08:30 AM	2	0	0	0	11	0	10	1	0	24
08:45 AM	1	0	0	2	11	0	9	0	0	23
Total	4	1	0	3	43	0	30	1	0	82
09:00 AM	4	0	0	2	12	0	12	1	0	31
09:15 AM	0	0	0	0	14	0	15	0	0	29
Grand Total	8	1	0	5	93	0	82	2	0	191
Apprch %	88.9	11.1	0	5.1	94.9	0	97.6	2.4	0	
Total %	4.2	0.5	0	2.6	48.7	0	42.9	1	0	

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	2	0	0	2	0	11	0	11	10	1	0	11	24
08:45 AM	1	0	0	1	2	11	0	13	9	0	0	9	23
09:00 AM	4	0	0	4	2	12	0	14	12	1	0	13	31
09:15 AM	0	0	0	0	0	14	0	14	15	0	0	15	29
Total Volume	7	0	0	7	4	48	0	52	46	2	0	48	107
% App. Total	100	0	0		7.7	92.3	0		95.8	4.2	0		
PHF	.438	.000	.000	.438	.500	.857	.000	.929	.767	.500	.000	.800	.863

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File Name : 165280 G
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	1	0	2	3	0	5	0	0	0	0	0	0	11
07:45 AM	2	0	3	9	0	5	0	0	0	0	0	0	19
Total	3	0	5	12	0	10	0	0	0	0	0	0	30
08:00 AM	0	0	0	6	0	5	0	0	0	0	0	0	11
08:15 AM	0	0	1	2	0	7	0	0	0	0	0	0	10
08:30 AM	0	0	2	4	0	3	0	0	0	1	0	0	10
08:45 AM	2	0	0	5	1	3	0	0	0	3	0	0	14
Total	2	0	3	17	1	18	0	0	0	4	0	0	45
09:00 AM	0	0	1	4	0	3	0	0	0	1	0	0	9
09:15 AM	0	0	0	1	0	0	0	0	0	1	0	0	2
Grand Total	5	0	9	34	1	31	0	0	0	6	0	0	86
Apprch %	10.4	0	18.8	70.8	3.1	96.9	0	0	0	100	0	0	
Total %	5.8	0	10.5	39.5	1.2	36	0	0	0	7	0	0	

	Wheeler Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. 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	1	0	2	3	6	0	5	0	0	5	0	0	0	0	0	11
07:45 AM	2	0	3	9	14	0	5	0	0	5	0	0	0	0	0	19
08:00 AM	0	0	0	6	6	0	5	0	0	5	0	0	0	0	0	11
08:15 AM	0	0	1	2	3	0	7	0	0	7	0	0	0	0	0	10
Total Volume	3	0	6	20	29	0	22	0	0	22	0	0	0	0	0	51
% App. Total	10.3	0	20.7	69		0	100	0	0		0	0	0	0		
PHF	.375	.000	.500	.556	.518	.000	.786	.000	.000	.786	.000	.000	.000	.000	.000	.671

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
E/W: Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 G
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	2	1	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	7	0	0	0	0	0	0	0	0	0	7
Total	0	0	9	1	0	0	0	0	0	0	0	0	10
08:00 AM	0	0	9	3	0	0	0	0	0	0	0	0	12
08:15 AM	0	0	12	5	0	0	0	0	0	0	0	0	17
08:30 AM	0	0	2	2	0	0	0	0	0	0	0	0	4
08:45 AM	0	0	7	0	0	0	0	0	0	0	0	0	7
Total	0	0	30	10	0	0	0	0	0	0	0	0	40
09:00 AM	0	0	7	3	0	0	0	0	0	0	0	0	10
09:15 AM	0	0	3	5	0	0	0	0	0	0	0	0	8
Grand Total	0	0	49	19	0	0	0	0	0	0	0	0	68
Apprch %	0	0	72.1	27.9	0	0	0	0	0	0	0	0	
Total %	0	0	72.1	27.9	0	0	0	0	0	0	0	0	

	Wheeler Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	7	0	7	0	0	0	0	0	0	0	0	0	0	7
08:00 AM	0	0	9	3	12	0	0	0	0	0	0	0	0	0	0	12
08:15 AM	0	0	12	5	17	0	0	0	0	0	0	0	0	0	0	17
08:30 AM	0	0	2	2	4	0	0	0	0	0	0	0	0	0	0	4
Total Volume	0	0	30	10	40	0	0	0	0	0	0	0	0	0	0	40
% App. Total	0	0	75	25		0	0	0	0		0	0	0	0		
PHF	.000	.000	.625	.500	.588	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.588

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
E/W: Concord Avenue
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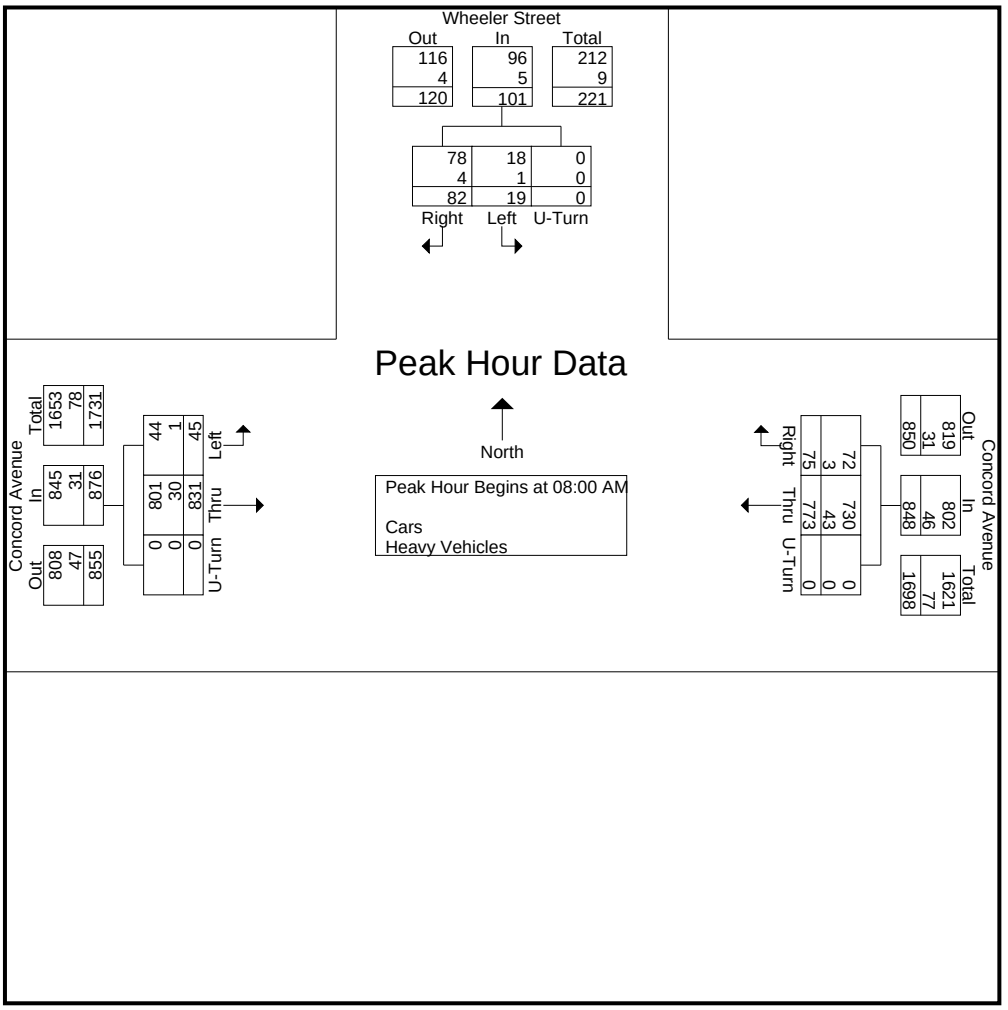
Start Date : 10/5/2016
Page No : 1

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	20	5	0	25	15	203	0	218	208	10	0	218	461
08:15 AM	22	6	0	28	12	190	0	202	217	8	0	225	455
08:30 AM	23	0	0	23	14	193	0	207	185	12	0	197	427
08:45 AM	17	8	0	25	34	187	0	221	221	15	0	236	482
Total Volume	82	19	0	101	75	773	0	848	831	45	0	876	1825
% App. Total	81.2	18.8	0		8.8	91.2	0		94.9	5.1	0		
PHF	.891	.594	.000	.902	.551	.952	.000	.959	.940	.750	.000	.928	.947
Cars	78	18	0	96	72	730	0	802	801	44	0	845	1743
% Cars	95.1	94.7	0	95.0	96.0	94.4	0	94.6	96.4	97.8	0	96.5	95.5
Heavy Vehicles	4	1	0	5	3	43	0	46	30	1	0	31	82
% Heavy Vehicles	4.9	5.3	0	5.0	4.0	5.6	0	5.4	3.6	2.2	0	3.5	4.5



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INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
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Groups Printed- Cars - Heavy Vehicles

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	35	11	0	18	137	0	172	8	0	381
04:45 PM	31	9	0	12	140	0	183	18	0	393
Total	66	20	0	30	277	0	355	26	0	774
05:00 PM	28	7	0	15	126	0	189	6	0	371
05:15 PM	32	9	0	8	111	0	163	22	0	345
05:30 PM	39	10	0	15	125	0	114	8	0	311
05:45 PM	34	4	0	17	130	0	176	18	0	379
Total	133	30	0	55	492	0	642	54	0	1406
06:00 PM	27	11	0	13	111	0	129	28	0	319
06:15 PM	32	8	0	14	134	0	155	20	0	363
Grand Total	258	69	0	112	1014	0	1281	128	0	2862
Apprch %	78.9	21.1	0	9.9	90.1	0	90.9	9.1	0	
Total %	9	2.4	0	3.9	35.4	0	44.8	4.5	0	
Cars	255	66	0	111	982	0	1260	124	0	2798
% Cars	98.8	95.7	0	99.1	96.8	0	98.4	96.9	0	97.8
Heavy Vehicles	3	3	0	1	32	0	21	4	0	64
% Heavy Vehicles	1.2	4.3	0	0.9	3.2	0	1.6	3.1	0	2.2

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	35	11	0	46	18	137	0	155	172	8	0	180	381
04:45 PM	31	9	0	40	12	140	0	152	183	18	0	201	393
05:00 PM	28	7	0	35	15	126	0	141	189	6	0	195	371
05:15 PM	32	9	0	41	8	111	0	119	163	22	0	185	345
Total Volume	126	36	0	162	53	514	0	567	707	54	0	761	1490
% App. Total	77.8	22.2	0		9.3	90.7	0		92.9	7.1	0		
PHF	.900	.818	.000	.880	.736	.918	.000	.915	.935	.614	.000	.947	.948
Cars	124	34	0	158	52	497	0	549	693	51	0	744	1451
% Cars	98.4	94.4	0	97.5	98.1	96.7	0	96.8	98.0	94.4	0	97.8	97.4
Heavy Vehicles	2	2	0	4	1	17	0	18	14	3	0	17	39
% Heavy Vehicles	1.6	5.6	0	2.5	1.9	3.3	0	3.2	2.0	5.6	0	2.2	2.6

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
E/W: Concord Avenue
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Groups Printed- Cars

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	34	11	0	18	129	0	170	8	0	370
04:45 PM	30	8	0	11	139	0	177	16	0	381
Total	64	19	0	29	268	0	347	24	0	751
05:00 PM	28	7	0	15	119	0	185	6	0	360
05:15 PM	32	8	0	8	110	0	161	21	0	340
05:30 PM	39	10	0	15	120	0	113	8	0	305
05:45 PM	34	4	0	17	127	0	172	18	0	372
Total	133	29	0	55	476	0	631	53	0	1377
06:00 PM	27	10	0	13	109	0	129	27	0	315
06:15 PM	31	8	0	14	129	0	153	20	0	355
Grand Total	255	66	0	111	982	0	1260	124	0	2798
Apprch %	79.4	20.6	0	10.2	89.8	0	91	9	0	
Total %	9.1	2.4	0	4	35.1	0	45	4.4	0	

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	34	11	0	45	18	129	0	147	170	8	0	178	370
04:45 PM	30	8	0	38	11	139	0	150	177	16	0	193	381
05:00 PM	28	7	0	35	15	119	0	134	185	6	0	191	360
05:15 PM	32	8	0	40	8	110	0	118	161	21	0	182	340
Total Volume	124	34	0	158	52	497	0	549	693	51	0	744	1451
% App. Total	78.5	21.5	0		9.5	90.5	0		93.1	6.9	0		
PHF	.912	.773	.000	.878	.722	.894	.000	.915	.936	.607	.000	.964	.952

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
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Groups Printed- Heavy Vehicles

	Wheeler Street From North			Concord Avenue From East			Concord Avenue From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:30 PM	1	0	0	0	8	0	2	0	0	11
04:45 PM	1	1	0	1	1	0	6	2	0	12
Total	2	1	0	1	9	0	8	2	0	23
05:00 PM	0	0	0	0	7	0	4	0	0	11
05:15 PM	0	1	0	0	1	0	2	1	0	5
05:30 PM	0	0	0	0	5	0	1	0	0	6
05:45 PM	0	0	0	0	3	0	4	0	0	7
Total	0	1	0	0	16	0	11	1	0	29
06:00 PM	0	1	0	0	2	0	0	1	0	4
06:15 PM	1	0	0	0	5	0	2	0	0	8
Grand Total	3	3	0	1	32	0	21	4	0	64
Apprch %	50	50	0	3	97	0	84	16	0	
Total %	4.7	4.7	0	1.6	50	0	32.8	6.2	0	

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. 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	1	0	0	1	0	8	0	8	2	0	0	2	11
04:45 PM	1	1	0	2	1	1	0	2	6	2	0	8	12
05:00 PM	0	0	0	0	0	7	0	7	4	0	0	4	11
05:15 PM	0	1	0	1	0	1	0	1	2	1	0	3	5
Total Volume	2	2	0	4	1	17	0	18	14	3	0	17	39
% App. Total	50	50	0		5.6	94.4	0		82.4	17.6	0		
PHF	.500	.500	.000	.500	.250	.531	.000	.563	.583	.375	.000	.531	.813

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N: Wheeler Street
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Start Date : 10/5/2016
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Groups Printed- Bicycles

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	CW EB	CW WB	Right	Thru	CW SB	CW NB	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	3	1	0	2	0	0	0	0	0	0	6
04:45 PM	1	0	7	2	0	0	0	0	0	3	0	0	13
Total	1	0	10	3	0	2	0	0	0	3	0	0	19
05:00 PM	2	0	4	1	0	2	0	0	1	2	0	0	12
05:15 PM	4	0	10	4	0	0	0	0	0	0	0	0	18
05:30 PM	3	0	4	3	0	1	0	0	0	3	0	0	14
05:45 PM	5	0	6	3	0	2	0	0	0	0	0	0	16
Total	14	0	24	11	0	5	0	0	1	5	0	0	60
06:00 PM	0	0	3	1	0	3	0	0	0	1	0	0	8
06:15 PM	1	0	2	2	0	1	0	0	0	1	0	0	7
Grand Total	16	0	39	17	0	11	0	0	1	10	0	0	94
Apprch %	22.2	0	54.2	23.6	0	100	0	0	9.1	90.9	0	0	
Total %	17	0	41.5	18.1	0	11.7	0	0	1.1	10.6	0	0	

	Wheeler Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	CW EB	CW WB	App. Total	Right	Thru	CW SB	CW NB	App. Total	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																
Peak Hour for Entire Intersection Begins at 05:00 PM																
05:00 PM	2	0	4	1	7	0	2	0	0	2	1	2	0	0	3	12
05:15 PM	4	0	10	4	18	0	0	0	0	0	0	0	0	0	0	18
05:30 PM	3	0	4	3	10	0	1	0	0	1	0	3	0	0	3	14
05:45 PM	5	0	6	3	14	0	2	0	0	2	0	0	0	0	0	16
Total Volume	14	0	24	11	49	0	5	0	0	5	1	5	0	0	6	60
% App. Total	28.6	0	49	22.4		0	100	0	0		16.7	83.3	0	0		
PHF	.700	.000	.600	.688	.681	.000	.625	.000	.000	.625	.250	.417	.000	.000	.500	.833

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N: Wheeler Street
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Groups Printed- Pedestrians

	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	Peds EB	Peds WB	Right	Thru	Peds SB	Peds NB	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	6	6	0	0	0	0	0	0	0	0	12
04:45 PM	0	0	11	9	0	0	0	0	0	0	0	0	20
Total	0	0	17	15	0	0	0	0	0	0	0	0	32
05:00 PM	0	0	10	5	0	0	0	0	0	0	0	0	15
05:15 PM	0	0	9	1	0	0	0	0	0	0	0	1	11
05:30 PM	0	0	7	3	0	0	0	0	0	0	0	0	10
05:45 PM	0	0	10	6	0	0	0	0	0	0	0	0	16
Total	0	0	36	15	0	0	0	0	0	0	0	1	52
06:00 PM	0	0	10	7	0	0	0	0	0	0	0	0	17
06:15 PM	0	0	8	3	0	0	0	0	0	0	0	0	11
Grand Total	0	0	71	40	0	0	0	0	0	0	0	1	112
Apprch %	0	0	64	36	0	0	0	0	0	0	0	100	
Total %	0	0	63.4	35.7	0	0	0	0	0	0	0	0.9	

	Wheeler Street From North					Concord Avenue From East					Concord Avenue From West					
Start Time	Right	Left	Peds EB	Peds WB	App. Total	Right	Thru	Peds SB	Peds NB	App. Total	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	6	6	12	0	0	0	0	0	0	0	0	0	0	12
04:45 PM	0	0	11	9	20	0	0	0	0	0	0	0	0	0	0	20
05:00 PM	0	0	10	5	15	0	0	0	0	0	0	0	0	0	0	15
05:15 PM	0	0	9	1	10	0	0	0	0	0	0	0	0	1	1	11
Total Volume	0	0	36	21	57	0	0	0	0	0	0	0	0	1	1	58
% App. Total	0	0	63.2	36.8		0	0	0	0		0	0	0	100		
PHF	.000	.000	.818	.583	.713	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.725

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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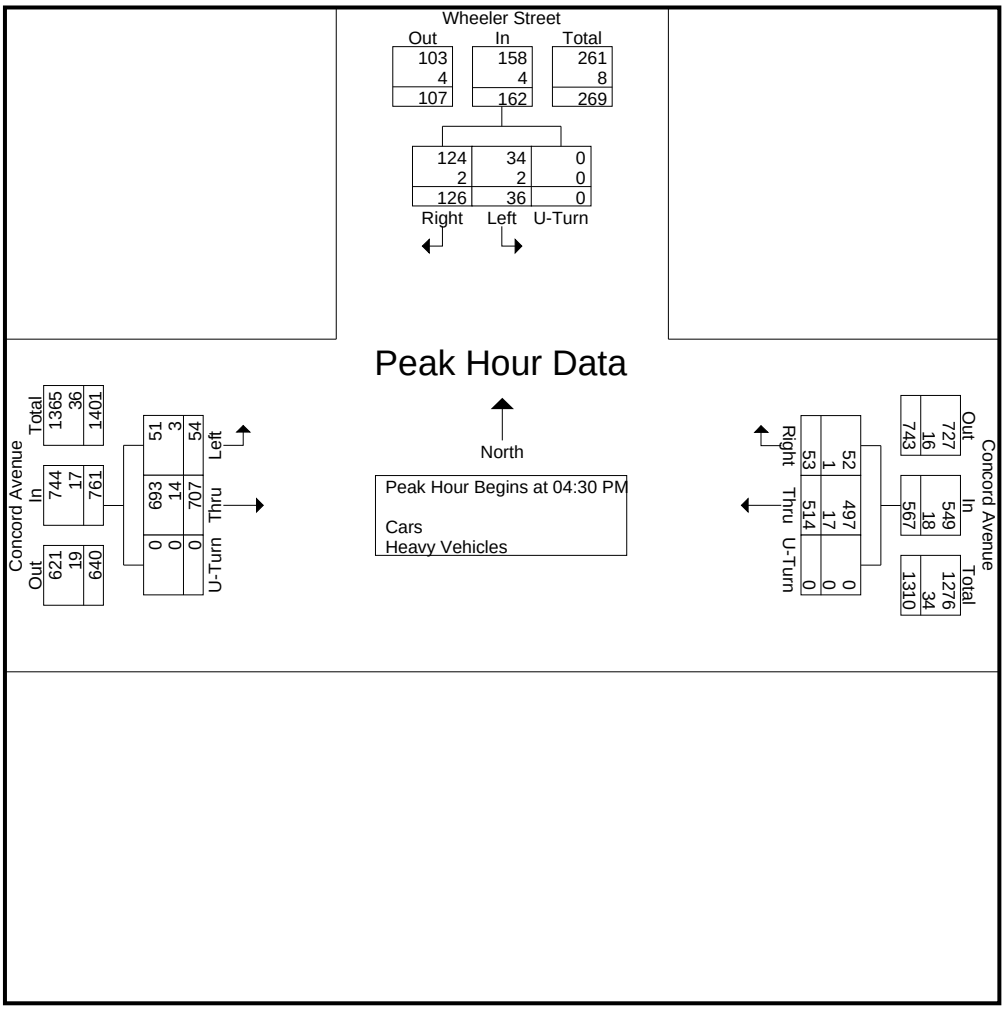
	Wheeler Street From North				Concord Avenue From East				Concord Avenue From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:30 PM													
04:30 PM	35	11	0	46	18	137	0	155	172	8	0	180	381
04:45 PM	31	9	0	40	12	140	0	152	183	18	0	201	393
05:00 PM	28	7	0	35	15	126	0	141	189	6	0	195	371
05:15 PM	32	9	0	41	8	111	0	119	163	22	0	185	345
Total Volume	126	36	0	162	53	514	0	567	707	54	0	761	1490
% App. Total	77.8	22.2	0		9.3	90.7	0		92.9	7.1	0		
PHF	.900	.818	.000	.880	.736	.918	.000	.915	.935	.614	.000	.947	.948
Cars	124	34	0	158	52	497	0	549	693	51	0	744	1451
% Cars	98.4	94.4	0	97.5	98.1	96.7	0	96.8	98.0	94.4	0	97.8	97.4
Heavy Vehicles	2	2	0	4	1	17	0	18	14	3	0	17	39
% Heavy Vehicles	1.6	5.6	0	2.5	1.9	3.3	0	3.2	2.0	5.6	0	2.2	2.6



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 H
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	57	343	13	20	0	0	8	0	8	324	97	7	137	0	44	0	1058
07:45 AM	52	296	8	19	1	0	4	0	10	270	126	8	113	0	42	0	949
Total	109	639	21	39	1	0	12	0	18	594	223	15	250	0	86	0	2007
08:00 AM	49	303	4	27	0	0	9	0	18	290	162	7	133	0	58	0	1060
08:15 AM	55	319	2	10	1	0	12	0	9	241	141	9	153	0	72	0	1024
08:30 AM	50	298	13	18	1	0	20	0	8	225	156	14	130	0	63	0	996
08:45 AM	82	259	17	21	3	0	1	0	8	242	145	0	147	0	63	0	988
Total	236	1179	36	76	5	0	42	0	43	998	604	30	563	0	256	0	4068
09:00 AM	60	266	25	34	0	0	0	0	3	242	134	3	140	0	55	0	962
09:15 AM	70	334	21	41	3	0	13	0	7	244	109	34	117	0	59	0	1052
Grand Total	475	2418	103	190	9	0	67	0	71	2078	1070	82	1070	0	456	0	8089
Apprch %	14.9	75.9	3.2	6	11.8	0	88.2	0	2.2	63	32.4	2.5	70.1	0	29.9	0	
Total %	5.9	29.9	1.3	2.3	0.1	0	0.8	0	0.9	25.7	13.2	1	13.2	0	5.6	0	
Cars	435	2371	100	182	8	0	65	0	71	2026	1019	76	1029	0	425	0	7807
% Cars	91.6	98.1	97.1	95.8	88.9	0	97	0	100	97.5	95.2	92.7	96.2	0	93.2	0	96.5
Heavy Vehicles	40	47	3	8	1	0	2	0	0	52	51	6	41	0	31	0	282
% Heavy Vehicles	8.4	1.9	2.9	4.2	11.1	0	3	0	0	2.5	4.8	7.3	3.8	0	6.8	0	3.5

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	57	343	13	20	433	0	0	8	0	8	8	324	97	7	436	137	0	44	0	181	1058
07:45 AM	52	296	8	19	375	1	0	4	0	5	10	270	126	8	414	113	0	42	0	155	949
08:00 AM	49	303	4	27	383	0	0	9	0	9	18	290	162	7	477	133	0	58	0	191	1060
08:15 AM	55	319	2	10	386	1	0	12	0	13	9	241	141	9	400	153	0	72	0	225	1024
Total Volume	213	1261	27	76	1577	2	0	33	0	35	45	1125	526	31	1727	536	0	216	0	752	4091
% App. Total	13.5	80	1.7	4.8		5.7	0	94.3	0		2.6	65.1	30.5	1.8		71.3	0	28.7	0		
PHF	.934	.919	.519	.704	.911	.500	.000	.688	.000	.673	.625	.868	.812	.861	.905	.876	.000	.750	.000	.836	.965
Cars	193	1239	27	72	1531	2	0	33	0	35	45	1104	503	30	1682	521	0	207	0	728	3976
% Cars	90.6	98.3	100	94.7	97.1	100	0	100	0	100	100	98.1	95.6	96.8	97.4	97.2	0	95.8	0	96.8	97.2
Heavy Vehicles	20	22	0	4	46	0	0	0	0	0	0	21	23	1	45	15	0	9	0	24	115
% Heavy Vehicles	9.4	1.7	0	5.3	2.9	0	0	0	0	0	0	1.9	4.4	3.2	2.6	2.8	0	4.2	0	3.2	2.8

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 H
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	51	335	13	18	0	0	8	0	8	313	93	7	134	0	42	0	1022
07:45 AM	45	291	8	19	1	0	4	0	10	267	120	7	107	0	39	0	918
Total	96	626	21	37	1	0	12	0	18	580	213	14	241	0	81	0	1940
08:00 AM	45	301	4	26	0	0	9	0	18	286	155	7	129	0	55	0	1035
08:15 AM	52	312	2	9	1	0	12	0	9	238	135	9	151	0	71	0	1001
08:30 AM	46	292	13	17	1	0	20	0	8	219	150	13	126	0	56	0	961
08:45 AM	77	251	17	20	3	0	0	0	8	239	136	0	144	0	59	0	954
Total	220	1156	36	72	5	0	41	0	43	982	576	29	550	0	241	0	3951
09:00 AM	56	260	24	33	0	0	0	0	3	235	125	2	131	0	51	0	920
09:15 AM	63	329	19	40	2	0	12	0	7	229	105	31	107	0	52	0	996
Grand Total	435	2371	100	182	8	0	65	0	71	2026	1019	76	1029	0	425	0	7807
Apprch %	14.1	76.8	3.2	5.9	11	0	89	0	2.2	63.5	31.9	2.4	70.8	0	29.2	0	
Total %	5.6	30.4	1.3	2.3	0.1	0	0.8	0	0.9	26	13.1	1	13.2	0	5.4	0	

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	51	335	13	18	417	0	0	8	0	8	8	313	93	7	421	134	0	42	0	176	1022
07:45 AM	45	291	8	19	363	1	0	4	0	5	10	267	120	7	404	107	0	39	0	146	918
08:00 AM	45	301	4	26	376	0	0	9	0	9	18	286	155	7	466	129	0	55	0	184	1035
08:15 AM	52	312	2	9	375	1	0	12	0	13	9	238	135	9	391	151	0	71	0	222	1001
Total Volume	193	1239	27	72	1531	2	0	33	0	35	45	1104	503	30	1682	521	0	207	0	728	3976
% App. Total	12.6	80.9	1.8	4.7		5.7	0	94.3	0		2.7	65.6	29.9	1.8		71.6	0	28.4	0		
PHF	.928	.925	.519	.692	.918	.500	.000	.688	.000	.673	.625	.882	.811	.833	.902	.863	.000	.729	.000	.820	.960

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 H
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	6	8	0	2	0	0	0	0	0	11	4	0	3	0	2	0	36
07:45 AM	7	5	0	0	0	0	0	0	0	3	6	1	6	0	3	0	31
Total	13	13	0	2	0	0	0	0	0	14	10	1	9	0	5	0	67
08:00 AM	4	2	0	1	0	0	0	0	0	4	7	0	4	0	3	0	25
08:15 AM	3	7	0	1	0	0	0	0	0	3	6	0	2	0	1	0	23
08:30 AM	4	6	0	1	0	0	0	0	0	6	6	1	4	0	7	0	35
08:45 AM	5	8	0	1	0	0	1	0	0	3	9	0	3	0	4	0	34
Total	16	23	0	4	0	0	1	0	0	16	28	1	13	0	15	0	117
09:00 AM	4	6	1	1	0	0	0	0	0	7	9	1	9	0	4	0	42
09:15 AM	7	5	2	1	1	0	1	0	0	15	4	3	10	0	7	0	56
Grand Total	40	47	3	8	1	0	2	0	0	52	51	6	41	0	31	0	282
Apprch %	40.8	48	3.1	8.2	33.3	0	66.7	0	0	47.7	46.8	5.5	56.9	0	43.1	0	
Total %	14.2	16.7	1.1	2.8	0.4	0	0.7	0	0	18.4	18.1	2.1	14.5	0	11	0	

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	4	6	0	1	11	0	0	0	0	0	0	6	6	1	13	4	0	7	0	11	35
08:45 AM	5	8	0	1	14	0	0	1	0	1	0	3	9	0	12	3	0	4	0	7	34
09:00 AM	4	6	1	1	12	0	0	0	0	0	0	7	9	1	17	9	0	4	0	13	42
09:15 AM	7	5	2	1	15	1	0	1	0	2	0	15	4	3	22	10	0	7	0	17	56
Total Volume	20	25	3	4	52	1	0	2	0	3	0	31	28	5	64	26	0	22	0	48	167
% App. Total	38.5	48.1	5.8	7.7		33.3	0	66.7	0		0	48.4	43.8	7.8		54.2	0	45.8	0		
PHF	.714	.781	.375	1.00	.867	.250	.000	.500	.000	.375	.000	.517	.778	.417	.727	.650	.000	.786	.000	.706	.746

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 H
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Total	1	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:30 AM	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45 AM	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	6	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	8
09:00 AM	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	7	3	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	12
Apprch %	70	30	0	0	0	0	100	0	0	0	0	0	100	0	0	0	0	0	0	0	
Total %	58.3	25	0	0	0	0	8.3	0	0	0	0	0	8.3	0	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3) From North						Best Western Driveway From East						Concord Avenue (Route 3) From South						Concord Avenue From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:30 AM	1	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
08:45 AM	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	6	1	0	0	0	7	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8
% App. Total	85.7	14.3	0	0	0		0	100	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.500	.250	.000	.000	.000	.583	.000	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.667

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 H
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																					

	Alewife Brook Parkway (Route 3) From North						Best Western Driveway From East						Concord Avenue (Route 3) From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	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
08:15 AM	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
Total Volume	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
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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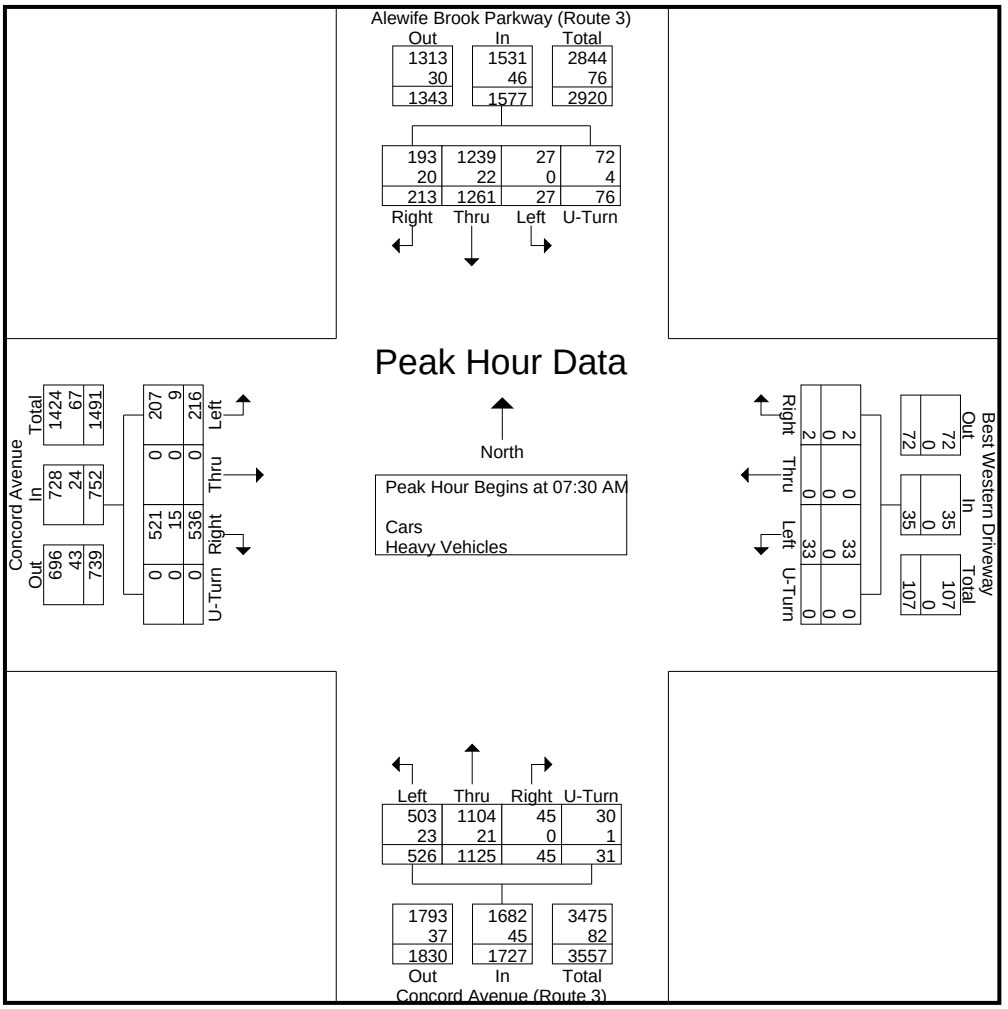
	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	57	343	13	20	433	0	0	8	0	8	8	324	97	7	436	137	0	44	0	181	1058
07:45 AM	52	296	8	19	375	1	0	4	0	5	10	270	126	8	414	113	0	42	0	155	949
08:00 AM	49	303	4	27	383	0	0	9	0	9	18	290	162	7	477	133	0	58	0	191	1060
08:15 AM	55	319	2	10	386	1	0	12	0	13	9	241	141	9	400	153	0	72	0	225	1024
Total Volume	213	1261	27	76	1577	2	0	33	0	35	45	1125	526	31	1727	536	0	216	0	752	4091
% App. Total	13.5	80	1.7	4.8		5.7	0	94.3	0		2.6	65.1	30.5	1.8		71.3	0	28.7	0		
PHF	.934	.919	.519	.704	.911	.500	.000	.688	.000	.673	.625	.868	.812	.861	.905	.876	.000	.750	.000	.836	.965
Cars	193	1239	27	72	1531	2	0	33	0	35	45	1104	503	30	1682	521	0	207	0	728	3976
% Cars	90.6	98.3	100	94.7	97.1	100	0	100	0	100	100	98.1	95.6	96.8	97.4	97.2	0	95.8	0	96.8	97.2
Heavy Vehicles	20	22	0	4	46	0	0	0	0	0	0	21	23	1	45	15	0	9	0	24	115
% Heavy Vehicles	9.4	1.7	0	5.3	2.9	0	0	0	0	0	0	1.9	4.4	3.2	2.6	2.8	0	4.2	0	3.2	2.8



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 HH
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	65	389	0	25	0	0	11	0	5	181	90	13	102	0	62	0	943
04:45 PM	76	374	0	11	0	0	5	0	1	168	70	6	111	0	59	0	881
Total	141	763	0	36	0	0	16	0	6	349	160	19	213	0	121	0	1824
05:00 PM	61	363	8	25	1	0	1	0	3	243	83	6	127	0	43	0	964
05:15 PM	74	359	2	14	0	0	4	0	1	138	45	4	112	0	44	0	797
05:30 PM	67	289	18	43	1	4	0	0	2	151	74	0	80	0	21	0	750
05:45 PM	70	333	16	49	0	0	4	0	5	165	75	7	107	0	39	0	870
Total	272	1344	44	131	2	4	9	0	11	697	277	17	426	0	147	0	3381
06:00 PM	70	316	14	39	0	0	2	0	2	112	63	7	76	0	36	0	737
06:15 PM	57	318	19	36	0	3	1	0	5	179	84	0	96	0	33	0	831
Grand Total	540	2741	77	242	2	7	28	0	24	1337	584	43	811	0	337	0	6773
Apprch %	15	76.1	2.1	6.7	5.4	18.9	75.7	0	1.2	67.3	29.4	2.2	70.6	0	29.4	0	
Total %	8	40.5	1.1	3.6	0	0.1	0.4	0	0.4	19.7	8.6	0.6	12	0	5	0	
Cars	528	2732	77	241	2	7	28	0	24	1323	565	41	798	0	329	0	6695
% Cars	97.8	99.7	100	99.6	100	100	100	0	100	99	96.7	95.3	98.4	0	97.6	0	98.8
Heavy Vehicles	12	9	0	1	0	0	0	0	0	14	19	2	13	0	8	0	78
% Heavy Vehicles	2.2	0.3	0	0.4	0	0	0	0	0	1	3.3	4.7	1.6	0	2.4	0	1.2

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	65	389	0	25	479	0	0	11	0	11	5	181	90	13	289	102	0	62	0	164	943
04:45 PM	76	374	0	11	461	0	0	5	0	5	1	168	70	6	245	111	0	59	0	170	881
05:00 PM	61	363	8	25	457	1	0	1	0	2	3	243	83	6	335	127	0	43	0	170	964
05:15 PM	74	359	2	14	449	0	0	4	0	4	1	138	45	4	188	112	0	44	0	156	797
Total Volume	276	1485	10	75	1846	1	0	21	0	22	10	730	288	29	1057	452	0	208	0	660	3585
% App. Total	15	80.4	0.5	4.1		4.5	0	95.5	0		0.9	69.1	27.2	2.7		68.5	0	31.5	0		
PHF	.908	.954	.313	.750	.963	.250	.000	.477	.000	.500	.500	.751	.800	.558	.789	.890	.000	.839	.000	.971	.930
Cars	270	1479	10	75	1834	1	0	21	0	22	10	722	278	28	1038	444	0	202	0	646	3540
% Cars	97.8	99.6	100	100	99.3	100	0	100	0	100	100	98.9	96.5	96.6	98.2	98.2	0	97.1	0	97.9	98.7
Heavy Vehicles	6	6	0	0	12	0	0	0	0	0	0	8	10	1	19	8	0	6	0	14	45
% Heavy Vehicles	2.2	0.4	0	0	0.7	0	0	0	0	0	0	1.1	3.5	3.4	1.8	1.8	0	2.9	0	2.1	1.3

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 HH
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	61	387	0	25	0	0	11	0	5	178	86	12	101	0	61	0	927
04:45 PM	76	374	0	11	0	0	5	0	1	166	69	6	109	0	56	0	873
Total	137	761	0	36	0	0	16	0	6	344	155	18	210	0	117	0	1800
05:00 PM	59	360	8	25	1	0	1	0	3	240	78	6	123	0	43	0	947
05:15 PM	74	358	2	14	0	0	4	0	1	138	45	4	111	0	42	0	793
05:30 PM	64	289	18	43	1	4	0	0	2	150	71	0	80	0	20	0	742
05:45 PM	69	331	16	49	0	0	4	0	5	162	73	6	103	0	39	0	857
Total	266	1338	44	131	2	4	9	0	11	690	267	16	417	0	144	0	3339
06:00 PM	69	315	14	39	0	0	2	0	2	111	62	7	76	0	35	0	732
06:15 PM	56	318	19	35	0	3	1	0	5	178	81	0	95	0	33	0	824
Grand Total	528	2732	77	241	2	7	28	0	24	1323	565	41	798	0	329	0	6695
Apprch %	14.8	76.4	2.2	6.7	5.4	18.9	75.7	0	1.2	67.7	28.9	2.1	70.8	0	29.2	0	
Total %	7.9	40.8	1.2	3.6	0	0.1	0.4	0	0.4	19.8	8.4	0.6	11.9	0	4.9	0	

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	61	387	0	25	473	0	0	11	0	11	5	178	86	12	281	101	0	61	0	162	927
04:45 PM	76	374	0	11	461	0	0	5	0	5	1	166	69	6	242	109	0	56	0	165	873
05:00 PM	59	360	8	25	452	1	0	1	0	2	3	240	78	6	327	123	0	43	0	166	947
05:15 PM	74	358	2	14	448	0	0	4	0	4	1	138	45	4	188	111	0	42	0	153	793
Total Volume	270	1479	10	75	1834	1	0	21	0	22	10	722	278	28	1038	444	0	202	0	646	3540
% App. Total	14.7	80.6	0.5	4.1		4.5	0	95.5	0		1	69.6	26.8	2.7		68.7	0	31.3	0		
PHF	.888	.955	.313	.750	.969	.250	.000	.477	.000	.500	.500	.752	.808	.583	.794	.902	.000	.828	.000	.973	.935

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 HH
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3) From North				Best Western Driveway From East				Concord Avenue (Route 3) From South				Concord Avenue From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	4	2	0	0	0	0	0	0	0	3	4	1	1	0	1	0	16
04:45 PM	0	0	0	0	0	0	0	0	0	2	1	0	2	0	3	0	8
Total	4	2	0	0	0	0	0	0	0	5	5	1	3	0	4	0	24
05:00 PM	2	3	0	0	0	0	0	0	0	3	5	0	4	0	0	0	17
05:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	4
05:30 PM	3	0	0	0	0	0	0	0	0	1	3	0	0	0	1	0	8
05:45 PM	1	2	0	0	0	0	0	0	0	3	2	1	4	0	0	0	13
Total	6	6	0	0	0	0	0	0	0	7	10	1	9	0	3	0	42
06:00 PM	1	1	0	0	0	0	0	0	0	1	1	0	0	0	1	0	5
06:15 PM	1	0	0	1	0	0	0	0	0	1	3	0	1	0	0	0	7
Grand Total	12	9	0	1	0	0	0	0	0	14	19	2	13	0	8	0	78
Apprch %	54.5	40.9	0	4.5	0	0	0	0	0	40	54.3	5.7	61.9	0	38.1	0	
Total %	15.4	11.5	0	1.3	0	0	0	0	0	17.9	24.4	2.6	16.7	0	10.3	0	

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	4	2	0	0	6	0	0	0	0	0	0	3	4	1	8	1	0	1	0	2	16
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	2	0	3	0	5	8
05:00 PM	2	3	0	0	5	0	0	0	0	0	0	3	5	0	8	4	0	0	0	4	17
05:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	4
Total Volume	6	6	0	0	12	0	0	0	0	0	0	8	10	1	19	8	0	6	0	14	45
% App. Total	50	50	0	0		0	0	0	0		0	42.1	52.6	5.3		57.1	0	42.9	0		
PHF	.375	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.667	.500	.250	.594	.500	.000	.500	.000	.700	.662

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway/ Concord Ave
E/W: Best Western Drive/ Concord Avenue
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 HH
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	3
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	0	6
Apprch %	0	0	0	0	0	0	0	0	0	0	0	16.7	83.3	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	0	0	16.7	83.3	0	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3) From North						Best Western Driveway From East						Concord Avenue (Route 3) From South						Concord Avenue From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	0	0	0	0	0	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	0	2	0	0	2	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	3
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	0	6
% App. Total	0	0	0	0	0		0	0	0	0	0		0	16.7	83.3	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.625	.000	.000	.500	.000	.000	.000	.000	.000	.000	.500

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway/ Concord Ave
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File Name : 165280 HH
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	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	0	0	0	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	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																					

	Alewife Brook Parkway (Route 3) From North						Best Western Driveway From East						Concord Avenue (Route 3) From South						Concord Avenue From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	0	0	0	0	0	0	0
04:45 PM	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
05:00 PM	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
05:15 PM	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
Total Volume	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
% App. Total	0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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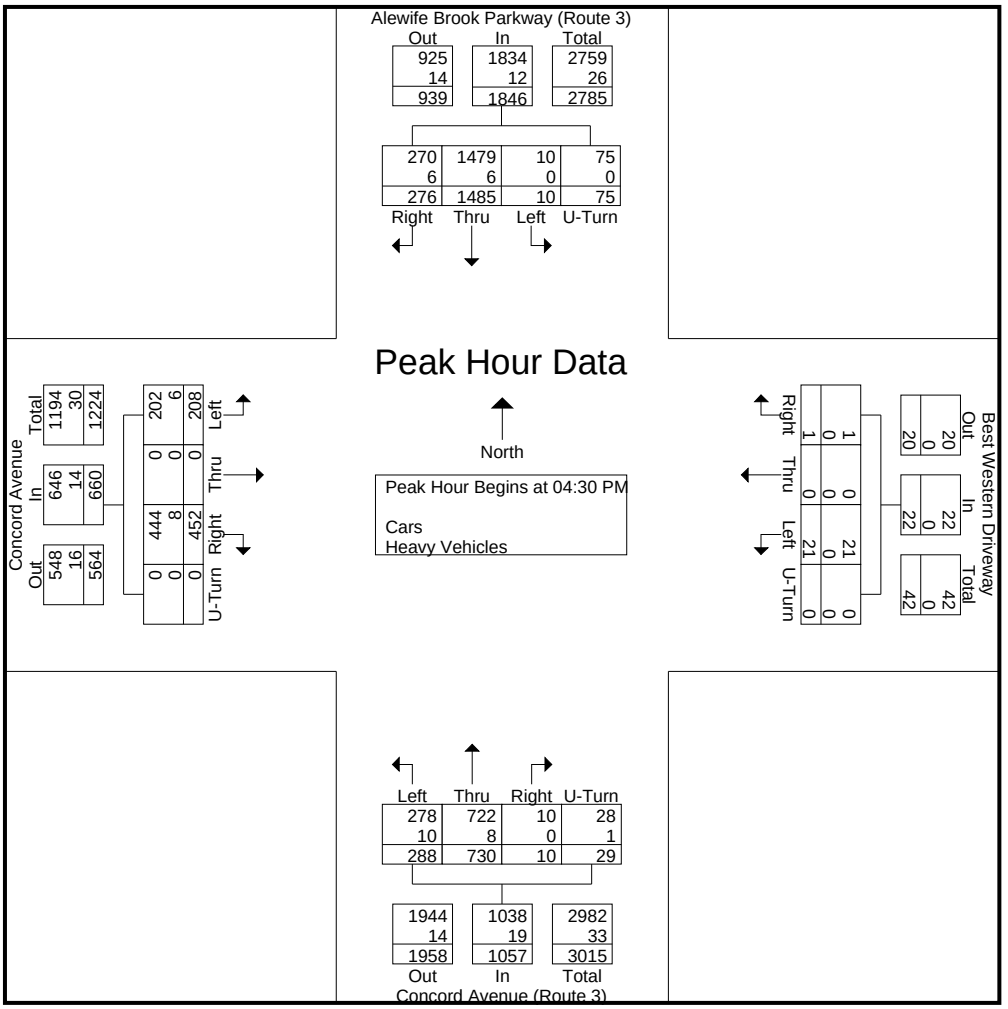
	Alewife Brook Parkway (Route 3) From North					Best Western Driveway From East					Concord Avenue (Route 3) From South					Concord Avenue From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	65	389	0	25	479	0	0	11	0	11	5	181	90	13	289	102	0	62	0	164	943
04:45 PM	76	374	0	11	461	0	0	5	0	5	1	168	70	6	245	111	0	59	0	170	881
05:00 PM	61	363	8	25	457	1	0	1	0	2	3	243	83	6	335	127	0	43	0	170	964
05:15 PM	74	359	2	14	449	0	0	4	0	4	1	138	45	4	188	112	0	44	0	156	797
Total Volume	276	1485	10	75	1846	1	0	21	0	22	10	730	288	29	1057	452	0	208	0	660	3585
% App. Total	15	80.4	0.5	4.1		4.5	0	95.5	0		0.9	69.1	27.2	2.7		68.5	0	31.5	0		
PHF	.908	.954	.313	.750	.963	.250	.000	.477	.000	.500	.500	.751	.800	.558	.789	.890	.000	.839	.000	.971	.930
Cars	270	1479	10	75	1834	1	0	21	0	22	10	722	278	28	1038	444	0	202	0	646	3540
% Cars	97.8	99.6	100	100	99.3	100	0	100	0	100	100	98.9	96.5	96.6	98.2	98.2	0	97.1	0	97.9	98.7
Heavy Vehicles	6	6	0	0	12	0	0	0	0	0	0	8	10	1	19	8	0	6	0	14	45
% Heavy Vehicles	2.2	0.4	0	0	0.7	0	0	0	0	0	0	1.1	3.5	3.4	1.8	1.8	0	2.9	0	2.1	1.3



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
07:30 AM	32	0	0	0	0	4	90	12	0	0	0	0	1	0	0	2	5	12	325	0	338	1	157	12	1	992
07:45 AM	27	0	0	1	0	11	105	12	0	1	1	0	1	0	0	3	2	12	260	0	288	0	164	30	2	920
Total	59	0	0	1	0	15	195	24	0	1	1	0	2	0	0	5	7	24	585	0	626	1	321	42	3	1912
08:00 AM	39	0	0	0	0	15	81	10	0	1	1	0	4	0	0	3	4	15	329	0	305	0	148	32	0	987
08:15 AM	37	0	0	0	0	11	122	9	0	0	0	0	1	0	0	0	6	26	261	0	302	0	141	24	0	940
08:30 AM	31	0	0	0	0	1	100	11	0	0	0	0	0	0	0	3	12	15	251	0	254	1	165	38	2	884
08:45 AM	25	2	0	0	0	7	75	19	0	3	0	0	0	0	0	3	3	13	280	0	278	2	172	21	1	904
Total	132	2	0	0	0	34	378	49	0	4	1	0	5	0	0	9	25	69	1121	0	1139	3	626	115	3	3715
09:00 AM	32	0	0	0	0	0	85	20	0	2	0	0	0	0	0	5	9	1	274	0	310	2	162	34	1	937
09:15 AM	18	1	0	0	0	12	80	17	0	1	0	0	0	0	0	5	11	5	288	0	326	1	124	32	0	921
Grand Total	241	3	0	1	0	61	738	110	0	8	2	0	7	0	0	24	52	99	2268	0	2401	7	1233	223	7	7485
Apprch %	98.4	1.2	0	0.4	0	6.7	80.5	12	0	0.9	22.2	0	77.8	0	0	1	2.1	4.1	92.8	0	62	0.2	31.9	5.8	0.2	
Total %	3.2	0	0	0	0	0.8	9.9	1.5	0	0.1	0	0	0.1	0	0	0.3	0.7	1.3	30.3	0	32.1	0.1	16.5	3	0.1	
Cars	230	3	0	1	0	56	680	103	0	8	2	0	7	0	0	24	47	89	2223	0	2382	7	1166	213	7	7248
% Cars	95.4	100	0	100	0	91.8	92.1	93.6	0	100	100	0	100	0	0	100	90.4	89.9	98	0	99.2	100	94.6	95.5	100	96.8
Heavy Vehicles	11	0	0	0	0	5	58	7	0	0	0	0	0	0	0	0	5	10	45	0	19	0	67	10	0	237
% Heavy Vehicles	4.6	0	0	0	0	8.2	7.9	6.4	0	0	0	0	0	0	0	0	9.6	10.1	2	0	0.8	0	5.4	4.5	0	3.2

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	32	0	0	0	0	32	4	90	12	0	0	106	0	0	1	0	0	1	2	5	12	325	0	344	338	1	157	12	1	509	992
07:45 AM	27	0	0	1	0	28	11	105	12	0	1	129	1	0	1	0	0	2	3	2	12	260	0	277	288	0	164	30	2	484	920
08:00 AM	39	0	0	0	0	39	15	81	10	0	1	107	1	0	4	0	0	5	3	4	15	329	0	351	305	0	148	32	0	485	987
08:15 AM	37	0	0	0	0	37	11	122	9	0	0	142	0	0	1	0	0	1	0	6	26	261	0	293	302	0	141	24	0	467	940
Total Volume	135	0	0	1	0	136	41	398	43	0	2	484	2	0	7	0	0	9	8	17	65	1175	0	1265	1233	1	610	98	3	1945	3839
% App. Total	99.3	0	0	0.7	0		8.5	82.2	8.9	0	0.4		22.2	0	77.8	0	0		0.6	1.3	5.1	92.9	0		63.4	0.1	31.4	5	0.2		
PHF	.865	.000	.000	.250	.000	.872	.683	.816	.896	.000	.500	.852	.500	.000	.438	.000	.000	.450	.667	.708	.625	.893	.000	.901	.912	.250	.930	.766	.375	.955	.967
Cars	132	0	0	1	0	133	39	374	40	0	2	455	2	0	7	0	0	9	8	15	60	1153	0	1236	1227	1	571	95	3	1897	3730
% Cars	97.8	0	0	100	0	97.8	95.1	94.0	93.0	0	100	94.0	100	0	100	0	0	100	100	88.2	92.3	98.1	0	97.7	99.5	100	93.6	96.9	100	97.5	97.2
Heavy Vehicles	3	0	0	0	0	3	2	24	3	0	0	29	0	0	0	0	0	0	0	2	5	22	0	29	6	0	39	3	0	48	109
% Heavy Vehicles	2.2	0	0	0	0	2.2	4.9	6.0	7.0	0	0	6.0	0	0	0	0	0	0	0	11.8	7.7	1.9	0	2.3	0.5	0	6.4	3.1	0	2.5	2.8

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
07:30 AM	32	0	0	0	0	4	81	10	0	0	0	0	1	0	0	2	4	9	317	0	335	1	144	12	1	953
07:45 AM	26	0	0	1	0	10	98	11	0	1	1	0	1	0	0	3	2	11	259	0	286	0	150	28	2	890
Total	58	0	0	1	0	14	179	21	0	1	1	0	2	0	0	5	6	20	576	0	621	1	294	40	3	1843
08:00 AM	38	0	0	0	0	14	78	10	0	1	1	0	4	0	0	3	4	15	322	0	304	0	142	32	0	968
08:15 AM	36	0	0	0	0	11	117	9	0	0	0	0	1	0	0	0	5	25	255	0	302	0	135	23	0	919
08:30 AM	31	0	0	0	0	1	91	10	0	0	0	0	0	0	0	3	11	12	245	0	252	1	159	37	2	855
08:45 AM	23	2	0	0	0	7	69	18	0	3	0	0	0	0	0	3	3	12	276	0	276	2	166	20	1	881
Total	128	2	0	0	0	33	355	47	0	4	1	0	5	0	0	9	23	64	1098	0	1134	3	602	112	3	3623
09:00 AM	28	0	0	0	0	0	75	19	0	2	0	0	0	0	0	5	9	1	269	0	306	2	155	30	1	902
09:15 AM	16	1	0	0	0	9	71	16	0	1	0	0	0	0	0	5	9	4	280	0	321	1	115	31	0	880
Grand Total	230	3	0	1	0	56	680	103	0	8	2	0	7	0	0	24	47	89	2223	0	2382	7	1166	213	7	7248
Apprch %	98.3	1.3	0	0.4	0	6.6	80.3	12.2	0	0.9	22.2	0	77.8	0	0	1	2	3.7	93.3	0	63.1	0.2	30.9	5.6	0.2	
Total %	3.2	0	0	0	0	0.8	9.4	1.4	0	0.1	0	0	0.1	0	0	0.3	0.6	1.2	30.7	0	32.9	0.1	16.1	2.9	0.1	

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	32	0	0	0	0	32	4	81	10	0	0	95	0	0	1	0	0	1	2	4	9	317	0	332	335	1	144	12	1	493	953
07:45 AM	26	0	0	1	0	27	10	98	11	0	1	120	1	0	1	0	0	2	3	2	11	259	0	275	286	0	150	28	2	466	890
08:00 AM	38	0	0	0	0	38	14	78	10	0	1	103	1	0	4	0	0	5	3	4	15	322	0	344	304	0	142	32	0	478	968
08:15 AM	36	0	0	0	0	36	11	117	9	0	0	137	0	0	1	0	0	1	0	5	25	255	0	285	302	0	135	23	0	460	919
Total Volume	132	0	0	1	0	133	39	374	40	0	2	455	2	0	7	0	0	9	8	15	60	1153	0	1236	1227	1	571	95	3	1897	3730
% App. Total	99.2	0	0	0.8	0		8.6	82.2	8.8	0	0.4		22.2	0	77.8	0	0		0.6	1.2	4.9	93.3	0		64.7	0.1	30.1	5	0.2		
PHF	.868	.000	.000	.250	.000	.875	.696	.799	.909	.000	.500	.830	.500	.000	.438	.000	.000	.450	.667	.750	.600	.895	.000	.898	.916	.250	.952	.742	.375	.962	.963

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	0	0	9	2	0	0	0	0	0	0	0	0	1	3	8	0	3	0	13	0	0	39
07:45 AM	1	0	0	0	0	1	7	1	0	0	0	0	0	0	0	0	0	1	1	0	2	0	14	2	0	30
Total	1	0	0	0	0	1	16	3	0	0	0	0	0	0	0	0	1	4	9	0	5	0	27	2	0	69
08:00 AM	1	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	7	0	1	0	6	0	0	19
08:15 AM	1	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	1	1	6	0	0	0	6	1	0	21
08:30 AM	0	0	0	0	0	0	9	1	0	0	0	0	0	0	0	0	1	3	6	0	2	0	6	1	0	29
08:45 AM	2	0	0	0	0	0	6	1	0	0	0	0	0	0	0	0	0	1	4	0	2	0	6	1	0	23
Total	4	0	0	0	0	1	23	2	0	0	0	0	0	0	0	0	2	5	23	0	5	0	24	3	0	92
09:00 AM	4	0	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	5	0	4	0	7	4	0	35
09:15 AM	2	0	0	0	0	3	9	1	0	0	0	0	0	0	0	0	2	1	8	0	5	0	9	1	0	41
Grand Total	11	0	0	0	0	5	58	7	0	0	0	0	0	0	0	0	5	10	45	0	19	0	67	10	0	237
Apprch %	100	0	0	0	0	7.1	82.9	10	0	0	0	0	0	0	0	0	8.3	16.7	75	0	19.8	0	69.8	10.4	0	
Total %	4.6	0	0	0	0	2.1	24.5	3	0	0	0	0	0	0	0	0	2.1	4.2	19	0	8	0	28.3	4.2	0	

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	0	0	0	0	0	0	0	9	1	0	0	10	0	0	0	0	0	0	0	1	3	6	0	10	2	0	6	1	0	9	29
08:45 AM	2	0	0	0	0	2	0	6	1	0	0	7	0	0	0	0	0	0	0	0	1	4	0	5	2	0	6	1	0	9	23
09:00 AM	4	0	0	0	0	4	0	10	1	0	0	11	0	0	0	0	0	0	0	0	0	5	0	5	4	0	7	4	0	15	35
09:15 AM	2	0	0	0	0	2	3	9	1	0	0	13	0	0	0	0	0	0	0	2	1	8	0	11	5	0	9	1	0	15	41
Total Volume	8	0	0	0	0	8	3	34	4	0	0	41	0	0	0	0	0	0	0	3	5	23	0	31	13	0	28	7	0	48	128
% App. Total	100	0	0	0	0		7.3	82.9	9.8	0	0		0	0	0	0	0		0	9.7	16.1	74.2	0		27.1	0	58.3	14.6	0		
PHF	.500	.000	.000	.000	.000	.500	.250	.850	1.00	.000	.000	.788	.000	.000	.000	.000	.000	.000	.000	.375	.417	.719	.000	.705	.650	.000	.778	.438	.000	.800	.780

PRECISION DATA INDUSTRIES, LLC
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City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	CW EB	CW WB	Right	Thru	Left	Hard Left	CW SB	CW NB	Hard Right	Bear Right	Bear Left	Hard Left	CW SB	CW NB	Hard Right	Right	Thru	Left	CW WB	CW EB	Right	Bear Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	8
07:45 AM	0	0	0	0	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	8	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	16
08:00 AM	0	0	0	0	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	10
08:15 AM	0	0	0	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
08:30 AM	0	0	0	0	10	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	0	16
08:45 AM	0	0	0	0	7	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	7
Total	0	0	0	0	31	2	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1	0	4	0	0	0	40
09:00 AM	0	0	0	0	4	1	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	1	0	0	0	0	0	9
09:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3
Grand Total	0	0	0	0	45	9	0	0	0	0	0	0	1	0	0	0	2	2	0	0	0	2	0	0	3	0	4	0	0	0	68
Apprch %	0	0	0	0	83.3	16.7	0	0	0	0	0	0	20	0	0	0	40	40	0	0	0	100	0	0	42.9	0	57.1	0	0	0	
Total %	0	0	0	0	66.2	13.2	0	0	0	0	0	0	1.5	0	0	0	2.9	2.9	0	0	0	2.9	0	0	4.4	0	5.9	0	0	0	

	New Street From North							Concord Avenue From East							Gas Station Driveway From Southeast							Fresh Pond Parkway (Route 3) From South							Concord Avenue (Route 3) From West							
Start Time	Right	Thru	Bear Left	Left	CW EB	CW WB	App. Total	Right	Thru	Left	Hard Left	CW SB	CW NB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	CW SB	CW NB	App. Total	Hard Right	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Bear Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	5	2	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	8
08:00 AM	0	0	0	0	8	1	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	10
08:15 AM	0	0	0	0	6	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
08:30 AM	0	0	0	0	10	1	11	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	0	1	0	3	0	0	0	4	16
Total Volume	0	0	0	0	29	4	33	0	0	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	1	0	0	1	1	0	4	0	0	0	5	41
% App. Total	0	0	0	0	87.9	12.1		0	0	0	0	0	0		50	0	0	0	0	50		0	0	0	100	0	0		20	0	80	0	0	0		
PHF	.000	.000	.000	.000	.725	.500	.750	.000	.000	.000	.000	.000	.000	.000	.250	.000	.000	.000	.000	.250	.500	.000	.000	.000	.250	.000	.000	.250	.250	.000	.333	.000	.000	.000	.313	.641

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SB	Peds NB	Hard Right	Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	7
07:45 AM	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	4	8	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	15
08:00 AM	0	0	0	0	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
08:15 AM	0	0	0	0	6	3	0	0	0	0	2	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	14
08:30 AM	0	0	0	0	3	9	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	15
08:45 AM	0	0	0	0	5	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Total	0	0	0	0	15	21	0	0	0	0	2	2	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	0	0	45
09:00 AM	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	12
09:15 AM	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	1	0	0	0	0	0	0	0	10
Grand Total	0	0	0	0	27	36	0	0	0	0	2	2	0	0	0	0	8	5	0	0	0	0	1	0	0	0	0	0	0	1	82
Apprch %	0	0	0	0	42.9	57.1	0	0	0	0	50	50	0	0	0	0	61.5	38.5	0	0	0	0	100	0	0	0	0	0	0	100	
Total %	0	0	0	0	32.9	43.9	0	0	0	0	2.4	2.4	0	0	0	0	9.8	6.1	0	0	0	0	1.2	0	0	0	0	0	0	1.2	

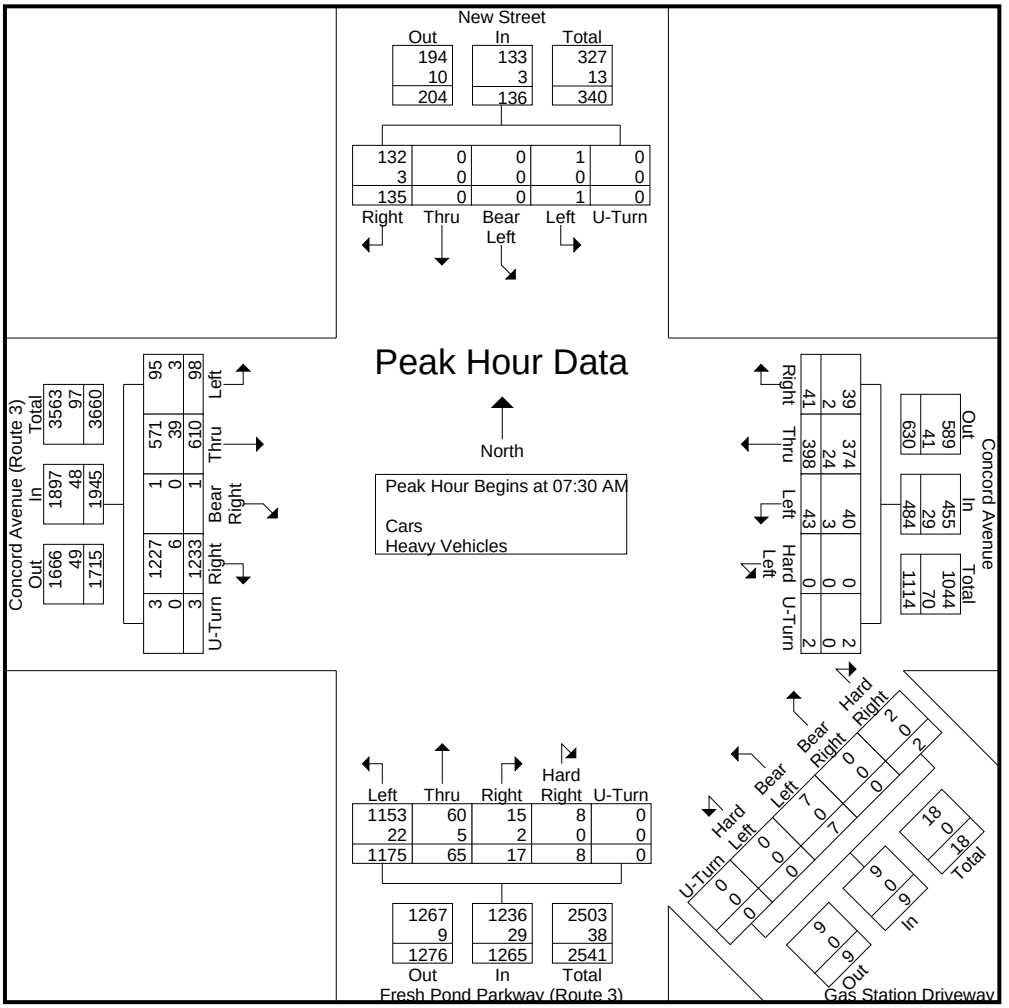
	New Street From North							Concord Avenue From East							Gas Station Driveway From Southeast							Fresh Pond Parkway (Route 3) From South							Concord Avenue (Route 3) From West							
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																																				
Peak Hour for Entire Intersection Begins at 08:15 AM																																				
08:15 AM	0	0	0	0	6	3	9	0	0	0	0	2	0	2	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	14
08:30 AM	0	0	0	0	3	9	12	0	0	0	0	0	2	2	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
08:45 AM	0	0	0	0	5	6	11	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
09:00 AM	0	0	0	0	5	5	10	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
Total Volume	0	0	0	0	19	23	42	0	0	0	0	2	2	4	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
% App. Total					45.2	54.8		0	0	0	0	50	50		0	0	0	0	57.1	42.9																
PHF	.000	.000	.000	.000	.792	.639	.875	.000	.000	.000	.000	.250	.250	.500	.000	.000	.000	.000	.500	.750	.583	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.883

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 J
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	32	0	0	0	0	32	4	90	12	0	0	106	0	0	1	0	0	1	2	5	12	325	0	344	338	1	157	12	1	509	992
07:45 AM	27	0	0	1	0	28	11	105	12	0	1	129	1	0	1	0	0	2	3	2	12	260	0	277	288	0	164	30	2	484	920
08:00 AM	39	0	0	0	0	39	15	81	10	0	1	107	1	0	4	0	0	5	3	4	15	329	0	351	305	0	148	32	0	485	987
08:15 AM	37	0	0	0	0	37	11	122	9	0	0	142	0	0	1	0	0	1	0	6	26	261	0	293	302	0	141	24	0	467	940
Total Volume	135	0	0	1	0	136	41	398	43	0	2	484	2	0	7	0	0	9	8	17	65	1175	0	1265	1233	1	610	98	3	1945	3839
% App. Total	99.3	0	0	0.7	0		8.5	82.2	8.9	0	0.4		22.2	0	77.8	0	0		0.6	1.3	5.1	92.9	0		63.4	0.1	31.4	5	0.2		
PHF	.865	.000	.000	.250	.000	.872	.683	.816	.896	.000	.500	.852	.500	.000	.438	.000	.000	.450	.667	.708	.625	.893	.000	.901	.912	.250	.930	.766	.375	.955	.967
Cars	132	0	0	1	0	133	39	374	40	0	2	455	2	0	7	0	0	9	8	15	60	1153	0	1236	1227	1	571	95	3	1897	3730
% Cars	97.8	0	0	100	0	97.8	95.1	94.0	93.0	0	100	94.0	100	0	100	0	0	100	100	88.2	92.3	98.1	0	97.7	99.5	100	93.6	96.9	100	97.5	97.2
Heavy Vehicles	3	0	0	0	0	3	2	24	3	0	0	29	0	0	0	0	0	0	0	2	5	22	0	29	6	0	39	3	0	48	109
% Heavy Vehicles	2.2	0	0	0	0	2.2	4.9	6.0	7.0	0	0	6.0	0	0	0	0	0	0	0	11.8	7.7	1.9	0	2.3	0.5	0	6.4	3.1	0	2.5	2.8



N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
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File Name : 165280 JJ
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
04:30 PM	24	0	0	0	0	11	62	10	0	1	1	0	0	0	0	0	6	15	173	0	347	1	142	17	0	810
04:45 PM	23	0	0	0	0	8	66	11	0	0	0	0	0	0	0	1	5	27	155	0	307	0	152	19	0	774
Total	47	0	0	0	0	19	128	21	0	1	1	0	0	0	0	1	11	42	328	0	654	1	294	36	0	1584
05:00 PM	35	0	0	0	0	12	75	10	0	1	0	0	0	0	0	0	3	30	192	0	320	0	182	33	0	893
05:15 PM	20	0	0	0	0	8	48	4	0	0	0	2	0	0	0	0	1	14	109	0	282	0	160	23	0	671
05:30 PM	32	0	0	0	0	16	56	13	0	0	0	0	0	0	0	0	1	15	133	0	319	1	147	21	0	754
05:45 PM	32	0	0	0	0	9	63	9	0	1	0	0	0	0	0	3	2	21	171	0	295	0	156	19	0	781
Total	119	0	0	0	0	45	242	36	0	2	0	2	0	0	0	3	7	80	605	0	1216	1	645	96	0	3099
06:00 PM	41	0	0	0	0	5	49	10	0	0	0	0	0	0	0	3	2	15	108	0	295	0	142	22	0	692
06:15 PM	33	0	0	0	0	11	82	7	0	1	0	0	0	0	0	4	3	35	182	0	280	1	164	21	0	824
Grand Total	240	0	0	0	0	80	501	74	0	4	1	2	0	0	0	11	23	172	1223	0	2445	3	1245	175	0	6199
Apprch %	100	0	0	0	0	12.1	76	11.2	0	0.6	33.3	66.7	0	0	0	0.8	1.6	12	85.6	0	63.2	0.1	32.2	4.5	0	
Total %	3.9	0	0	0	0	1.3	8.1	1.2	0	0.1	0	0	0	0	0	0.2	0.4	2.8	19.7	0	39.4	0	20.1	2.8	0	
Cars	233	0	0	0	0	80	476	72	0	4	1	2	0	0	0	11	21	171	1220	0	2437	3	1222	174	0	6127
% Cars	97.1	0	0	0	0	100	95	97.3	0	100	100	100	0	0	0	100	91.3	99.4	99.8	0	99.7	100	98.2	99.4	0	98.8
Heavy Vehicles	7	0	0	0	0	0	25	2	0	0	0	0	0	0	0	0	2	1	3	0	8	0	23	1	0	72
% Heavy Vehicles	2.9	0	0	0	0	0	5	2.7	0	0	0	0	0	0	0	0	8.7	0.6	0.2	0	0.3	0	1.8	0.6	0	1.2

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	24	0	0	0	0	24	11	62	10	0	1	84	1	0	0	0	0	1	0	6	15	173	0	194	347	1	142	17	0	507	810
04:45 PM	23	0	0	0	0	23	8	66	11	0	0	85	0	0	0	0	0	0	1	5	27	155	0	188	307	0	152	19	0	478	774
05:00 PM	35	0	0	0	0	35	12	75	10	0	1	98	0	0	0	0	0	0	0	3	30	192	0	225	320	0	182	33	0	535	893
05:15 PM	20	0	0	0	0	20	8	48	4	0	0	60	0	2	0	0	0	2	0	1	14	109	0	124	282	0	160	23	0	465	671
Total Volume	102	0	0	0	0	102	39	251	35	0	2	327	1	2	0	0	0	3	1	15	86	629	0	731	1256	1	636	92	0	1985	3148
% App. Total	100	0	0	0	0		11.9	76.8	10.7	0	0.6		33.3	66.7	0	0	0		0.1	2.1	11.8	86	0		63.3	0.1	32	4.6	0		
PHF	.729	.000	.000	.000	.000	.729	.813	.837	.795	.000	.500	.834	.250	.250	.000	.000	.000	.375	.250	.625	.717	.819	.000	.812	.905	.250	.874	.697	.000	.928	.881
Cars	97	0	0	0	0	97	39	236	34	0	2	311	1	2	0	0	0	3	1	13	86	628	0	728	1253	1	622	92	0	1968	3107
% Cars	95.1	0	0	0	0	95.1	100	94.0	97.1	0	100	95.1	100	100	0	0	0	100	100	86.7	100	99.8	0	99.6	99.8	100	97.8	100	0	99.1	98.7
Heavy Vehicles	5	0	0	0	0	5	0	15	1	0	0	16	0	0	0	0	0	0	0	2	0	1	0	3	3	0	14	0	0	17	41
% Heavy Vehicles	4.9	0	0	0	0	4.9	0	6.0	2.9	0	0	4.9	0	0	0	0	0	0	0	13.3	0	0.2	0	0.4	0.2	0	2.2	0	0	0.9	1.3

N/S: New Street/ Fresh Pond Parkway
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Groups Printed- Cars

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
04:30 PM	23	0	0	0	0	11	56	10	0	1	1	0	0	0	0	0	4	15	173	0	347	1	137	17	0	796
04:45 PM	23	0	0	0	0	8	64	11	0	0	0	0	0	0	0	1	5	27	155	0	307	0	150	19	0	770
Total	46	0	0	0	0	19	120	21	0	1	1	0	0	0	0	1	9	42	328	0	654	1	287	36	0	1566
05:00 PM	31	0	0	0	0	12	69	10	0	1	0	0	0	0	0	0	3	30	191	0	318	0	176	33	0	874
05:15 PM	20	0	0	0	0	8	47	3	0	0	0	2	0	0	0	0	1	14	109	0	281	0	159	23	0	667
05:30 PM	32	0	0	0	0	16	53	13	0	0	0	0	0	0	0	0	1	15	133	0	319	1	145	21	0	749
05:45 PM	32	0	0	0	0	9	60	9	0	1	0	0	0	0	0	3	2	21	169	0	293	0	151	19	0	769
Total	115	0	0	0	0	45	229	35	0	2	0	2	0	0	0	3	7	80	602	0	1211	1	631	96	0	3059
06:00 PM	41	0	0	0	0	5	47	9	0	0	0	0	0	0	0	3	2	15	108	0	293	0	142	21	0	686
06:15 PM	31	0	0	0	0	11	80	7	0	1	0	0	0	0	0	4	3	34	182	0	279	1	162	21	0	816
Grand Total	233	0	0	0	0	80	476	72	0	4	1	2	0	0	0	11	21	171	1220	0	2437	3	1222	174	0	6127
Apprch %	100	0	0	0	0	12.7	75.3	11.4	0	0.6	33.3	66.7	0	0	0	0.8	1.5	12	85.7	0	63.5	0.1	31.9	4.5	0	
Total %	3.8	0	0	0	0	1.3	7.8	1.2	0	0.1	0	0	0	0	0	0.2	0.3	2.8	19.9	0	39.8	0	19.9	2.8	0	

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	23	0	0	0	0	23	11	56	10	0	1	78	1	0	0	0	0	1	0	4	15	173	0	192	347	1	137	17	0	502	796
04:45 PM	23	0	0	0	0	23	8	64	11	0	0	83	0	0	0	0	0	0	1	5	27	155	0	188	307	0	150	19	0	476	770
05:00 PM	31	0	0	0	0	31	12	69	10	0	1	92	0	0	0	0	0	0	0	3	30	191	0	224	318	0	176	33	0	527	874
05:15 PM	20	0	0	0	0	20	8	47	3	0	0	58	0	2	0	0	0	2	0	1	14	109	0	124	281	0	159	23	0	463	667
Total Volume	97	0	0	0	0	97	39	236	34	0	2	311	1	2	0	0	0	3	1	13	86	628	0	728	1253	1	622	92	0	1968	3107
% App. Total	100	0	0	0	0		12.5	75.9	10.9	0	0.6		33.3	66.7	0	0	0		0.1	1.8	11.8	86.3	0		63.7	0.1	31.6	4.7	0		
PHF	.782	.000	.000	.000	.000	.782	.813	.855	.773	.000	.500	.845	.250	.250	.000	.000	.000	.375	.250	.650	.717	.822	.000	.813	.903	.250	.884	.697	.000	.934	.889

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165280 JJ
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	New Street From North					Concord Avenue From East					Gas Station Driveway From Southeast					Fresh Pond Parkway (Route 3) From South					Concord Avenue (Route 3) From West					
Start Time	Right	Thru	Bear Left	Left	U-Turn	Right	Thru	Left	Hard Left	U-Turn	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Hard Right	Right	Thru	Left	U-Turn	Right	Bear Right	Thru	Left	U-Turn	Int. Total
04:30 PM	1	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5	0	0	14
04:45 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
Total	1	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	7	0	0	18
05:00 PM	4	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	6	0	0	19
05:15 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	4
05:30 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	5
05:45 PM	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	5	0	0	12
Total	4	0	0	0	0	0	13	1	0	0	0	0	0	0	0	0	0	0	3	0	5	0	14	0	0	40
06:00 PM	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	6
06:15 PM	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	8
Grand Total	7	0	0	0	0	0	25	2	0	0	0	0	0	0	0	0	2	1	3	0	8	0	23	1	0	72
Apprch %	100	0	0	0	0	0	92.6	7.4	0	0	0	0	0	0	0	0	33.3	16.7	50	0	25	0	71.9	3.1	0	
Total %	9.7	0	0	0	0	0	34.7	2.8	0	0	0	0	0	0	0	0	2.8	1.4	4.2	0	11.1	0	31.9	1.4	0	

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	1	0	0	0	0	1	0	6	0	0	0	6	0	0	0	0	0	0	0	2	0	0	0	2	0	0	5	0	0	5	14
04:45 PM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
05:00 PM	4	0	0	0	0	4	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	1	0	1	2	0	6	0	0	8	19
05:15 PM	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	4
Total Volume	5	0	0	0	0	5	0	15	1	0	0	16	0	0	0	0	0	0	0	2	0	1	0	3	3	0	14	0	0	17	41
% App. Total	100	0	0	0	0		0	93.8	6.2	0	0		0	0	0	0	0		0	66.7	0	33.3	0		17.6	0	82.4	0	0		
PHF	.313	.000	.000	.000	.000	.313	.000	.625	.250	.000	.000	.667	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.000	.375	.375	.000	.583	.000	.000	.531	.539

N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165280 JJ
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	CW EB	CW WB	Right	Thru	Left	Hard Left	CW SB	CW NB	Hard Right	Bear Right	Bear Left	Hard Left	CW SB	CW NB	Hard Right	Right	Thru	Left	CW WB	CW EB	Right	Bear Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	11
04:45 PM	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	0	0	0	0	0	0
Total	0	0	0	0	0	5	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	11
05:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	5
05:15 PM	0	0	0	0	3	8	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	14
05:30 PM	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	11
05:45 PM	0	0	0	0	0	17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Total	0	0	0	0	8	33	0	1	0	0	0	0	0	1	0	0	0	0	0	0	4	0	0	1	0	0	0	0	0	0	48
06:00 PM	0	0	0	0	5	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
06:15 PM	0	0	0	0	5	10	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	16
Grand Total	0	0	0	0	18	55	0	1	0	0	0	0	0	3	0	0	0	1	0	0	8	0	0	1	0	0	0	0	0	0	87
Apprch %	0	0	0	0	24.7	75.3	0	100	0	0	0	0	0	75	0	0	0	25	0	0	88.9	0	0	11.1	0	0	0	0	0	0	
Total %	0	0	0	0	20.7	63.2	0	1.1	0	0	0	0	0	3.4	0	0	0	1.1	0	0	9.2	0	0	1.1	0	0	0	0	0	0	

	New Street From North							Concord Avenue From East							Gas Station Driveway From Southeast							Fresh Pond Parkway (Route 3) From South							Concord Avenue (Route 3) From West							
Start Time	Right	Thru	Bear Left	Left	CW EB	CW WB	App. Total	Right	Thru	Left	Hard Left	CW SB	CW NB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	CW SB	CW NB	App. Total	Hard Right	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Bear Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	5	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	11
05:45 PM	0	0	0	0	0	17	17	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
06:00 PM	0	0	0	0	5	7	12	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	0	0	12
06:15 PM	0	0	0	0	5	10	15	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Total Volume	0	0	0	0	15	39	54	0	1	0	0	0	0	1	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	57
% App. Total	0	0	0	0	27.8	72.2		0	100	0	0	0	0		0	0	0	0	0	100		0	0	0	0	0	100		0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.750	.574	.794	.000	.250	.000	.000	.000	.000	.250	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.792

N/S: New Street/ Fresh Pond Parkway
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City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165280 JJ
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	Right	Thru	Left	Hard Left	Peds SB	Peds NB	Hard Right	Bear Right	Bear Left	Hard Left	Peds SB	Peds NB	Hard Right	Right	Thru	Left	Peds WB	Peds EB	Right	Bear Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	0	6	5	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	14
04:45 PM	0	0	0	0	16	10	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	0	29
Total	0	0	0	0	22	15	0	0	0	0	1	0	0	0	0	0	2	2	0	0	0	0	0	1	0	0	0	0	0	0	43
05:00 PM	0	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	12
05:15 PM	0	0	0	0	6	6	0	0	0	0	0	1	0	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	17
05:30 PM	0	0	0	0	11	13	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	28
05:45 PM	0	0	0	0	5	13	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	20
Total	0	0	0	0	27	37	0	0	0	0	2	1	0	0	0	0	6	3	0	0	0	0	0	1	0	0	0	0	0	0	77
06:00 PM	0	0	0	0	6	22	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	30
06:15 PM	0	0	0	0	8	8	0	0	0	0	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	20
Grand Total	0	0	0	0	63	82	0	0	0	0	3	3	0	0	0	0	10	7	0	0	0	0	0	2	0	0	0	0	0	0	170
Apprch %	0	0	0	0	43.4	56.6	0	0	0	0	50	50	0	0	0	0	58.8	41.2	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	0	0	0	37.1	48.2	0	0	0	0	1.8	1.8	0	0	0	0	5.9	4.1	0	0	0	0	0	1.2	0	0	0	0	0	0	

	New Street From North							Concord Avenue From East							Gas Station Driveway From Southeast							Fresh Pond Parkway (Route 3) From South							Concord Avenue (Route 3) From West							
Start Time	Right	Thru	Bear Left	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	Peds SB	Peds NB	App. Total	Hard Right	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Bear Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	11	13	24	0	0	0	0	2	0	2	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
05:45 PM	0	0	0	0	5	13	18	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
06:00 PM	0	0	0	0	6	22	28	0	0	0	0	0	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
06:15 PM	0	0	0	0	8	8	16	0	0	0	0	0	1	1	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Total Volume	0	0	0	0	30	56	86	0	0	0	0	2	2	4	0	0	0	0	5	3	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	98
% App. Total	0	0	0	0	34.9	65.1		0	0	0	0	50	50		0	0	0	0	62.5	37.5		0	0	0	0	0	0		0	0	0	0	0	0		
PHF	.000	.000	.000	.000	.682	.636		.000	.000	.000	.000	.250	.500		.000	.000	.000	.000	.625	.375	.667	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000		

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: New Street/ Fresh Pond Parkway
E/W/SE: Concord Ave/ Gas Station
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 JJ
Site Code : TBA
Start Date : 10/5/2016
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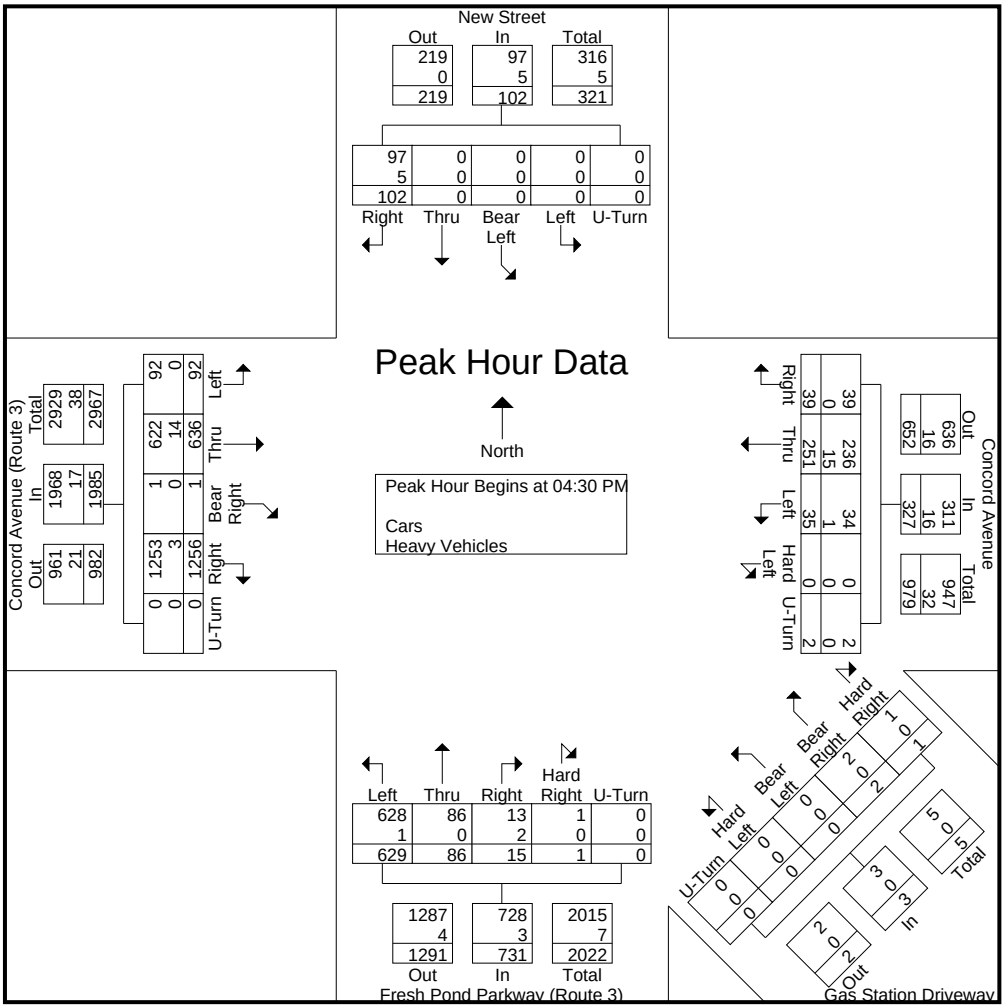
	New Street From North						Concord Avenue From East						Gas Station Driveway From Southeast						Fresh Pond Parkway (Route 3) From South						Concord Avenue (Route 3) From West						
Start Time	Right	Thru	Bear Left	Left	U-Turn	App. Total	Right	Thru	Left	Hard Left	U-Turn	App. Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	App. Total	Hard Right	Right	Thru	Left	U-Turn	App. Total	Right	Bear Right	Thru	Left	U-Turn	App. Total	Int. 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	24	0	0	0	0	24	11	62	10	0	1	84	1	0	0	0	0	1	0	6	15	173	0	194	347	1	142	17	0	507	810
04:45 PM	23	0	0	0	0	23	8	66	11	0	0	85	0	0	0	0	0	0	1	5	27	155	0	188	307	0	152	19	0	478	774
05:00 PM	35	0	0	0	0	35	12	75	10	0	1	98	0	0	0	0	0	0	0	3	30	192	0	225	320	0	182	33	0	535	893
05:15 PM	20	0	0	0	0	20	8	48	4	0	0	60	0	2	0	0	0	2	0	1	14	109	0	124	282	0	160	23	0	465	671
Total Volume	102	0	0	0	0	102	39	251	35	0	2	327	1	2	0	0	0	3	1	15	86	629	0	731	1256	1	636	92	0	1985	3148
% App. Total	100	0	0	0	0		11.9	76.8	10.7	0	0.6		33.3	66.7	0	0	0		0.1	2.1	11.8	86	0		63.3	0.1	32	4.6	0		
PHF	.729	.000	.000	.000	.000	.729	.813	.837	.795	.000	.500	.834	.250	.250	.000	.000	.000	.375	.250	.625	.717	.819	.000	.812	.905	.250	.874	.697	.000	.928	.881
Cars	97	0	0	0	0	97	39	236	34	0	2	311	1	2	0	0	0	3	1	13	86	628	0	728	1253	1	622	92	0	1968	3107
% Cars	95.1	0	0	0	0	95.1	100	94.0	97.1	0	100	95.1	100	100	0	0	0	100	100	86.7	100	99.8	0	99.6	99.8	100	97.8	100	0	99.1	98.7
Heavy Vehicles	5	0	0	0	0	5	0	15	1	0	0	16	0	0	0	0	0	0	0	2	0	1	0	3	3	0	14	0	0	17	41
% Heavy Vehicles	4.9	0	0	0	0	4.9	0	6.0	2.9	0	0	4.9	0	0	0	0	0	0	0	13.3	0	0.2	0	0.4	0.2	0	2.2	0	0	0.9	1.3



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 K
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	66	419	0	0	24	0	0	0	10	332	0	0	13	0	0	0	864
07:45 AM	65	364	0	0	19	0	0	0	21	375	0	0	9	0	0	0	853
Total	131	783	0	0	43	0	0	0	31	707	0	0	22	0	0	0	1717
08:00 AM	62	348	0	0	22	0	0	0	37	328	0	0	9	0	0	0	806
08:15 AM	48	395	0	0	26	0	0	0	26	281	0	0	10	0	0	0	786
08:30 AM	45	340	0	0	12	0	0	0	22	331	0	0	15	0	0	0	765
08:45 AM	75	396	0	0	27	0	0	0	47	276	0	0	7	0	0	0	828
Total	230	1479	0	0	87	0	0	0	132	1216	0	0	41	0	0	0	3185
09:00 AM	71	387	0	0	25	0	0	0	51	284	0	0	13	0	0	0	831
09:15 AM	64	406	0	0	26	0	0	0	57	286	0	0	15	0	0	0	854
Grand Total	496	3055	0	0	181	0	0	0	271	2493	0	0	91	0	0	0	6587
Apprch %	14	86	0	0	100	0	0	0	9.8	90.2	0	0	100	0	0	0	
Total %	7.5	46.4	0	0	2.7	0	0	0	4.1	37.8	0	0	1.4	0	0	0	
Cars	486	2972	0	0	174	0	0	0	266	2411	0	0	83	0	0	0	6392
% Cars	98	97.3	0	0	96.1	0	0	0	98.2	96.7	0	0	91.2	0	0	0	97
Heavy Vehicles	10	83	0	0	7	0	0	0	5	82	0	0	8	0	0	0	195
% Heavy Vehicles	2	2.7	0	0	3.9	0	0	0	1.8	3.3	0	0	8.8	0	0	0	3

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	66	419	0	0	485	24	0	0	0	24	10	332	0	0	342	13	0	0	0	13	864
07:45 AM	65	364	0	0	429	19	0	0	0	19	21	375	0	0	396	9	0	0	0	9	853
08:00 AM	62	348	0	0	410	22	0	0	0	22	37	328	0	0	365	9	0	0	0	9	806
08:15 AM	48	395	0	0	443	26	0	0	0	26	26	281	0	0	307	10	0	0	0	10	786
Total Volume	241	1526	0	0	1767	91	0	0	0	91	94	1316	0	0	1410	41	0	0	0	41	3309
% App. Total	13.6	86.4	0	0		100	0	0	0		6.7	93.3	0	0		100	0	0	0		
PHF	.913	.911	.000	.000	.911	.875	.000	.000	.000	.875	.635	.877	.000	.000	.890	.788	.000	.000	.000	.788	.957
Cars	238	1486	0	0	1724	88	0	0	0	88	92	1285	0	0	1377	34	0	0	0	34	3223
% Cars	98.8	97.4	0	0	97.6	96.7	0	0	0	96.7	97.9	97.6	0	0	97.7	82.9	0	0	0	82.9	97.4
Heavy Vehicles	3	40	0	0	43	3	0	0	0	3	2	31	0	0	33	7	0	0	0	7	86
% Heavy Vehicles	1.2	2.6	0	0	2.4	3.3	0	0	0	3.3	2.1	2.4	0	0	2.3	17.1	0	0	0	17.1	2.6

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 K
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	65	408	0	0	24	0	0	0	9	320	0	0	9	0	0	0	835
07:45 AM	64	356	0	0	19	0	0	0	21	366	0	0	7	0	0	0	833
Total	129	764	0	0	43	0	0	0	30	686	0	0	16	0	0	0	1668
08:00 AM	61	341	0	0	20	0	0	0	36	323	0	0	9	0	0	0	790
08:15 AM	48	381	0	0	25	0	0	0	26	276	0	0	9	0	0	0	765
08:30 AM	43	331	0	0	11	0	0	0	21	318	0	0	15	0	0	0	739
08:45 AM	73	381	0	0	27	0	0	0	46	270	0	0	7	0	0	0	804
Total	225	1434	0	0	83	0	0	0	129	1187	0	0	40	0	0	0	3098
09:00 AM	70	377	0	0	23	0	0	0	51	269	0	0	12	0	0	0	802
09:15 AM	62	397	0	0	25	0	0	0	56	269	0	0	15	0	0	0	824
Grand Total	486	2972	0	0	174	0	0	0	266	2411	0	0	83	0	0	0	6392
Apprch %	14.1	85.9	0	0	100	0	0	0	9.9	90.1	0	0	100	0	0	0	
Total %	7.6	46.5	0	0	2.7	0	0	0	4.2	37.7	0	0	1.3	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	65	408	0	0	473	24	0	0	0	24	9	320	0	0	329	9	0	0	0	9	835
07:45 AM	64	356	0	0	420	19	0	0	0	19	21	366	0	0	387	7	0	0	0	7	833
08:00 AM	61	341	0	0	402	20	0	0	0	20	36	323	0	0	359	9	0	0	0	9	790
08:15 AM	48	381	0	0	429	25	0	0	0	25	26	276	0	0	302	9	0	0	0	9	765
Total Volume	238	1486	0	0	1724	88	0	0	0	88	92	1285	0	0	1377	34	0	0	0	34	3223
% App. Total	13.8	86.2	0	0		100	0	0	0		6.7	93.3	0	0		100	0	0	0		
PHF	.915	.911	.000	.000	.911	.880	.000	.000	.000	.880	.639	.878	.000	.000	.890	.944	.000	.000	.000	.944	.965

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 K
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	1	11	0	0	0	0	0	0	1	12	0	0	4	0	0	0	29
07:45 AM	1	8	0	0	0	0	0	0	0	9	0	0	2	0	0	0	20
Total	2	19	0	0	0	0	0	0	1	21	0	0	6	0	0	0	49
08:00 AM	1	7	0	0	2	0	0	0	1	5	0	0	0	0	0	0	16
08:15 AM	0	14	0	0	1	0	0	0	0	5	0	0	1	0	0	0	21
08:30 AM	2	9	0	0	1	0	0	0	1	13	0	0	0	0	0	0	26
08:45 AM	2	15	0	0	0	0	0	0	1	6	0	0	0	0	0	0	24
Total	5	45	0	0	4	0	0	0	3	29	0	0	1	0	0	0	87
09:00 AM	1	10	0	0	2	0	0	0	0	15	0	0	1	0	0	0	29
09:15 AM	2	9	0	0	1	0	0	0	1	17	0	0	0	0	0	0	30
Grand Total	10	83	0	0	7	0	0	0	5	82	0	0	8	0	0	0	195
Apprch %	10.8	89.2	0	0	100	0	0	0	5.7	94.3	0	0	100	0	0	0	
Total %	5.1	42.6	0	0	3.6	0	0	0	2.6	42.1	0	0	4.1	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	2	9	0	0	11	1	0	0	0	1	1	13	0	0	14	0	0	0	0	0	26
08:45 AM	2	15	0	0	17	0	0	0	0	0	1	6	0	0	7	0	0	0	0	0	24
09:00 AM	1	10	0	0	11	2	0	0	0	2	0	15	0	0	15	1	0	0	0	1	29
09:15 AM	2	9	0	0	11	1	0	0	0	1	1	17	0	0	18	0	0	0	0	0	30
Total Volume	7	43	0	0	50	4	0	0	0	4	3	51	0	0	54	1	0	0	0	1	109
% App. Total	14	86	0	0		100	0	0	0		5.6	94.4	0	0		100	0	0	0		
PHF	.875	.717	.000	.000	.735	.500	.000	.000	.000	.500	.750	.750	.000	.000	.750	.250	.000	.000	.000	.250	.908

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 K
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	4	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	6	14
07:45 AM	0	2	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	4	11
Total	0	6	0	0	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	10	25
08:00 AM	0	0	0	1	0	0	0	0	4	0	0	0	0	0	0	0	0	0	1	6	12
08:15 AM	0	2	0	1	0	0	0	0	12	2	0	0	0	0	0	0	0	0	1	7	25
08:30 AM	1	2	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	2	3	11
08:45 AM	0	3	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	3	9
Total	1	7	0	3	0	0	0	0	18	4	0	0	0	0	0	0	0	0	5	19	57
09:00 AM	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	1	6	10
09:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Grand Total	1	13	0	3	0	0	0	0	25	11	0	0	0	0	0	0	0	0	6	35	94
Apprch %	5.9	76.5	0	17.6	0	0	0	0	69.4	30.6	0	0	0	0	0	0	0	0	14.6	85.4	
Total %	1.1	13.8	0	3.2	0	0	0	0	26.6	11.7	0	0	0	0	0	0	0	0	6.4	37.2	

	Alewife Brook Parkway (Route 3/16) From North						Fresh Pond Mall From East						Alewife Brook Parkway (Route 3/16) From South						Terminal Road From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	4	0	0	0	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	6	6	14
07:45 AM	0	2	0	0	0	2	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	4	4	11
08:00 AM	0	0	0	1	0	1	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	1	6	7	12
08:15 AM	0	2	0	1	0	3	0	0	0	12	2	14	0	0	0	0	0	0	0	0	0	1	7	8	25
Total Volume	0	8	0	2	0	10	0	0	0	19	8	27	0	0	0	0	0	0	0	0	0	2	23	25	62
% App. Total	0	80	0	20	0		0	0	0	70.4	29.6		0	0	0	0	0		0	0	0	8	92		
PHF	.000	.500	.000	.500	.000	.625	.000	.000	.000	.396	.500	.482	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.821	.781	.620

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 K
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	13	2	0	0	0	0	4	0	0	0	0	0	0	0	0	2	9	30
07:45 AM	0	0	0	9	6	0	0	0	0	2	0	0	0	0	0	0	0	0	13	11	41
Total	0	0	0	22	8	0	0	0	0	6	0	0	0	0	0	0	0	0	15	20	71
08:00 AM	0	0	0	10	5	0	0	0	4	0	0	0	0	0	0	0	0	0	18	8	45
08:15 AM	0	0	0	11	11	0	0	0	8	8	0	0	0	0	0	0	0	0	15	14	67
08:30 AM	0	0	0	9	7	0	0	0	7	9	0	0	0	0	0	0	0	0	7	10	49
08:45 AM	0	0	0	11	8	0	0	0	0	3	0	0	0	0	0	0	0	0	6	5	33
Total	0	0	0	41	31	0	0	0	19	20	0	0	0	0	0	0	0	0	46	37	194
09:00 AM	0	0	0	15	11	0	0	0	1	5	0	0	0	0	0	0	0	0	12	6	50
09:15 AM	0	0	0	5	10	0	0	0	3	3	0	0	0	0	0	0	0	0	5	7	33
Grand Total	0	0	0	83	60	0	0	0	23	34	0	0	0	0	0	0	0	0	78	70	348
Apprch %	0	0	0	58	42	0	0	0	40.4	59.6	0	0	0	0	0	0	0	0	52.7	47.3	
Total %	0	0	0	23.9	17.2	0	0	0	6.6	9.8	0	0	0	0	0	0	0	0	22.4	20.1	

	Alewife Brook Parkway (Route 3/16) From North						Fresh Pond Mall From East						Alewife Brook Parkway (Route 3/16) From South						Terminal Road From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	9	6	15	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	13	11	24	41
08:00 AM	0	0	0	10	5	15	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	18	8	26	45
08:15 AM	0	0	0	11	11	22	0	0	0	8	8	16	0	0	0	0	0	0	0	0	0	15	14	29	67
08:30 AM	0	0	0	9	7	16	0	0	0	7	9	16	0	0	0	0	0	0	0	0	0	7	10	17	49
Total Volume	0	0	0	39	29	68	0	0	0	19	19	38	0	0	0	0	0	0	0	0	0	53	43	96	202
% App. Total	0	0	0	57.4	42.6		0	0	0	50	50		0	0	0	0	0		0	0	0	55.2	44.8		
PHF	.000	.000	.000	.886	.659	.773	.000	.000	.000	.594	.528	.594	.000	.000	.000	.000	.000	.000	.000	.000	.000	.736	.768	.828	.754

PRECISION
D A T A
INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway (Route 3/16)
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File Name : 165280 K
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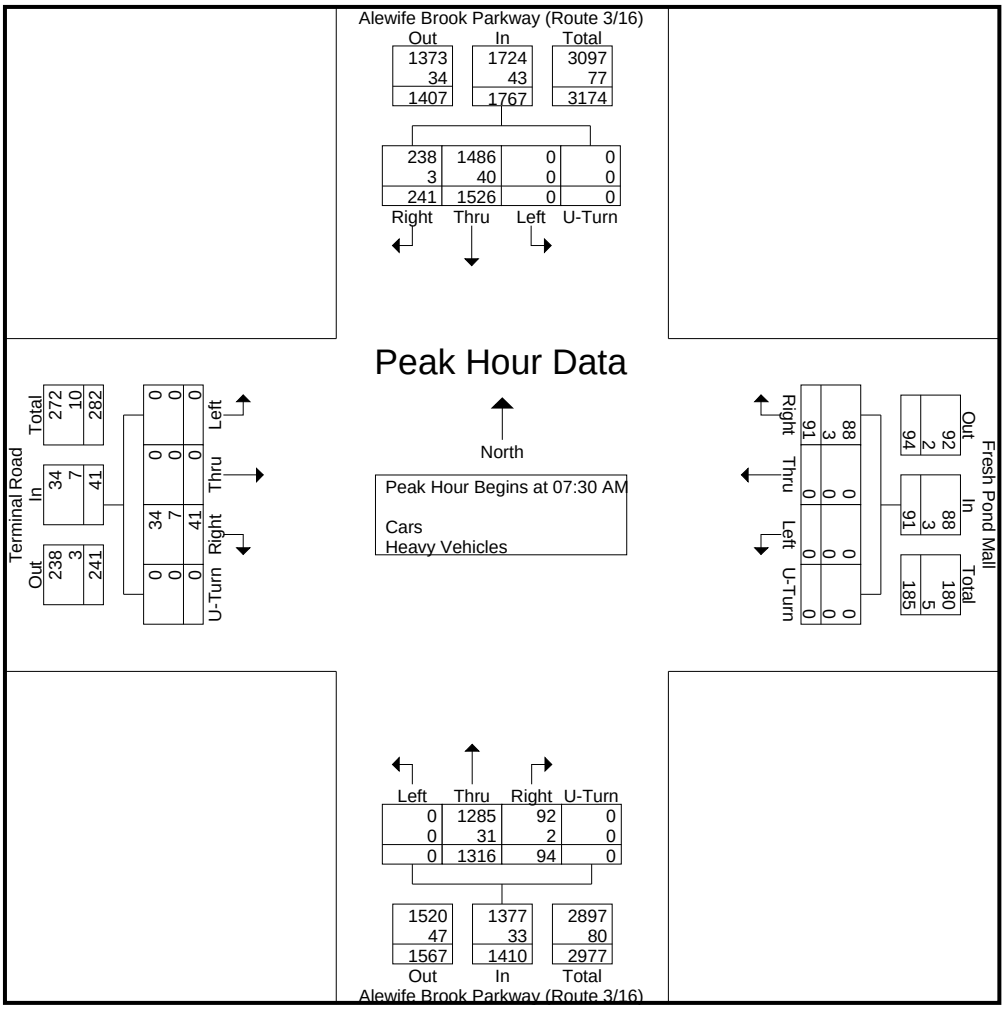
	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	66	419	0	0	485	24	0	0	0	24	10	332	0	0	342	13	0	0	0	13	864
07:45 AM	65	364	0	0	429	19	0	0	0	19	21	375	0	0	396	9	0	0	0	9	853
08:00 AM	62	348	0	0	410	22	0	0	0	22	37	328	0	0	365	9	0	0	0	9	806
08:15 AM	48	395	0	0	443	26	0	0	0	26	26	281	0	0	307	10	0	0	0	10	786
Total Volume	241	1526	0	0	1767	91	0	0	0	91	94	1316	0	0	1410	41	0	0	0	41	3309
% App. Total	13.6	86.4	0	0		100	0	0	0		6.7	93.3	0	0		100	0	0	0		
PHF	.913	.911	.000	.000	.911	.875	.000	.000	.000	.875	.635	.877	.000	.000	.890	.788	.000	.000	.000	.788	.957
Cars	238	1486	0	0	1724	88	0	0	0	88	92	1285	0	0	1377	34	0	0	0	34	3223
% Cars	98.8	97.4	0	0	97.6	96.7	0	0	0	96.7	97.9	97.6	0	0	97.7	82.9	0	0	0	82.9	97.4
Heavy Vehicles	3	40	0	0	43	3	0	0	0	3	2	31	0	0	33	7	0	0	0	7	86
% Heavy Vehicles	1.2	2.6	0	0	2.4	3.3	0	0	0	3.3	2.1	2.4	0	0	2.3	17.1	0	0	0	17.1	2.6



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	66	409	0	0	85	0	0	0	32	216	0	0	30	0	0	0	838
04:45 PM	65	370	0	0	65	0	0	0	32	213	0	0	26	0	0	0	771
Total	131	779	0	0	150	0	0	0	64	429	0	0	56	0	0	0	1609
05:00 PM	71	421	0	0	54	0	0	0	36	289	0	0	24	0	0	0	895
05:15 PM	61	376	0	0	60	0	0	0	17	165	0	0	51	0	0	0	730
05:30 PM	51	388	0	0	106	0	0	0	24	197	0	0	24	0	0	0	790
05:45 PM	59	392	0	0	56	0	0	0	33	238	0	0	33	0	0	0	811
Total	242	1577	0	0	276	0	0	0	110	889	0	0	132	0	0	0	3226
06:00 PM	76	377	0	0	90	0	0	0	23	180	0	0	30	0	0	0	776
06:15 PM	60	396	0	0	61	0	0	0	29	237	0	0	26	0	0	0	809
Grand Total	509	3129	0	0	577	0	0	0	226	1735	0	0	244	0	0	0	6420
Apprch %	14	86	0	0	100	0	0	0	11.5	88.5	0	0	100	0	0	0	
Total %	7.9	48.7	0	0	9	0	0	0	3.5	27	0	0	3.8	0	0	0	
Cars	508	3103	0	0	575	0	0	0	225	1712	0	0	243	0	0	0	6366
% Cars	99.8	99.2	0	0	99.7	0	0	0	99.6	98.7	0	0	99.6	0	0	0	99.2
Heavy Vehicles	1	26	0	0	2	0	0	0	1	23	0	0	1	0	0	0	54
% Heavy Vehicles	0.2	0.8	0	0	0.3	0	0	0	0.4	1.3	0	0	0.4	0	0	0	0.8

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	66	409	0	0	475	85	0	0	0	85	32	216	0	0	248	30	0	0	0	30	838
04:45 PM	65	370	0	0	435	65	0	0	0	65	32	213	0	0	245	26	0	0	0	26	771
05:00 PM	71	421	0	0	492	54	0	0	0	54	36	289	0	0	325	24	0	0	0	24	895
05:15 PM	61	376	0	0	437	60	0	0	0	60	17	165	0	0	182	51	0	0	0	51	730
Total Volume	263	1576	0	0	1839	264	0	0	0	264	117	883	0	0	1000	131	0	0	0	131	3234
% App. Total	14.3	85.7	0	0		100	0	0	0		11.7	88.3	0	0		100	0	0	0		
PHF	.926	.936	.000	.000	.934	.776	.000	.000	.000	.776	.813	.764	.000	.000	.769	.642	.000	.000	.000	.642	.903
Cars	263	1564	0	0	1827	262	0	0	0	262	116	870	0	0	986	131	0	0	0	131	3206
% Cars	100	99.2	0	0	99.3	99.2	0	0	0	99.2	99.1	98.5	0	0	98.6	100	0	0	0	100	99.1
Heavy Vehicles	0	12	0	0	12	2	0	0	0	2	1	13	0	0	14	0	0	0	0	0	28
% Heavy Vehicles	0	0.8	0	0	0.7	0.8	0	0	0	0.8	0.9	1.5	0	0	1.4	0	0	0	0	0	0.9

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	66	404	0	0	85	0	0	0	32	213	0	0	30	0	0	0	830
04:45 PM	65	369	0	0	64	0	0	0	32	208	0	0	26	0	0	0	764
Total	131	773	0	0	149	0	0	0	64	421	0	0	56	0	0	0	1594
05:00 PM	71	416	0	0	53	0	0	0	36	285	0	0	24	0	0	0	885
05:15 PM	61	375	0	0	60	0	0	0	16	164	0	0	51	0	0	0	727
05:30 PM	50	383	0	0	106	0	0	0	24	194	0	0	24	0	0	0	781
05:45 PM	59	388	0	0	56	0	0	0	33	235	0	0	33	0	0	0	804
Total	241	1562	0	0	275	0	0	0	109	878	0	0	132	0	0	0	3197
06:00 PM	76	374	0	0	90	0	0	0	23	177	0	0	30	0	0	0	770
06:15 PM	60	394	0	0	61	0	0	0	29	236	0	0	25	0	0	0	805
Grand Total	508	3103	0	0	575	0	0	0	225	1712	0	0	243	0	0	0	6366
Apprch %	14.1	85.9	0	0	100	0	0	0	11.6	88.4	0	0	100	0	0	0	
Total %	8	48.7	0	0	9	0	0	0	3.5	26.9	0	0	3.8	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	66	404	0	0	470	85	0	0	0	85	32	213	0	0	245	30	0	0	0	30	830
04:45 PM	65	369	0	0	434	64	0	0	0	64	32	208	0	0	240	26	0	0	0	26	764
05:00 PM	71	416	0	0	487	53	0	0	0	53	36	285	0	0	321	24	0	0	0	24	885
05:15 PM	61	375	0	0	436	60	0	0	0	60	16	164	0	0	180	51	0	0	0	51	727
Total Volume	263	1564	0	0	1827	262	0	0	0	262	116	870	0	0	986	131	0	0	0	131	3206
% App. Total	14.4	85.6	0	0		100	0	0	0		11.8	88.2	0	0		100	0	0	0		
PHF	.926	.940	.000	.000	.938	.771	.000	.000	.000	.771	.806	.763	.000	.000	.768	.642	.000	.000	.000	.642	.906

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				Fresh Pond Mall From East				Alewife Brook Parkway (Route 3/16) From South				Terminal Road From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
04:45 PM	0	1	0	0	1	0	0	0	0	5	0	0	0	0	0	0	7
Total	0	6	0	0	1	0	0	0	0	8	0	0	0	0	0	0	15
05:00 PM	0	5	0	0	1	0	0	0	0	4	0	0	0	0	0	0	10
05:15 PM	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0	3
05:30 PM	1	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	9
05:45 PM	0	4	0	0	0	0	0	0	0	3	0	0	0	0	0	0	7
Total	1	15	0	0	1	0	0	0	1	11	0	0	0	0	0	0	29
06:00 PM	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	6
06:15 PM	0	2	0	0	0	0	0	0	0	1	0	0	1	0	0	0	4
Grand Total	1	26	0	0	2	0	0	0	1	23	0	0	1	0	0	0	54
Apprch %	3.7	96.3	0	0	100	0	0	0	4.2	95.8	0	0	100	0	0	0	
Total %	1.9	48.1	0	0	3.7	0	0	0	1.9	42.6	0	0	1.9	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	7
05:00 PM	0	5	0	0	5	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	10
05:15 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
05:30 PM	1	5	0	0	6	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	9
Total Volume	1	12	0	0	13	2	0	0	0	2	1	13	0	0	14	0	0	0	0	0	29
% App. Total	7.7	92.3	0	0		100	0	0	0		7.1	92.9	0	0		0	0	0	0		
PHF	.250	.600	.000	.000	.542	.500	.000	.000	.000	.500	.250	.650	.000	.000	.700	.000	.000	.000	.000	.000	.725

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	1	0	0	0	0	5	0	3	0	0	0	0	0	0	4	3	16
04:45 PM	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	7	1	11
Total	0	0	0	2	1	0	0	0	1	5	0	3	0	0	0	0	0	0	11	4	27
05:00 PM	0	0	0	0	0	0	0	0	1	2	0	1	0	0	0	0	0	0	4	1	9
05:15 PM	0	0	0	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0	4	0	9
05:30 PM	1	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	3	6	13
05:45 PM	1	1	0	0	5	0	0	0	1	4	0	0	0	0	0	0	2	0	17	1	32
Total	2	2	0	0	8	0	0	0	3	9	0	1	0	0	0	0	2	0	28	8	63
06:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	8	3	12
06:15 PM	1	0	0	0	2	0	0	0	4	6	0	0	0	0	0	0	2	0	8	3	26
Grand Total	3	2	0	2	11	0	0	0	9	20	0	4	0	0	0	0	4	0	55	18	128
Apprch %	16.7	11.1	0	11.1	61.1	0	0	0	31	69	0	100	0	0	0	0	5.2	0	71.4	23.4	
Total %	2.3	1.6	0	1.6	8.6	0	0	0	7	15.6	0	3.1	0	0	0	0	3.1	0	43	14.1	

	Alewife Brook Parkway (Route 3/16) From North						Fresh Pond Mall From East						Alewife Brook Parkway (Route 3/16) From South						Terminal Road From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	1	1	0	0	1	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	3	6	9	13
05:45 PM	1	1	0	0	5	7	0	0	0	1	4	5	0	0	0	0	0	0	0	2	0	17	1	20	32
06:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	8	3	11	12
06:15 PM	1	0	0	0	2	3	0	0	0	4	6	10	0	0	0	0	0	0	0	2	0	8	3	13	26
Total Volume	3	2	0	0	8	13	0	0	0	6	11	17	0	0	0	0	0	0	0	4	0	36	13	53	83
% App. Total	23.1	15.4	0	0	61.5		0	0	0	35.3	64.7		0	0	0	0	0		0	7.5	0	67.9	24.5		
PHF	.750	.500	.000	.000	.400	.464	.000	.000	.000	.375	.458	.425	.000	.000	.000	.000	.000	.000	.000	.500	.000	.529	.542	.663	.648

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: Fresh Pond Mall/ Terminal Road
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	8	18	0	0	0	7	10	0	0	0	0	0	0	0	0	19	15	77
04:45 PM	0	0	0	18	17	0	0	0	8	5	0	0	0	0	0	0	0	0	20	14	82
Total	0	0	0	26	35	0	0	0	15	15	0	0	0	0	0	0	0	0	39	29	159
05:00 PM	0	0	0	10	13	0	0	0	0	8	0	0	0	0	0	0	0	0	27	11	69
05:15 PM	0	0	0	11	19	0	0	0	5	8	0	0	0	0	0	0	0	0	22	9	74
05:30 PM	0	0	0	15	14	0	0	0	5	9	0	0	0	0	0	0	0	0	18	16	77
05:45 PM	0	0	0	14	20	0	0	0	1	8	0	0	0	0	0	0	0	0	22	30	95
Total	0	0	0	50	66	0	0	0	11	33	0	0	0	0	0	0	0	0	89	66	315
06:00 PM	0	0	0	16	17	0	0	0	9	9	0	0	0	0	0	0	0	0	17	23	91
06:15 PM	0	0	0	10	15	0	0	0	0	1	0	0	0	0	0	0	0	0	16	22	64
Grand Total	0	0	0	102	133	0	0	0	35	58	0	0	0	0	0	0	0	0	161	140	629
Apprch %	0	0	0	43.4	56.6	0	0	0	37.6	62.4	0	0	0	0	0	0	0	0	53.5	46.5	
Total %	0	0	0	16.2	21.1	0	0	0	5.6	9.2	0	0	0	0	0	0	0	0	25.6	22.3	

	Alewife Brook Parkway (Route 3/16) From North						Fresh Pond Mall From East						Alewife Brook Parkway (Route 3/16) From South						Terminal Road From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	11	19	30	0	0	0	5	8	13	0	0	0	0	0	0	0	0	0	22	9	31	74
05:30 PM	0	0	0	15	14	29	0	0	0	5	9	14	0	0	0	0	0	0	0	0	0	18	16	34	77
05:45 PM	0	0	0	14	20	34	0	0	0	1	8	9	0	0	0	0	0	0	0	0	0	22	30	52	95
06:00 PM	0	0	0	16	17	33	0	0	0	9	9	18	0	0	0	0	0	0	0	0	0	17	23	40	91
Total Volume	0	0	0	56	70	126	0	0	0	20	34	54	0	0	0	0	0	0	0	0	0	79	78	157	337
% App. Total	0	0	0	44.4	55.6		0	0	0	37	63		0	0	0	0	0		0	0	0	50.3	49.7		
PHF	.000	.000	.000	.875	.875	.926	.000	.000	.000	.556	.944	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.898	.650	.755	.887

PRECISION
D A T A
INDUSTRIES, LLC
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Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway (Route 3/16)
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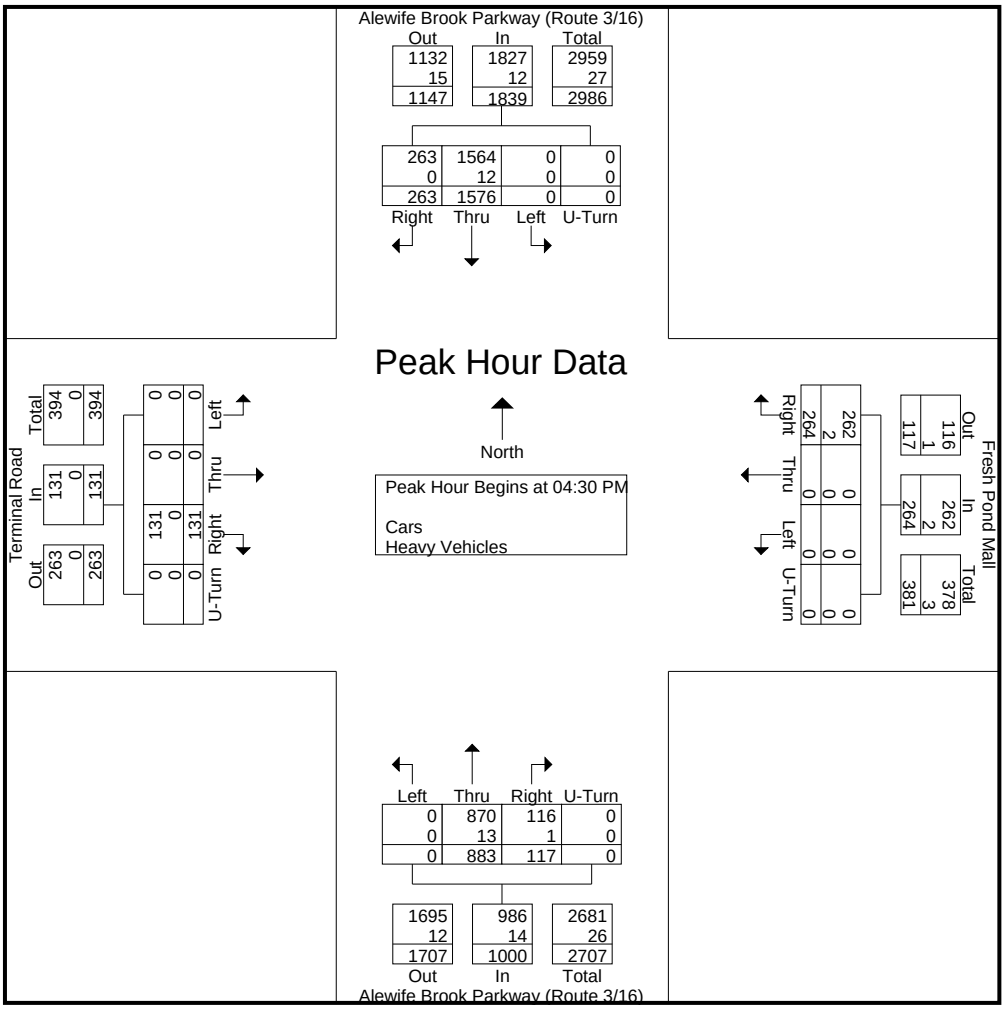
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 KK
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Alewife Brook Parkway (Route 3/16) From North					Fresh Pond Mall From East					Alewife Brook Parkway (Route 3/16) From South					Terminal Road From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	66	409	0	0	475	85	0	0	0	85	32	216	0	0	248	30	0	0	0	30	838
04:45 PM	65	370	0	0	435	65	0	0	0	65	32	213	0	0	245	26	0	0	0	26	771
05:00 PM	71	421	0	0	492	54	0	0	0	54	36	289	0	0	325	24	0	0	0	24	895
05:15 PM	61	376	0	0	437	60	0	0	0	60	17	165	0	0	182	51	0	0	0	51	730
Total Volume	263	1576	0	0	1839	264	0	0	0	264	117	883	0	0	1000	131	0	0	0	131	3234
% App. Total	14.3	85.7	0	0		100	0	0	0		11.7	88.3	0	0		100	0	0	0		
PHF	.926	.936	.000	.000	.934	.776	.000	.000	.000	.776	.813	.764	.000	.000	.769	.642	.000	.000	.000	.642	.903
Cars	263	1564	0	0	1827	262	0	0	0	262	116	870	0	0	986	131	0	0	0	131	3206
% Cars	100	99.2	0	0	99.3	99.2	0	0	0	99.2	99.1	98.5	0	0	98.6	100	0	0	0	100	99.1
Heavy Vehicles	0	12	0	0	12	2	0	0	0	2	1	13	0	0	14	0	0	0	0	0	28
% Heavy Vehicles	0	0.8	0	0	0.7	0.8	0	0	0	0.8	0.9	1.5	0	0	1.4	0	0	0	0	0	0.9



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	482	0	0	0	0	0	0	0	347	0	0	0	0	0	0	829
07:45 AM	0	427	0	0	0	0	0	0	0	385	0	0	0	0	0	0	812
Total	0	909	0	0	0	0	0	0	0	732	0	0	0	0	0	0	1641
08:00 AM	0	442	0	0	0	0	0	0	0	363	0	0	0	0	0	0	805
08:15 AM	0	433	0	0	0	0	0	0	0	291	0	0	0	0	0	0	724
08:30 AM	0	393	0	0	0	0	0	0	0	325	0	0	0	0	0	0	718
08:45 AM	0	473	0	0	0	0	0	0	0	312	0	0	0	0	0	0	785
Total	0	1741	0	0	0	0	0	0	0	1291	0	0	0	0	0	0	3032
09:00 AM	0	455	0	0	0	0	0	0	0	327	0	0	0	0	0	0	782
09:15 AM	0	498	0	0	0	0	0	0	0	319	0	0	0	0	0	0	817
Grand Total	0	3603	0	0	0	0	0	0	0	2669	0	0	0	0	0	0	6272
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	57.4	0	0	0	0	0	0	0	42.6	0	0	0	0	0	0	
Cars	0	3514	0	0	0	0	0	0	0	2565	0	0	0	0	0	0	6079
% Cars	0	97.5	0	0	0	0	0	0	0	96.1	0	0	0	0	0	0	96.9
Heavy Vehicles	0	89	0	0	0	0	0	0	0	104	0	0	0	0	0	0	193
% Heavy Vehicles	0	2.5	0	0	0	0	0	0	0	3.9	0	0	0	0	0	0	3.1

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	482	0	0	482	0	0	0	0	0	0	347	0	0	347	0	0	0	0	0	829
07:45 AM	0	427	0	0	427	0	0	0	0	0	0	385	0	0	385	0	0	0	0	0	812
08:00 AM	0	442	0	0	442	0	0	0	0	0	0	363	0	0	363	0	0	0	0	0	805
08:15 AM	0	433	0	0	433	0	0	0	0	0	0	291	0	0	291	0	0	0	0	0	724
Total Volume	0	1784	0	0	1784	0	0	0	0	0	0	1386	0	0	1386	0	0	0	0	0	3170
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.925	.000	.000	.925	.000	.000	.000	.000	.000	.000	.900	.000	.000	.900	.000	.000	.000	.000	.000	.956
Cars	0	1742	0	0	1742	0	0	0	0	0	0	1343	0	0	1343	0	0	0	0	0	3085
% Cars	0	97.6	0	0	97.6	0	0	0	0	0	0	96.9	0	0	96.9	0	0	0	0	0	97.3
Heavy Vehicles	0	42	0	0	42	0	0	0	0	0	0	43	0	0	43	0	0	0	0	0	85
% Heavy Vehicles	0	2.4	0	0	2.4	0	0	0	0	0	0	3.1	0	0	3.1	0	0	0	0	0	2.7

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	473	0	0	0	0	0	0	0	333	0	0	0	0	0	0	806
07:45 AM	0	417	0	0	0	0	0	0	0	375	0	0	0	0	0	0	792
Total	0	890	0	0	0	0	0	0	0	708	0	0	0	0	0	0	1598
08:00 AM	0	432	0	0	0	0	0	0	0	354	0	0	0	0	0	0	786
08:15 AM	0	420	0	0	0	0	0	0	0	281	0	0	0	0	0	0	701
08:30 AM	0	382	0	0	0	0	0	0	0	309	0	0	0	0	0	0	691
08:45 AM	0	458	0	0	0	0	0	0	0	307	0	0	0	0	0	0	765
Total	0	1692	0	0	0	0	0	0	0	1251	0	0	0	0	0	0	2943
09:00 AM	0	445	0	0	0	0	0	0	0	309	0	0	0	0	0	0	754
09:15 AM	0	487	0	0	0	0	0	0	0	297	0	0	0	0	0	0	784
Grand Total	0	3514	0	0	0	0	0	0	0	2565	0	0	0	0	0	0	6079
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	57.8	0	0	0	0	0	0	0	42.2	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	473	0	0	473	0	0	0	0	0	0	333	0	0	333	0	0	0	0	0	806
07:45 AM	0	417	0	0	417	0	0	0	0	0	0	375	0	0	375	0	0	0	0	0	792
08:00 AM	0	432	0	0	432	0	0	0	0	0	0	354	0	0	354	0	0	0	0	0	786
08:15 AM	0	420	0	0	420	0	0	0	0	0	0	281	0	0	281	0	0	0	0	0	701
Total Volume	0	1742	0	0	1742	0	0	0	0	0	0	1343	0	0	1343	0	0	0	0	0	3085
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.921	.000	.000	.921	.000	.000	.000	.000	.000	.000	.895	.000	.000	.895	.000	.000	.000	.000	.000	.957

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	9	0	0	0	0	0	0	0	14	0	0	0	0	0	0	23
07:45 AM	0	10	0	0	0	0	0	0	0	10	0	0	0	0	0	0	20
Total	0	19	0	0	0	0	0	0	0	24	0	0	0	0	0	0	43
08:00 AM	0	10	0	0	0	0	0	0	0	9	0	0	0	0	0	0	19
08:15 AM	0	13	0	0	0	0	0	0	0	10	0	0	0	0	0	0	23
08:30 AM	0	11	0	0	0	0	0	0	0	16	0	0	0	0	0	0	27
08:45 AM	0	15	0	0	0	0	0	0	0	5	0	0	0	0	0	0	20
Total	0	49	0	0	0	0	0	0	0	40	0	0	0	0	0	0	89
09:00 AM	0	10	0	0	0	0	0	0	0	18	0	0	0	0	0	0	28
09:15 AM	0	11	0	0	0	0	0	0	0	22	0	0	0	0	0	0	33
Grand Total	0	89	0	0	0	0	0	0	0	104	0	0	0	0	0	0	193
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	46.1	0	0	0	0	0	0	0	53.9	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	11	0	0	11	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	27
08:45 AM	0	15	0	0	15	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	20
09:00 AM	0	10	0	0	10	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	28
09:15 AM	0	11	0	0	11	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	33
Total Volume	0	47	0	0	47	0	0	0	0	0	0	61	0	0	61	0	0	0	0	0	108
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.783	.000	.000	.783	.000	.000	.000	.000	.000	.000	.693	.000	.000	.693	.000	.000	.000	.000	.000	.818

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	1	0	0	0	0	0	0	1	8	0	0	0	0	0	0	0	0	0	9	19
07:45 AM	0	2	0	0	0	0	0	0	3	5	0	1	0	0	0	0	0	0	3	12	26
Total	0	3	0	0	0	0	0	0	4	13	0	1	0	0	0	0	0	0	3	21	45
08:00 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	10	14
08:15 AM	0	1	0	0	0	0	0	0	13	2	0	0	0	0	0	0	0	0	3	6	25
08:30 AM	0	11	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	1	11	29
08:45 AM	0	9	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	8	20
Total	0	21	0	0	0	0	0	0	22	5	0	0	0	0	0	0	0	0	5	35	88
09:00 AM	0	8	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0	0	1	6	21
09:15 AM	0	1	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	1	1	5
Grand Total	0	33	0	0	0	0	0	0	32	20	0	1	0	0	0	0	0	0	10	63	159
Apprch %	0	100	0	0	0	0	0	0	61.5	38.5	0	100	0	0	0	0	0	0	13.7	86.3	
Total %	0	20.8	0	0	0	0	0	0	20.1	12.6	0	0.6	0	0	0	0	0	0	6.3	39.6	

	Alewife Brook Parkway (Route 3/16) From North						East Sidewalk From East						Alewife Brook Parkway (Route 3/16) From South						East Sidewalk From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:15 AM																									
08:15 AM	0	1	0	0	0	1	0	0	0	13	2	15	0	0	0	0	0	0	0	0	0	3	6	9	25
08:30 AM	0	11	0	0	0	11	0	0	0	3	3	6	0	0	0	0	0	0	0	0	0	1	11	12	29
08:45 AM	0	9	0	0	0	9	0	0	0	2	0	2	0	0	0	0	0	0	0	0	0	1	8	9	20
09:00 AM	0	8	0	0	0	8	0	0	0	4	2	6	0	0	0	0	0	0	0	0	0	1	6	7	21
Total Volume	0	29	0	0	0	29	0	0	0	22	7	29	0	0	0	0	0	0	0	0	0	6	31	37	95
% App. Total	0	100	0	0	0		0	0	0	75.9	24.1		0	0	0	0	0		0	0	0	16.2	83.8		
PHF	.000	.659	.000	.000	.000	.659	.000	.000	.000	.423	.583	.483	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.705	.771	.819

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	6	8	0	0	0	0	0	0	0	0	6	8	28
07:45 AM	0	0	0	0	0	0	0	0	7	9	0	0	0	0	0	0	0	0	20	19	55
Total	0	0	0	0	0	0	0	0	13	17	0	0	0	0	0	0	0	0	26	27	83
08:00 AM	0	0	0	0	0	0	0	0	7	4	0	0	0	0	0	0	0	0	18	7	36
08:15 AM	0	0	0	0	0	0	0	0	21	11	0	0	0	0	0	0	0	0	25	40	97
08:30 AM	0	0	0	0	0	0	0	0	7	13	0	0	0	0	0	0	0	0	10	19	49
08:45 AM	0	0	0	0	0	0	0	0	9	11	0	0	0	0	0	0	0	0	9	31	60
Total	0	0	0	0	0	0	0	0	44	39	0	0	0	0	0	0	0	0	62	97	242
09:00 AM	0	0	0	0	0	0	0	0	11	10	0	0	0	0	0	0	0	0	13	23	57
09:15 AM	0	0	0	0	0	0	0	0	13	10	0	0	0	0	0	0	0	0	1	11	35
Grand Total	0	0	0	0	0	0	0	0	81	76	0	0	0	0	0	0	0	0	102	158	417
Apprch %	0	0	0	0	0	0	0	0	51.6	48.4	0	0	0	0	0	0	0	0	39.2	60.8	
Total %	0	0	0	0	0	0	0	0	19.4	18.2	0	0	0	0	0	0	0	0	24.5	37.9	

	Alewife Brook Parkway (Route 3/16) From North						East Sidewalk From East						Alewife Brook Parkway (Route 3/16) From South						East Sidewalk From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:15 AM																									
08:15 AM	0	0	0	0	0	0	0	0	0	21	11	32	0	0	0	0	0	0	0	0	0	25	40	65	97
08:30 AM	0	0	0	0	0	0	0	0	0	7	13	20	0	0	0	0	0	0	0	0	0	10	19	29	49
08:45 AM	0	0	0	0	0	0	0	0	0	9	11	20	0	0	0	0	0	0	0	0	0	9	31	40	60
09:00 AM	0	0	0	0	0	0	0	0	0	11	10	21	0	0	0	0	0	0	0	0	0	13	23	36	57
Total Volume	0	0	0	0	0	0	0	0	0	48	45	93	0	0	0	0	0	0	0	0	0	57	113	170	263
% App. Total	0	0	0	0	0		0	0	0	51.6	48.4		0	0	0	0	0		0	0	0	33.5	66.5		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.571	.865	.727	.000	.000	.000	.000	.000	.000	.000	.000	.000	.570	.706	.654	.678

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Alewife Brook Parkway (Route 3/16)
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City, State: Cambridge, MA
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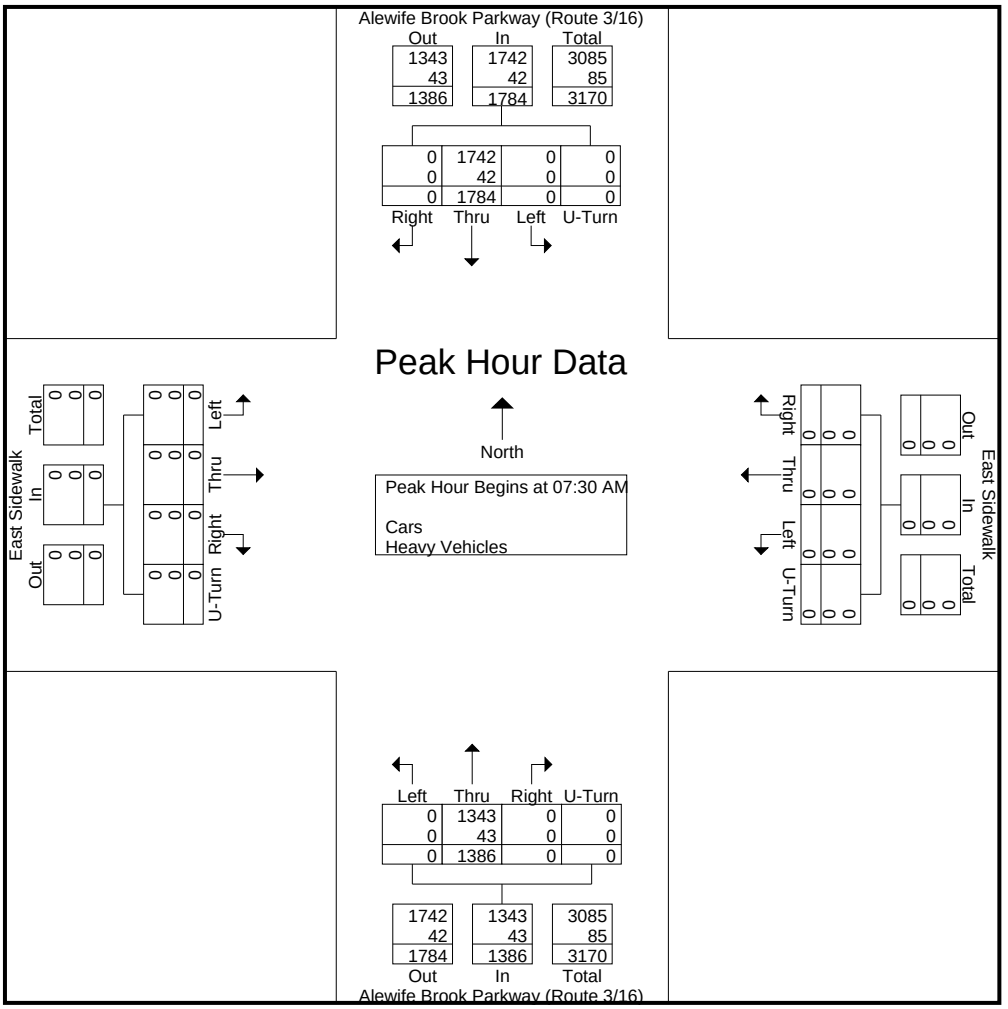
File Name : 165280 L
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	482	0	0	482	0	0	0	0	0	0	347	0	0	347	0	0	0	0	0	829
07:45 AM	0	427	0	0	427	0	0	0	0	0	0	385	0	0	385	0	0	0	0	0	812
08:00 AM	0	442	0	0	442	0	0	0	0	0	0	363	0	0	363	0	0	0	0	0	805
08:15 AM	0	433	0	0	433	0	0	0	0	0	0	291	0	0	291	0	0	0	0	0	724
Total Volume	0	1784	0	0	1784	0	0	0	0	0	0	1386	0	0	1386	0	0	0	0	0	3170
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.925	.000	.000	.925	.000	.000	.000	.000	.000	.000	.900	.000	.000	.900	.000	.000	.000	.000	.000	.956
Cars	0	1742	0	0	1742	0	0	0	0	0	0	1343	0	0	1343	0	0	0	0	0	3085
% Cars	0	97.6	0	0	97.6	0	0	0	0	0	0	96.9	0	0	96.9	0	0	0	0	0	97.3
Heavy Vehicles	0	42	0	0	42	0	0	0	0	0	0	43	0	0	43	0	0	0	0	0	85
% Heavy Vehicles	0	2.4	0	0	2.4	0	0	0	0	0	0	3.1	0	0	3.1	0	0	0	0	0	2.7



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	500	0	0	0	0	0	0	0	330	0	0	0	0	0	0	830
04:45 PM	0	416	0	0	0	0	0	0	0	282	0	0	0	0	0	0	698
Total	0	916	0	0	0	0	0	0	0	612	0	0	0	0	0	0	1528
05:00 PM	0	487	0	0	0	0	0	0	0	332	0	0	0	0	0	0	819
05:15 PM	0	447	0	0	0	0	0	0	0	246	0	0	0	0	0	0	693
05:30 PM	0	437	0	0	0	0	0	0	0	292	0	0	0	0	0	0	729
05:45 PM	0	480	0	0	0	0	0	0	0	281	0	0	0	0	0	0	761
Total	0	1851	0	0	0	0	0	0	0	1151	0	0	0	0	0	0	3002
06:00 PM	0	442	0	0	0	0	0	0	0	271	0	0	0	0	0	0	713
06:15 PM	0	459	0	0	0	0	0	0	0	276	0	0	0	0	0	0	735
Grand Total	0	3668	0	0	0	0	0	0	0	2310	0	0	0	0	0	0	5978
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	61.4	0	0	0	0	0	0	0	38.6	0	0	0	0	0	0	
Cars	0	3636	0	0	0	0	0	0	0	2287	0	0	0	0	0	0	5923
% Cars	0	99.1	0	0	0	0	0	0	0	99	0	0	0	0	0	0	99.1
Heavy Vehicles	0	32	0	0	0	0	0	0	0	23	0	0	0	0	0	0	55
% Heavy Vehicles	0	0.9	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0.9

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	500	0	0	500	0	0	0	0	0	0	330	0	0	330	0	0	0	0	0	830
04:45 PM	0	416	0	0	416	0	0	0	0	0	0	282	0	0	282	0	0	0	0	0	698
05:00 PM	0	487	0	0	487	0	0	0	0	0	0	332	0	0	332	0	0	0	0	0	819
05:15 PM	0	447	0	0	447	0	0	0	0	0	0	246	0	0	246	0	0	0	0	0	693
Total Volume	0	1850	0	0	1850	0	0	0	0	0	0	1190	0	0	1190	0	0	0	0	0	3040
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.925	.000	.000	.925	.000	.000	.000	.000	.000	.000	.896	.000	.000	.896	.000	.000	.000	.000	.000	.916
Cars	0	1834	0	0	1834	0	0	0	0	0	0	1175	0	0	1175	0	0	0	0	0	3009
% Cars	0	99.1	0	0	99.1	0	0	0	0	0	0	98.7	0	0	98.7	0	0	0	0	0	99.0
Heavy Vehicles	0	16	0	0	16	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	31
% Heavy Vehicles	0	0.9	0	0	0.9	0	0	0	0	0	0	1.3	0	0	1.3	0	0	0	0	0	1.0

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	494	0	0	0	0	0	0	0	327	0	0	0	0	0	0	821
04:45 PM	0	414	0	0	0	0	0	0	0	277	0	0	0	0	0	0	691
Total	0	908	0	0	0	0	0	0	0	604	0	0	0	0	0	0	1512
05:00 PM	0	481	0	0	0	0	0	0	0	327	0	0	0	0	0	0	808
05:15 PM	0	445	0	0	0	0	0	0	0	244	0	0	0	0	0	0	689
05:30 PM	0	431	0	0	0	0	0	0	0	290	0	0	0	0	0	0	721
05:45 PM	0	475	0	0	0	0	0	0	0	280	0	0	0	0	0	0	755
Total	0	1832	0	0	0	0	0	0	0	1141	0	0	0	0	0	0	2973
06:00 PM	0	440	0	0	0	0	0	0	0	268	0	0	0	0	0	0	708
06:15 PM	0	456	0	0	0	0	0	0	0	274	0	0	0	0	0	0	730
Grand Total	0	3636	0	0	0	0	0	0	0	2287	0	0	0	0	0	0	5923
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	61.4	0	0	0	0	0	0	0	38.6	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	494	0	0	494	0	0	0	0	0	0	327	0	0	327	0	0	0	0	0	821
04:45 PM	0	414	0	0	414	0	0	0	0	0	0	277	0	0	277	0	0	0	0	0	691
05:00 PM	0	481	0	0	481	0	0	0	0	0	0	327	0	0	327	0	0	0	0	0	808
05:15 PM	0	445	0	0	445	0	0	0	0	0	0	244	0	0	244	0	0	0	0	0	689
Total Volume	0	1834	0	0	1834	0	0	0	0	0	0	1175	0	0	1175	0	0	0	0	0	3009
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.928	.000	.000	.928	.000	.000	.000	.000	.000	.000	.898	.000	.000	.898	.000	.000	.000	.000	.000	.916

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Alewife Brook Parkway (Route 3/16) From North				East Sidewalk From East				Alewife Brook Parkway (Route 3/16) From South				East Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	6	0	0	0	0	0	0	0	3	0	0	0	0	0	0	9
04:45 PM	0	2	0	0	0	0	0	0	0	5	0	0	0	0	0	0	7
Total	0	8	0	0	0	0	0	0	0	8	0	0	0	0	0	0	16
05:00 PM	0	6	0	0	0	0	0	0	0	5	0	0	0	0	0	0	11
05:15 PM	0	2	0	0	0	0	0	0	0	2	0	0	0	0	0	0	4
05:30 PM	0	6	0	0	0	0	0	0	0	2	0	0	0	0	0	0	8
05:45 PM	0	5	0	0	0	0	0	0	0	1	0	0	0	0	0	0	6
Total	0	19	0	0	0	0	0	0	0	10	0	0	0	0	0	0	29
06:00 PM	0	2	0	0	0	0	0	0	0	3	0	0	0	0	0	0	5
06:15 PM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
Grand Total	0	32	0	0	0	0	0	0	0	23	0	0	0	0	0	0	55
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	58.2	0	0	0	0	0	0	0	41.8	0	0	0	0	0	0	

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	6	0	0	6	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	9
04:45 PM	0	2	0	0	2	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	7
05:00 PM	0	6	0	0	6	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	11
05:15 PM	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4
Total Volume	0	16	0	0	16	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	31
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.667	.000	.000	.667	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.000	.000	.000	.000	.000	.705

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Bicycles

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	5	6	0	3	0	0	0	0	0	0	4	2	20
04:45 PM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	9	0	14
Total	0	0	0	0	0	0	0	0	8	8	0	3	0	0	0	0	0	0	13	2	34
05:00 PM	0	0	0	0	0	0	0	0	2	6	0	1	0	0	0	0	0	0	4	3	16
05:15 PM	0	0	0	0	0	0	0	0	3	8	0	0	0	0	0	0	0	0	5	2	18
05:30 PM	0	1	0	0	0	0	0	0	4	9	0	1	0	0	0	0	0	0	4	5	24
05:45 PM	0	0	0	0	0	0	0	0	3	9	0	1	0	0	0	0	0	0	18	4	35
Total	0	1	0	0	0	0	0	0	12	32	0	3	0	0	0	0	0	0	31	14	93
06:00 PM	0	0	0	0	0	0	0	0	1	6	0	0	0	0	0	0	0	0	10	4	21
06:15 PM	0	0	0	0	0	0	0	0	2	8	0	0	0	0	0	0	0	0	3	4	17
Grand Total	0	1	0	0	0	0	0	0	23	54	0	6	0	0	0	0	0	0	57	24	165
Apprch %	0	100	0	0	0	0	0	0	29.9	70.1	0	100	0	0	0	0	0	0	70.4	29.6	
Total %	0	0.6	0	0	0	0	0	0	13.9	32.7	0	3.6	0	0	0	0	0	0	34.5	14.5	

	Alewife Brook Parkway (Route 3/16) From North						East Sidewalk From East						Alewife Brook Parkway (Route 3/16) From South						East Sidewalk From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	0	0	3	8	11	0	0	0	0	0	0	0	0	0	5	2	7	18
05:30 PM	0	1	0	0	0	1	0	0	0	4	9	13	0	1	0	0	0	1	0	0	0	4	5	9	24
05:45 PM	0	0	0	0	0	0	0	0	0	3	9	12	0	1	0	0	0	1	0	0	0	18	4	22	35
06:00 PM	0	0	0	0	0	0	0	0	0	1	6	7	0	0	0	0	0	0	0	0	0	10	4	14	21
Total Volume	0	1	0	0	0	1	0	0	0	11	32	43	0	2	0	0	0	2	0	0	0	37	15	52	98
% App. Total	0	100	0	0	0		0	0	0	25.6	74.4		0	100	0	0	0		0	0	0	71.2	28.8		
PHF	.000	.250	.000	.000	.000	.250	.000	.000	.000	.688	.889	.827	.000	.500	.000	.000	.000	.500	.000	.000	.000	.514	.750	.591	.700

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	18	15	0	0	0	0	0	0	0	0	14	14	61
04:45 PM	0	0	0	0	0	0	0	0	16	19	0	0	0	0	0	0	0	0	21	18	74
Total	0	0	0	0	0	0	0	0	34	34	0	0	0	0	0	0	0	0	35	32	135
05:00 PM	0	0	0	0	0	0	0	0	9	12	0	0	0	0	0	0	0	0	33	11	65
05:15 PM	0	0	0	0	0	0	0	0	21	13	0	0	0	0	0	0	0	0	31	25	90
05:30 PM	0	0	0	0	0	0	0	0	17	20	0	0	0	0	0	0	0	0	25	22	84
05:45 PM	0	0	0	0	0	0	0	0	19	16	0	0	0	0	0	0	0	0	25	37	97
Total	0	0	0	0	0	0	0	0	66	61	0	0	0	0	0	0	0	0	114	95	336
06:00 PM	0	0	0	0	0	0	0	0	27	18	0	0	0	0	0	0	0	0	32	24	101
06:15 PM	0	0	0	0	0	0	0	0	13	16	0	0	0	0	0	0	0	0	12	27	68
Grand Total	0	0	0	0	0	0	0	0	140	129	0	0	0	0	0	0	0	0	193	178	640
Apprch %	0	0	0	0	0	0	0	0	52	48	0	0	0	0	0	0	0	0	52	48	
Total %	0	0	0	0	0	0	0	0	21.9	20.2	0	0	0	0	0	0	0	0	30.2	27.8	

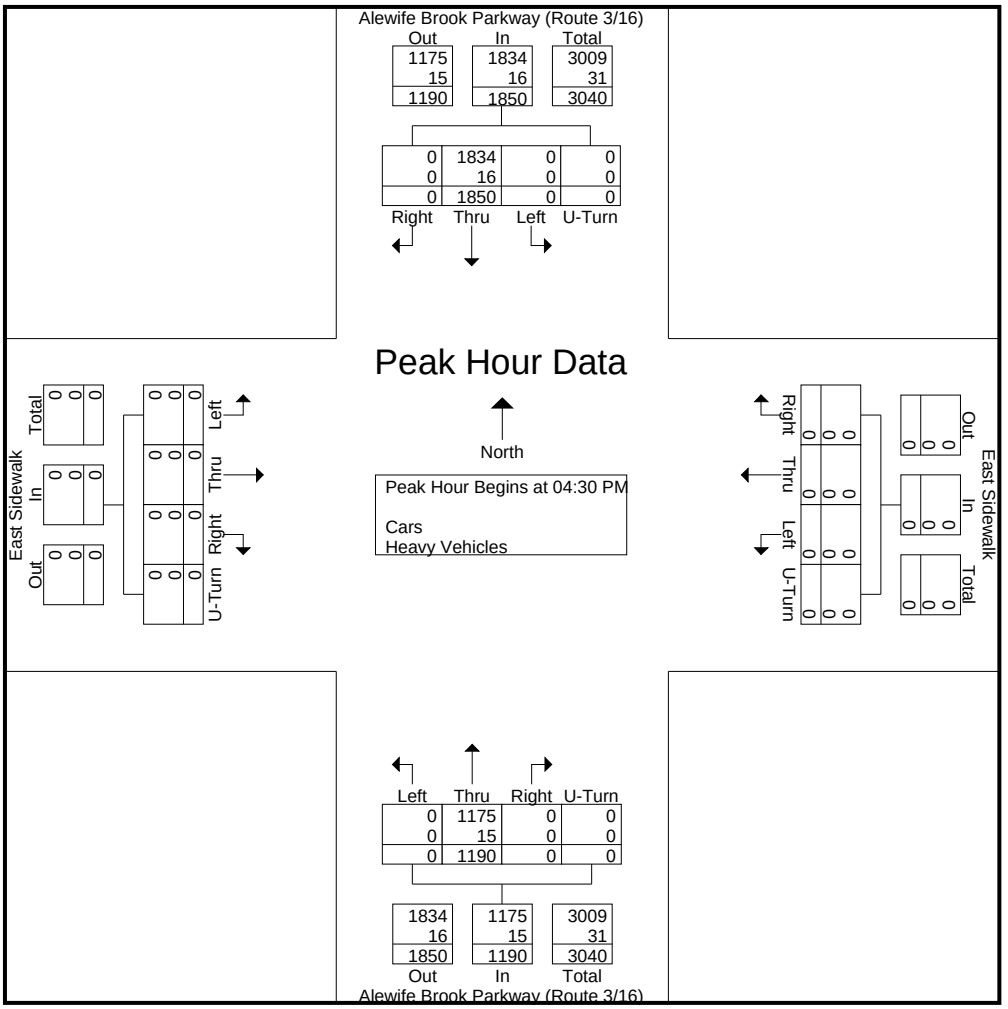
	Alewife Brook Parkway (Route 3/16) From North						East Sidewalk From East						Alewife Brook Parkway (Route 3/16) From South						East Sidewalk From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	0	0	0	21	13	34	0	0	0	0	0	0	0	0	0	31	25	56	90
05:30 PM	0	0	0	0	0	0	0	0	0	17	20	37	0	0	0	0	0	0	0	0	0	25	22	47	84
05:45 PM	0	0	0	0	0	0	0	0	0	19	16	35	0	0	0	0	0	0	0	0	0	25	37	62	97
06:00 PM	0	0	0	0	0	0	0	0	0	27	18	45	0	0	0	0	0	0	0	0	0	32	24	56	101
Total Volume	0	0	0	0	0	0	0	0	0	84	67	151	0	0	0	0	0	0	0	0	0	113	108	221	372
% App. Total	0	0	0	0	0		0	0	0	55.6	44.4		0	0	0	0	0		0	0	0	51.1	48.9		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.778	.838	.839	.000	.000	.000	.000	.000	.000	.000	.000	.000	.883	.730	.891	.921

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Alewife Brook Parkway (Route 3/16)
E/W: East and West Sidewalks
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 LL
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Alewife Brook Parkway (Route 3/16) From North					East Sidewalk From East					Alewife Brook Parkway (Route 3/16) From South					East Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	500	0	0	500	0	0	0	0	0	0	330	0	0	330	0	0	0	0	0	830
04:45 PM	0	416	0	0	416	0	0	0	0	0	0	282	0	0	282	0	0	0	0	0	698
05:00 PM	0	487	0	0	487	0	0	0	0	0	0	332	0	0	332	0	0	0	0	0	819
05:15 PM	0	447	0	0	447	0	0	0	0	0	0	246	0	0	246	0	0	0	0	0	693
Total Volume	0	1850	0	0	1850	0	0	0	0	0	0	1190	0	0	1190	0	0	0	0	0	3040
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.925	.000	.000	.925	.000	.000	.000	.000	.000	.000	.896	.000	.000	.896	.000	.000	.000	.000	.000	.916
Cars	0	1834	0	0	1834	0	0	0	0	0	0	1175	0	0	1175	0	0	0	0	0	3009
% Cars	0	99.1	0	0	99.1	0	0	0	0	0	0	98.7	0	0	98.7	0	0	0	0	0	99.0
Heavy Vehicles	0	16	0	0	16	0	0	0	0	0	0	15	0	0	15	0	0	0	0	0	31
% Heavy Vehicles	0	0.9	0	0	0.9	0	0	0	0	0	0	1.3	0	0	1.3	0	0	0	0	0	1.0



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	11
07:45 AM	0	1	0	0	0	0	0	0	0	9	0	0	0	0	0	0	10
Total	0	1	0	0	0	0	0	0	0	20	0	0	0	0	0	0	21
08:00 AM	0	2	0	0	0	0	0	0	0	13	0	0	0	0	0	0	15
08:15 AM	0	2	0	0	0	0	0	0	0	9	0	0	0	0	0	0	11
08:30 AM	0	2	0	0	0	0	0	0	0	16	0	0	0	0	0	0	18
08:45 AM	0	1	0	0	0	0	0	0	0	31	0	0	0	0	0	0	32
Total	0	7	0	0	0	0	0	0	0	69	0	0	0	0	0	0	76
09:00 AM	0	5	0	0	0	0	0	0	0	22	0	0	0	0	0	0	27
09:15 AM	0	1	0	0	0	0	0	0	0	29	0	0	0	0	0	0	30
Grand Total	0	14	0	0	0	0	0	0	0	140	0	0	0	0	0	0	154
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	9.1	0	0	0	0	0	0	0	90.9	0	0	0	0	0	0	
Cars	0	9	0	0	0	0	0	0	0	137	0	0	0	0	0	0	146
% Cars	0	64.3	0	0	0	0	0	0	0	97.9	0	0	0	0	0	0	94.8
Heavy Vehicles	0	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
% Heavy Vehicles	0	35.7	0	0	0	0	0	0	0	2.1	0	0	0	0	0	0	5.2

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	2	0	0	2	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	18
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	32
09:00 AM	0	5	0	0	5	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	27
09:15 AM	0	1	0	0	1	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	30
Total Volume	0	9	0	0	9	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	107
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.450	.000	.000	.450	.000	.000	.000	.000	.000	.000	.790	.000	.000	.790	.000	.000	.000	.000	.000	.836
Cars	0	5	0	0	5	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	101
% Cars	0	55.6	0	0	55.6	0	0	0	0	0	0	98.0	0	0	98.0	0	0	0	0	0	94.4
Heavy Vehicles	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Heavy Vehicles	0	44.4	0	0	44.4	0	0	0	0	0	0	2.0	0	0	2.0	0	0	0	0	0	5.6

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Cars

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	0	11
07:45 AM	0	1	0	0	0	0	0	0	0	9	0	0	0	0	0	0	10
Total	0	1	0	0	0	0	0	0	0	20	0	0	0	0	0	0	21
08:00 AM	0	2	0	0	0	0	0	0	0	12	0	0	0	0	0	0	14
08:15 AM	0	1	0	0	0	0	0	0	0	9	0	0	0	0	0	0	10
08:30 AM	0	1	0	0	0	0	0	0	0	16	0	0	0	0	0	0	17
08:45 AM	0	1	0	0	0	0	0	0	0	31	0	0	0	0	0	0	32
Total	0	5	0	0	0	0	0	0	0	68	0	0	0	0	0	0	73
09:00 AM	0	2	0	0	0	0	0	0	0	20	0	0	0	0	0	0	22
09:15 AM	0	1	0	0	0	0	0	0	0	29	0	0	0	0	0	0	30
Grand Total	0	9	0	0	0	0	0	0	0	137	0	0	0	0	0	0	146
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	6.2	0	0	0	0	0	0	0	93.8	0	0	0	0	0	0	

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	1	0	0	1	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	17
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	32
09:00 AM	0	2	0	0	2	0	0	0	0	0	0	20	0	0	20	0	0	0	0	0	22
09:15 AM	0	1	0	0	1	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	30
Total Volume	0	5	0	0	5	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	101
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.625	.000	.000	.625	.000	.000	.000	.000	.000	.000	.774	.000	.000	.774	.000	.000	.000	.000	.000	.789

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Heavy Vehicles

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	0	0	0	0	0	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	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	3
09:00 AM	0	3	0	0	0	0	0	0	0	2	0	0	0	0	0	0	5
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	5	0	0	0	0	0	0	0	3	0	0	0	0	0	0	8
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	62.5	0	0	0	0	0	0	0	37.5	0	0	0	0	0	0	

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
09:00 AM	0	3	0	0	3	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	5
Total Volume	0	5	0	0	5	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	7
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.417	.000	.000	.417	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.350

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
08:45 AM	0	0	0	0	0	0	0	0	2	0	1	2	0	0	0	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	0	8
09:00 AM	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3
09:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	3	0	4	5	0	0	0	0	0	0	0	0	12
Apprch %	0	0	0	0	0	0	0	0	100	0	44.4	55.6	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	25	0	33.3	41.7	0	0	0	0	0	0	0	0	

	Site Parking Lot From North						East Sidewalk From East						Wheeler Street From South						West Sidewalk From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 08:15 AM																									
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	0	0	0	2
08:45 AM	0	0	0	0	0	0	0	0	0	2	0	2	1	2	0	0	0	3	0	0	0	0	0	0	5
09:00 AM	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	2	0	0	0	0	0	0	3
Total Volume	0	0	0	0	0	0	0	0	0	3	0	3	3	5	0	0	0	8	0	0	0	0	0	0	11
% App. Total	0	0	0	0	0		0	0	0	100	0		37.5	62.5	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.375	.000	.375	.750	.625	.000	.000	.000	.667	.000	.000	.000	.000	.000	.000	.550

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	2	2	8
07:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	5	0	0	0	0	1	0	0	0	0	0	0	0	0	2	2	10
08:00 AM	0	0	0	0	2	0	0	0	0	2	0	0	0	1	0	0	0	0	3	1	9
08:15 AM	0	0	0	0	0	0	0	0	3	2	0	0	0	0	0	0	0	0	0	5	10
08:30 AM	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	0	0	0	5	1	10
08:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	8
Total	0	0	0	0	7	0	0	0	3	5	0	0	0	1	0	0	0	0	11	10	37
09:00 AM	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	12
09:15 AM	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	4	5	11
Grand Total	0	0	0	0	17	0	0	0	3	7	0	0	0	1	0	0	0	0	22	20	70
Apprch %	0	0	0	0	100	0	0	0	30	70	0	0	0	100	0	0	0	0	52.4	47.6	
Total %	0	0	0	0	24.3	0	0	0	4.3	10	0	0	0	1.4	0	0	0	0	31.4	28.6	

	Site Parking Lot From North						East Sidewalk From East						Wheeler Street From South						West Sidewalk From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	0	0	0	3	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	5	1	6	10
08:45 AM	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	6	8
09:00 AM	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3	8	12
09:15 AM	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	4	5	9	11
Total Volume	0	0	0	0	10	10	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	17	12	29	41
% App. Total	0	0	0	0	100		0	0	0	0	100		0	0	0	0	0		0	0	0	58.6	41.4		
PHF	.000	.000	.000	.000	.625	.625	.000	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.850	.600	.806	.854

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
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File Name : 165280 M
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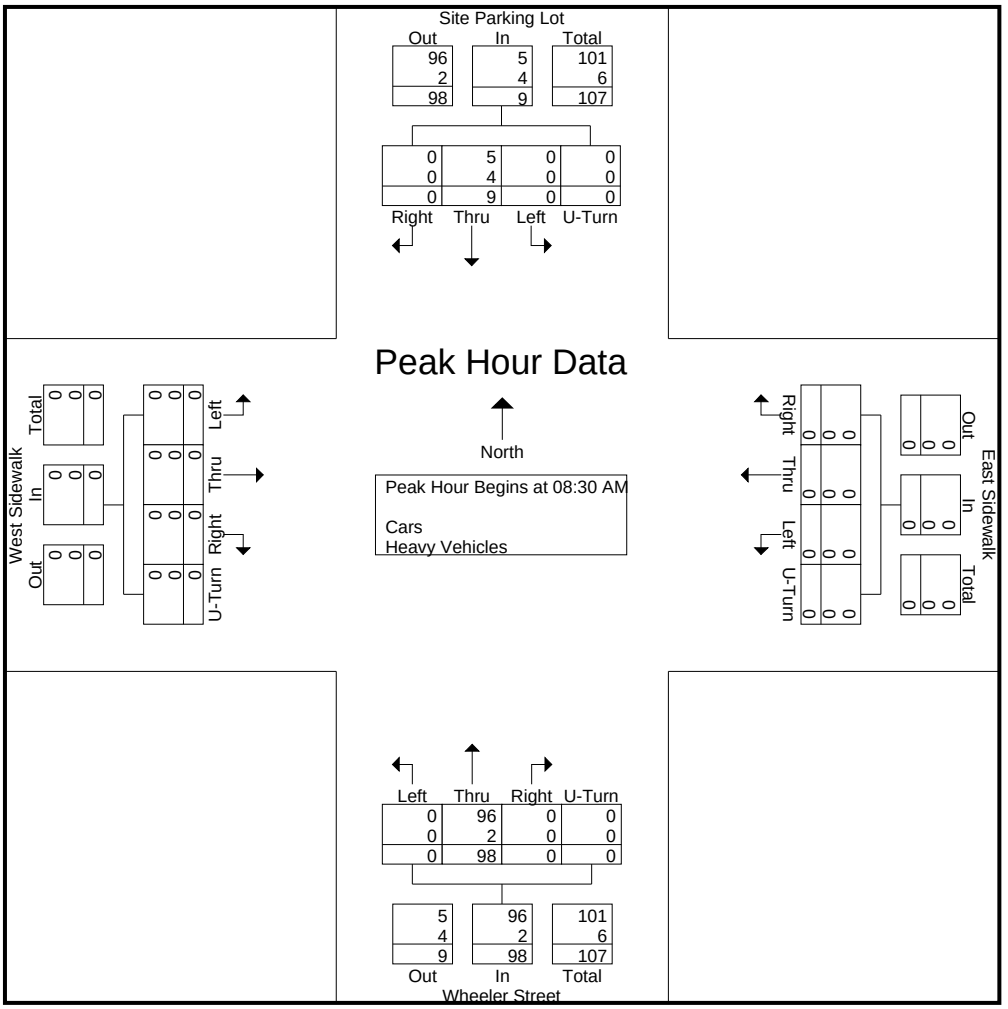
	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:30 AM																					
08:30 AM	0	2	0	0	2	0	0	0	0	0	0	16	0	0	16	0	0	0	0	0	18
08:45 AM	0	1	0	0	1	0	0	0	0	0	0	31	0	0	31	0	0	0	0	0	32
09:00 AM	0	5	0	0	5	0	0	0	0	0	0	22	0	0	22	0	0	0	0	0	27
09:15 AM	0	1	0	0	1	0	0	0	0	0	0	29	0	0	29	0	0	0	0	0	30
Total Volume	0	9	0	0	9	0	0	0	0	0	0	98	0	0	98	0	0	0	0	0	107
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.450	.000	.000	.450	.000	.000	.000	.000	.000	.000	.790	.000	.000	.790	.000	.000	.000	.000	.000	.836
Cars	0	5	0	0	5	0	0	0	0	0	0	96	0	0	96	0	0	0	0	0	101
% Cars	0	55.6	0	0	55.6	0	0	0	0	0	0	98.0	0	0	98.0	0	0	0	0	0	94.4
Heavy Vehicles	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
% Heavy Vehicles	0	44.4	0	0	44.4	0	0	0	0	0	0	2.0	0	0	2.0	0	0	0	0	0	5.6



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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File Name : 165280 MM
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Groups Printed- Cars - Heavy Vehicles

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	14	0	0	0	0	0	0	0	1	0	3	0	0	0	0	18
04:45 PM	0	13	0	0	0	0	0	0	0	0	0	3	0	0	0	0	16
Total	0	27	0	0	0	0	0	0	0	1	0	6	0	0	0	0	34
05:00 PM	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	14
05:30 PM	0	20	0	0	0	0	0	0	0	0	0	1	0	0	0	0	21
05:45 PM	0	16	0	0	0	0	0	0	0	0	0	1	0	0	0	0	17
Total	0	67	0	0	0	0	0	0	0	0	0	3	0	0	0	0	70
06:00 PM	0	10	0	0	0	0	0	0	0	2	0	3	0	0	0	0	15
06:15 PM	0	14	0	0	0	0	0	0	0	1	0	2	0	0	0	0	17
Grand Total	0	118	0	0	0	0	0	0	0	4	0	14	0	0	0	0	136
Apprch %	0	100	0	0	0	0	0	0	0	22.2	0	77.8	0	0	0	0	
Total %	0	86.8	0	0	0	0	0	0	0	2.9	0	10.3	0	0	0	0	
Cars	0	113	0	0	0	0	0	0	0	2	0	10	0	0	0	0	125
% Cars	0	95.8	0	0	0	0	0	0	0	50	0	71.4	0	0	0	0	91.9
Heavy Vehicles	0	5	0	0	0	0	0	0	0	2	0	4	0	0	0	0	11
% Heavy Vehicles	0	4.2	0	0	0	0	0	0	0	50	0	28.6	0	0	0	0	8.1

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	14
05:30 PM	0	20	0	0	20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	21
05:45 PM	0	16	0	0	16	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	17
Total Volume	0	67	0	0	67	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	70
% App. Total	0	100	0	0		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.838	.000	.000	.838	.000	.000	.000	.000	.000	.000	.000	.000	.750	.750	.000	.000	.000	.000	.000	.833
Cars	0	67	0	0	67	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	68
% Cars	0	100	0	0	100	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	97.1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	66.7	66.7	0	0	0	0	0	2.9

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 MM
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	12	0	0	0	0	0	0	0	1	0	3	0	0	0	0	16
04:45 PM	0	12	0	0	0	0	0	0	0	0	0	2	0	0	0	0	14
Total	0	24	0	0	0	0	0	0	0	1	0	5	0	0	0	0	30
05:00 PM	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
05:30 PM	0	20	0	0	0	0	0	0	0	0	0	1	0	0	0	0	21
05:45 PM	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Total	0	67	0	0	0	0	0	0	0	0	0	1	0	0	0	0	68
06:00 PM	0	9	0	0	0	0	0	0	0	0	0	2	0	0	0	0	11
06:15 PM	0	13	0	0	0	0	0	0	0	1	0	2	0	0	0	0	16
Grand Total	0	113	0	0	0	0	0	0	0	2	0	10	0	0	0	0	125
Apprch %	0	100	0	0	0	0	0	0	0	16.7	0	83.3	0	0	0	0	
Total %	0	90.4	0	0	0	0	0	0	0	1.6	0	8	0	0	0	0	

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
05:30 PM	0	20	0	0	20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	21
05:45 PM	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16
Total Volume	0	67	0	0	67	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	68
% App. Total	0	100	0	0		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.838	.000	.000	.838	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.810

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 MM
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Site Parking Lot From North				East Sidewalk From East				Wheeler Street From South				West Sidewalk From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
04:45 PM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2
Total	0	3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
05:30 PM	0	0	0	0	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	1	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
06:00 PM	0	1	0	0	0	0	0	0	0	2	0	1	0	0	0	0	4
06:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	5	0	0	0	0	0	0	0	2	0	4	0	0	0	0	11
Apprch %	0	100	0	0	0	0	0	0	0	33.3	0	66.7	0	0	0	0	
Total %	0	45.5	0	0	0	0	0	0	0	18.2	0	36.4	0	0	0	0	

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	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	1	1	0	0	0	0	0	1
06:00 PM	0	1	0	0	1	0	0	0	0	0	0	2	0	1	3	0	0	0	0	0	4
Total Volume	0	1	0	0	1	0	0	0	0	0	0	2	0	3	5	0	0	0	0	0	6
% App. Total	0	100	0	0		0	0	0	0		0	40	0	60		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.750	.417	.000	.000	.000	.000	.000	.375

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 MM
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
06:00 PM	0	0	0	0	0	0	0	0	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	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Apprch %	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	0	100	0	0	0	0	0	0	0	0	0	0	

	Site Parking Lot From North						East Sidewalk From East						Wheeler Street From South						West Sidewalk From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	0	0	0	0	0	0
04:45 PM	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
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0	0		0	0	0	0	100		0	0	0	0	0		0	0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 MM
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	2	1	0	0	0	2	0	0	0	0	1	2	0	0	0	3	1	12
04:45 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0	4
Total	0	0	0	3	1	0	0	0	3	0	0	0	0	1	3	0	0	0	4	1	16
05:00 PM	0	0	0	5	0	0	0	0	5	1	0	0	0	0	6	0	0	0	4	2	23
05:15 PM	0	0	0	5	0	0	0	0	3	0	0	0	0	0	5	0	0	0	5	1	19
05:30 PM	0	0	0	3	1	0	0	0	0	0	0	0	0	1	3	0	0	0	3	5	16
05:45 PM	0	0	0	3	0	0	0	0	0	1	0	0	0	0	3	0	0	0	4	1	12
Total	0	0	0	16	1	0	0	0	8	2	0	0	0	1	17	0	0	0	16	9	70
06:00 PM	0	0	0	1	0	0	0	0	0	2	0	0	0	0	1	0	0	0	3	2	9
06:15 PM	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	5	1	9
Grand Total	0	0	0	21	2	0	0	0	12	4	0	0	0	2	22	0	0	0	28	13	104
Apprch %	0	0	0	91.3	8.7	0	0	0	75	25	0	0	0	8.3	91.7	0	0	0	68.3	31.7	
Total %	0	0	0	20.2	1.9	0	0	0	11.5	3.8	0	0	0	1.9	21.2	0	0	0	26.9	12.5	

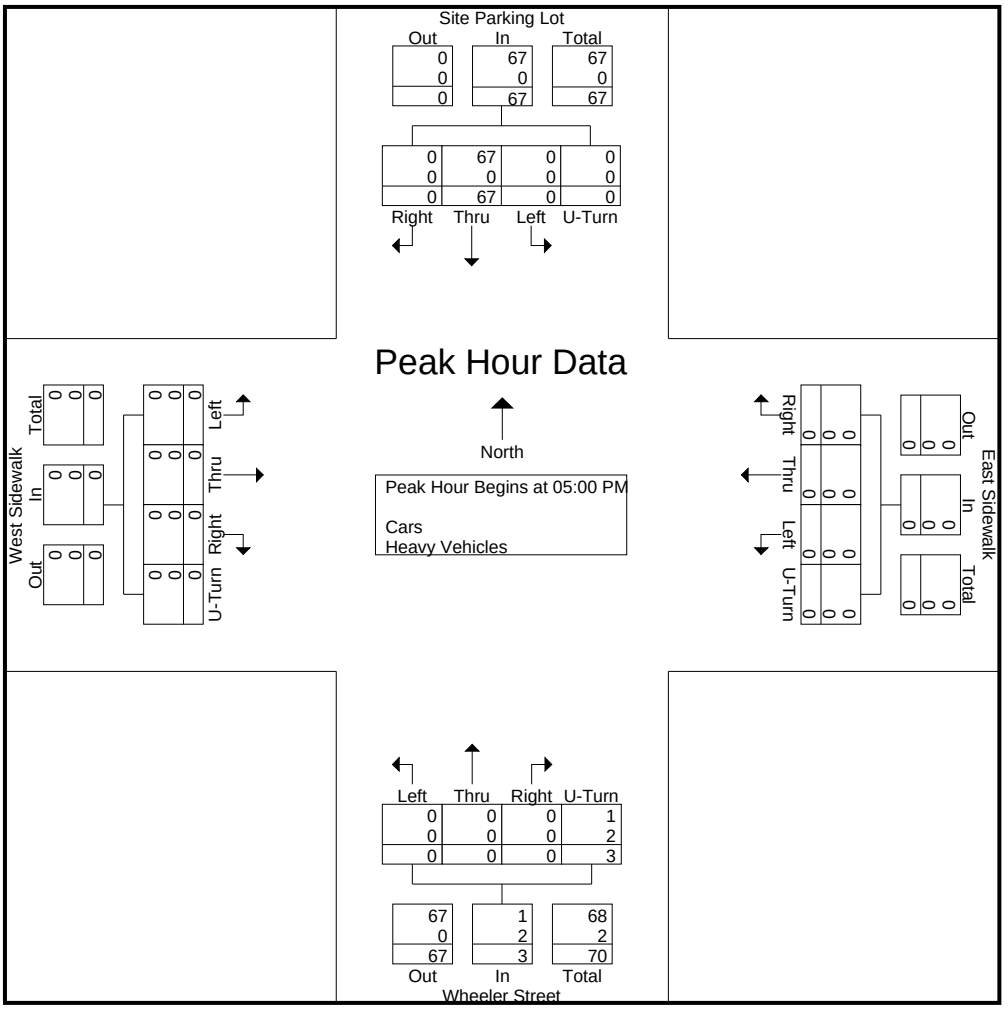
	Site Parking Lot From North						East Sidewalk From East						Wheeler Street From South						West Sidewalk From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																									
Peak Hour for Entire Intersection Begins at 05:00 PM																									
05:00 PM	0	0	0	5	0	5	0	0	0	5	1	6	0	0	0	0	6	6	0	0	0	4	2	6	23
05:15 PM	0	0	0	5	0	5	0	0	0	3	0	3	0	0	0	0	5	5	0	0	0	5	1	6	19
05:30 PM	0	0	0	3	1	4	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	3	5	8	16
05:45 PM	0	0	0	3	0	3	0	0	0	0	1	1	0	0	0	0	3	3	0	0	0	4	1	5	12
Total Volume	0	0	0	16	1	17	0	0	0	8	2	10	0	0	0	1	17	18	0	0	0	16	9	25	70
% App. Total	0	0	0	94.1	5.9		0	0	0	80	20		0	0	0	5.6	94.4		0	0	0	64	36		
PHF	.000	.000	.000	.800	.250	.850	.000	.000	.000	.400	.500	.417	.000	.000	.000	.250	.708	.750	.000	.000	.000	.800	.450	.781	.761

N/S: Site Lot/ Wheeler Street
E/W: East and West Sidewalk
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

File Name : 165280 MM
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Site Parking Lot From North					East Sidewalk From East					Wheeler Street From South					West Sidewalk From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:30 PM to 06:15 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
05:15 PM	0	13	0	0	13	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	14
05:30 PM	0	20	0	0	20	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	21
05:45 PM	0	16	0	0	16	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	17
Total Volume	0	67	0	0	67	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	70
% App. Total	0	100	0	0		0	0	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.838	.000	.000	.838	.000	.000	.000	.000	.000	.000	.000	.000	.750	.750	.000	.000	.000	.000	.000	.833
Cars	0	67	0	0	67	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	68
% Cars	0	100	0	0	100	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	0	0	97.1
Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
% Heavy Vehicles	0	0	0	0	0	0	0	0	0	0	0	0	0	66.7	66.7	0	0	0	0	0	2.9



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 N
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	21	0	0	0	0	13	0	0	16	1	0	1	0	0	0	52
07:45 AM	0	6	0	0	1	0	17	0	2	21	0	0	0	0	0	0	47
Total	0	27	0	0	1	0	30	0	2	37	1	0	1	0	0	0	99
08:00 AM	0	8	0	0	2	0	16	0	3	16	0	0	0	0	0	0	45
08:15 AM	0	11	0	0	0	0	11	0	3	23	0	1	0	0	0	0	49
08:30 AM	0	10	1	0	0	0	11	0	1	23	0	0	0	0	0	0	46
08:45 AM	0	10	0	0	1	0	6	0	3	15	0	0	0	0	0	0	35
Total	0	39	1	0	3	0	44	0	10	77	0	1	0	0	0	0	175
09:00 AM	0	9	1	0	1	0	14	0	3	21	0	0	0	0	0	0	49
09:15 AM	0	15	0	0	1	0	9	0	4	24	0	0	0	0	0	0	53
Grand Total	0	90	2	0	6	0	97	0	19	159	1	1	1	0	0	0	376
Apprch %	0	97.8	2.2	0	5.8	0	94.2	0	10.6	88.3	0.6	0.6	100	0	0	0	
Total %	0	23.9	0.5	0	1.6	0	25.8	0	5.1	42.3	0.3	0.3	0.3	0	0	0	
Cars	0	78	2	0	5	0	96	0	18	130	1	1	1	0	0	0	332
% Cars	0	86.7	100	0	83.3	0	99	0	94.7	81.8	100	100	100	0	0	0	88.3
Heavy Vehicles	0	12	0	0	1	0	1	0	1	29	0	0	0	0	0	0	44
% Heavy Vehicles	0	13.3	0	0	16.7	0	1	0	5.3	18.2	0	0	0	0	0	0	11.7

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	21	0	0	21	0	0	13	0	13	0	16	1	0	17	1	0	0	0	1	52
07:45 AM	0	6	0	0	6	1	0	17	0	18	2	21	0	0	23	0	0	0	0	0	47
08:00 AM	0	8	0	0	8	2	0	16	0	18	3	16	0	0	19	0	0	0	0	0	45
08:15 AM	0	11	0	0	11	0	0	11	0	11	3	23	0	1	27	0	0	0	0	0	49
Total Volume	0	46	0	0	46	3	0	57	0	60	8	76	1	1	86	1	0	0	0	1	193
% App. Total	0	100	0	0		5	0	95	0		9.3	88.4	1.2	1.2		100	0	0	0		
PHF	.000	.548	.000	.000	.548	.375	.000	.838	.000	.833	.667	.826	.250	.250	.796	.250	.000	.000	.000	.250	.928
Cars	0	39	0	0	39	3	0	57	0	60	8	64	1	1	74	1	0	0	0	1	174
% Cars	0	84.8	0	0	84.8	100	0	100	0	100	100	84.2	100	100	86.0	100	0	0	0	100	90.2
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	19
% Heavy Vehicles	0	15.2	0	0	15.2	0	0	0	0	0	0	15.8	0	0	14.0	0	0	0	0	0	9.8

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 N
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	18	0	0	0	0	13	0	0	12	1	0	1	0	0	0	45
07:45 AM	0	4	0	0	1	0	17	0	2	21	0	0	0	0	0	0	45
Total	0	22	0	0	1	0	30	0	2	33	1	0	1	0	0	0	90
08:00 AM	0	7	0	0	2	0	16	0	3	14	0	0	0	0	0	0	42
08:15 AM	0	10	0	0	0	0	11	0	3	17	0	1	0	0	0	0	42
08:30 AM	0	10	1	0	0	0	11	0	1	19	0	0	0	0	0	0	42
08:45 AM	0	8	0	0	1	0	6	0	2	12	0	0	0	0	0	0	29
Total	0	35	1	0	3	0	44	0	9	62	0	1	0	0	0	0	155
09:00 AM	0	7	1	0	1	0	13	0	3	15	0	0	0	0	0	0	40
09:15 AM	0	14	0	0	0	0	9	0	4	20	0	0	0	0	0	0	47
Grand Total	0	78	2	0	5	0	96	0	18	130	1	1	1	0	0	0	332
Apprch %	0	97.5	2.5	0	5	0	95	0	12	86.7	0.7	0.7	100	0	0	0	
Total %	0	23.5	0.6	0	1.5	0	28.9	0	5.4	39.2	0.3	0.3	0.3	0	0	0	

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	18	0	0	18	0	0	13	0	13	0	12	1	0	13	1	0	0	0	1	45
07:45 AM	0	4	0	0	4	1	0	17	0	18	2	21	0	0	23	0	0	0	0	0	45
08:00 AM	0	7	0	0	7	2	0	16	0	18	3	14	0	0	17	0	0	0	0	0	42
08:15 AM	0	10	0	0	10	0	0	11	0	11	3	17	0	1	21	0	0	0	0	0	42
Total Volume	0	39	0	0	39	3	0	57	0	60	8	64	1	1	74	1	0	0	0	1	174
% App. Total	0	100	0	0		5	0	95	0		10.8	86.5	1.4	1.4		100	0	0	0		
PHF	.000	.542	.000	.000	.542	.375	.000	.838	.000	.833	.667	.762	.250	.250	.804	.250	.000	.000	.000	.250	.967

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 N
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:30 AM	0	3	0	0	0	0	0	0	0	4	0	0	0	0	0	0	7
07:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	5	0	0	0	0	0	0	0	4	0	0	0	0	0	0	9
08:00 AM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
08:15 AM	0	1	0	0	0	0	0	0	0	6	0	0	0	0	0	0	7
08:30 AM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
08:45 AM	0	2	0	0	0	0	0	0	1	3	0	0	0	0	0	0	6
Total	0	4	0	0	0	0	0	0	1	15	0	0	0	0	0	0	20
09:00 AM	0	2	0	0	0	0	1	0	0	6	0	0	0	0	0	0	9
09:15 AM	0	1	0	0	1	0	0	0	0	4	0	0	0	0	0	0	6
Grand Total	0	12	0	0	1	0	1	0	1	29	0	0	0	0	0	0	44
Apprch %	0	100	0	0	50	0	50	0	3.3	96.7	0	0	0	0	0	0	
Total %	0	27.3	0	0	2.3	0	2.3	0	2.3	65.9	0	0	0	0	0	0	

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:15 AM																					
08:15 AM	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	4
08:45 AM	0	2	0	0	2	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	6
09:00 AM	0	2	0	0	2	0	0	1	0	1	0	6	0	0	6	0	0	0	0	0	9
Total Volume	0	5	0	0	5	0	0	1	0	1	1	19	0	0	20	0	0	0	0	0	26
% App. Total	0	100	0	0		0	0	100	0		5	95	0	0		0	0	0	0		
PHF	.000	.625	.000	.000	.625	.000	.000	.250	.000	.250	.250	.792	.000	.000	.833	.000	.000	.000	.000	.000	.722

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 N
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
08:45 AM	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	1	0	0	2	0	0	0	0	0	0	0	0	5
09:00 AM	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	2	0	0	0	0	0	0	1	0	1	3	0	0	0	0	0	0	0	0	7
Apprch %	0	100	0	0	0	0	0	0	100	0	25	75	0	0	0	0	0	0	0	0	
Total %	0	28.6	0	0	0	0	0	0	14.3	0	14.3	42.9	0	0	0	0	0	0	0	0	

	Fawcett Street From North						Site Drive (Connecting Road) From East						Fawcett Street From South						Raytheon Driveway From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
08:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	1	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	2
Total Volume	0	2	0	0	0	2	0	0	0	0	0	0	1	2	0	0	0	3	0	0	0	0	0	0	5
% App. Total	0	100	0	0	0		0	0	0	0	0		33.3	66.7	0	0	0		0	0	0	0	0		
PHF	.000	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.000	.250	.500	.000	.000	.000	.750	.000	.000	.000	.000	.000	.000	.625

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 N
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
07:30 AM	0	0	0	0	0	0	0	0	7	0	0	0	0	1	0	0	0	0	0	0	8
07:45 AM	0	0	0	0	0	0	0	0	8	3	0	0	0	0	0	0	0	0	0	0	11
Total	0	0	0	0	0	0	0	0	15	3	0	0	0	1	0	0	0	0	0	0	19
08:00 AM	0	0	0	0	0	0	0	0	6	0	0	0	0	1	0	0	0	0	1	0	8
08:15 AM	0	0	0	0	0	0	0	0	6	1	0	0	0	1	0	0	0	0	1	1	10
08:30 AM	0	0	0	1	1	0	0	0	12	1	0	0	0	1	0	0	0	0	2	0	18
08:45 AM	0	0	0	0	1	0	0	0	6	8	0	0	0	0	0	0	0	0	0	0	15
Total	0	0	0	1	2	0	0	0	30	10	0	0	0	3	0	0	0	0	4	1	51
09:00 AM	0	0	0	1	0	0	0	0	5	7	0	0	0	0	0	0	0	0	0	0	13
09:15 AM	0	0	0	0	0	0	0	0	8	5	0	0	0	0	0	0	0	0	0	0	13
Grand Total	0	0	0	2	2	0	0	0	58	25	0	0	0	4	0	0	0	0	4	1	96
Apprch %	0	0	0	50	50	0	0	0	69.9	30.1	0	0	0	100	0	0	0	0	80	20	
Total %	0	0	0	2.1	2.1	0	0	0	60.4	26	0	0	0	4.2	0	0	0	0	4.2	1	

	Fawcett Street From North						Site Drive (Connecting Road) From East						Fawcett Street From South						Raytheon Driveway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	0	0	0	1	1	2	0	0	0	12	1	13	0	0	0	1	0	1	0	0	0	2	0	2	18
08:45 AM	0	0	0	0	1	1	0	0	0	6	8	14	0	0	0	0	0	0	0	0	0	0	0	0	15
09:00 AM	0	0	0	1	0	1	0	0	0	5	7	12	0	0	0	0	0	0	0	0	0	0	0	0	13
09:15 AM	0	0	0	0	0	0	0	0	0	8	5	13	0	0	0	0	0	0	0	0	0	0	0	0	13
Total Volume	0	0	0	2	2	4	0	0	0	31	21	52	0	0	0	1	0	1	0	0	0	2	0	2	59
% App. Total	0	0	0	50	50		0	0	0	59.6	40.4		0	0	0	100	0		0	0	0	100	0		
PHF	.000	.000	.000	.500	.500	.500	.000	.000	.000	.646	.656	.929	.000	.000	.000	.250	.000	.250	.000	.000	.000	.250	.000	.250	.819

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

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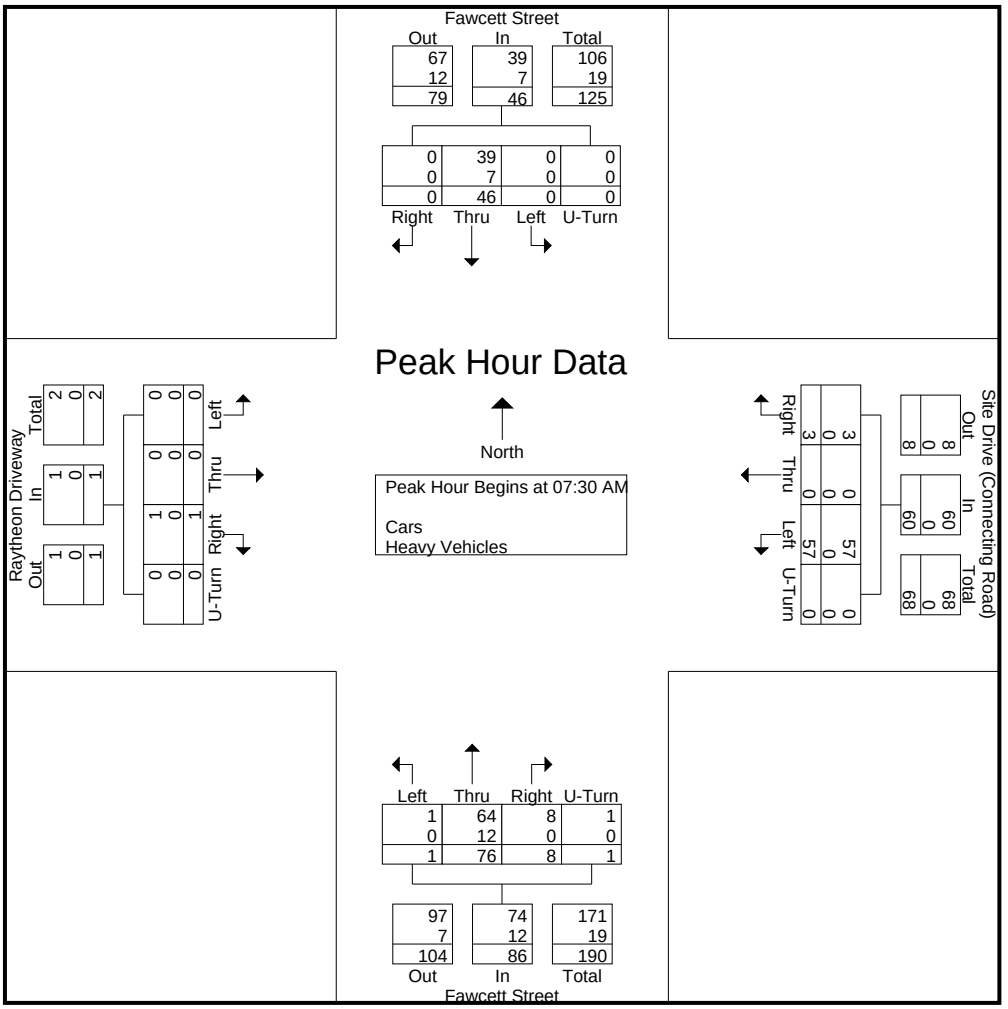
	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour 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	21	0	0	21	0	0	13	0	13	0	16	1	0	17	1	0	0	0	1	52
07:45 AM	0	6	0	0	6	1	0	17	0	18	2	21	0	0	23	0	0	0	0	0	47
08:00 AM	0	8	0	0	8	2	0	16	0	18	3	16	0	0	19	0	0	0	0	0	45
08:15 AM	0	11	0	0	11	0	0	11	0	11	3	23	0	1	27	0	0	0	0	0	49
Total Volume	0	46	0	0	46	3	0	57	0	60	8	76	1	1	86	1	0	0	0	1	193
% App. Total	0	100	0	0		5	0	95	0		9.3	88.4	1.2	1.2		100	0	0	0		
PHF	.000	.548	.000	.000	.548	.375	.000	.838	.000	.833	.667	.826	.250	.250	.796	.250	.000	.000	.000	.250	.928
Cars	0	39	0	0	39	3	0	57	0	60	8	64	1	1	74	1	0	0	0	1	174
% Cars	0	84.8	0	0	84.8	100	0	100	0	100	100	84.2	100	100	86.0	100	0	0	0	100	90.2
Heavy Vehicles	0	7	0	0	7	0	0	0	0	0	0	12	0	0	12	0	0	0	0	0	19
% Heavy Vehicles	0	15.2	0	0	15.2	0	0	0	0	0	0	15.8	0	0	14.0	0	0	0	0	0	9.8



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

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Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	14	0	0	0	0	1	0	5	22	0	1	0	0	0	0	43
04:45 PM	0	5	1	0	1	0	2	0	12	17	0	1	0	0	0	0	39
Total	0	19	1	0	1	0	3	0	17	39	0	2	0	0	0	0	82
05:00 PM	0	3	1	0	0	0	6	0	5	11	0	0	0	0	0	0	26
05:15 PM	0	4	1	0	0	0	4	0	6	20	0	2	0	0	0	0	37
05:30 PM	0	12	0	0	0	0	2	0	8	22	0	0	0	0	0	0	44
05:45 PM	0	10	2	0	0	0	4	0	10	10	0	1	1	0	0	0	38
Total	0	29	4	0	0	0	16	0	29	63	0	3	1	0	0	0	145
06:00 PM	0	3	0	0	0	0	5	0	15	11	0	1	0	0	0	0	35
06:15 PM	0	5	2	0	0	0	6	0	6	12	0	0	0	0	0	0	31
Grand Total	0	56	7	0	1	0	30	0	67	125	0	6	1	0	0	0	293
Apprch %	0	88.9	11.1	0	3.2	0	96.8	0	33.8	63.1	0	3	100	0	0	0	
Total %	0	19.1	2.4	0	0.3	0	10.2	0	22.9	42.7	0	2	0.3	0	0	0	
Cars	0	53	7	0	1	0	30	0	67	103	0	6	1	0	0	0	268
% Cars	0	94.6	100	0	100	0	100	0	100	82.4	0	100	100	0	0	0	91.5
Heavy Vehicles	0	3	0	0	0	0	0	0	0	22	0	0	0	0	0	0	25
% Heavy Vehicles	0	5.4	0	0	0	0	0	0	0	17.6	0	0	0	0	0	0	8.5

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	4	1	0	5	0	0	4	0	4	6	20	0	2	28	0	0	0	0	0	37
05:30 PM	0	12	0	0	12	0	0	2	0	2	8	22	0	0	30	0	0	0	0	0	44
05:45 PM	0	10	2	0	12	0	0	4	0	4	10	10	0	1	21	1	0	0	0	1	38
06:00 PM	0	3	0	0	3	0	0	5	0	5	15	11	0	1	27	0	0	0	0	0	35
Total Volume	0	29	3	0	32	0	0	15	0	15	39	63	0	4	106	1	0	0	0	1	154
% App. Total	0	90.6	9.4	0		0	0	100	0		36.8	59.4	0	3.8		100	0	0	0		
PHF	.000	.604	.375	.000	.667	.000	.000	.750	.000	.750	.650	.716	.000	.500	.883	.250	.000	.000	.000	.250	.875
Cars	0	28	3	0	31	0	0	15	0	15	39	57	0	4	100	1	0	0	0	1	147
% Cars	0	96.6	100	0	96.9	0	0	100	0	100	100	90.5	0	100	94.3	100	0	0	0	100	95.5
Heavy Vehicles	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7
% Heavy Vehicles	0	3.4	0	0	3.1	0	0	0	0	0	0	9.5	0	0	5.7	0	0	0	0	0	4.5

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Cars

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	13	0	0	0	0	1	0	5	15	0	1	0	0	0	0	35
04:45 PM	0	5	1	0	1	0	2	0	12	16	0	1	0	0	0	0	38
Total	0	18	1	0	1	0	3	0	17	31	0	2	0	0	0	0	73
05:00 PM	0	3	1	0	0	0	6	0	5	5	0	0	0	0	0	0	20
05:15 PM	0	4	1	0	0	0	4	0	6	16	0	2	0	0	0	0	33
05:30 PM	0	11	0	0	0	0	2	0	8	21	0	0	0	0	0	0	42
05:45 PM	0	10	2	0	0	0	4	0	10	9	0	1	1	0	0	0	37
Total	0	28	4	0	0	0	16	0	29	51	0	3	1	0	0	0	132
06:00 PM	0	3	0	0	0	0	5	0	15	11	0	1	0	0	0	0	35
06:15 PM	0	4	2	0	0	0	6	0	6	10	0	0	0	0	0	0	28
Grand Total	0	53	7	0	1	0	30	0	67	103	0	6	1	0	0	0	268
Apprch %	0	88.3	11.7	0	3.2	0	96.8	0	38.1	58.5	0	3.4	100	0	0	0	
Total %	0	19.8	2.6	0	0.4	0	11.2	0	25	38.4	0	2.2	0.4	0	0	0	

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	4	1	0	5	0	0	4	0	4	6	16	0	2	24	0	0	0	0	0	33
05:30 PM	0	11	0	0	11	0	0	2	0	2	8	21	0	0	29	0	0	0	0	0	42
05:45 PM	0	10	2	0	12	0	0	4	0	4	10	9	0	1	20	1	0	0	0	1	37
06:00 PM	0	3	0	0	3	0	0	5	0	5	15	11	0	1	27	0	0	0	0	0	35
Total Volume	0	28	3	0	31	0	0	15	0	15	39	57	0	4	100	1	0	0	0	1	147
% App. Total	0	90.3	9.7	0		0	0	100	0		39	57	0	4		100	0	0	0		
PHF	.000	.636	.375	.000	.646	.000	.000	.750	.000	.750	.650	.679	.000	.500	.862	.250	.000	.000	.000	.250	.875

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Heavy Vehicles

	Fawcett Street From North				Site Drive (Connecting Road) From East				Fawcett Street From South				Raytheon Driveway From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
04:30 PM	0	1	0	0	0	0	0	0	0	7	0	0	0	0	0	0	8
04:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	8	0	0	0	0	0	0	9
05:00 PM	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	0	6
05:15 PM	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	4
05:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	2
05:45 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1
Total	0	1	0	0	0	0	0	0	0	12	0	0	0	0	0	0	13
06:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 PM	0	1	0	0	0	0	0	0	0	2	0	0	0	0	0	0	3
Grand Total	0	3	0	0	0	0	0	0	0	22	0	0	0	0	0	0	25
Apprch %	0	100	0	0	0	0	0	0	0	100	0	0	0	0	0	0	
Total %	0	12	0	0	0	0	0	0	0	88	0	0	0	0	0	0	

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	0	1	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	8
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	6
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	4
Total Volume	0	1	0	0	1	0	0	0	0	0	0	18	0	0	18	0	0	0	0	0	19
% App. Total	0	100	0	0		0	0	0	0		0	100	0	0		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.643	.000	.000	.643	.000	.000	.000	.000	.000	.594

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	CW EB	CW WB	Right	Thru	Left	CW SB	CW NB	Right	Thru	Left	CW WB	CW EB	Right	Thru	Left	CW NB	CW SB	Int. Total
04:30 PM	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	2
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	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
05:30 PM	0	2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2
Total	0	3	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	7
06:00 PM	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	3
06:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	3
Grand Total	0	4	0	0	0	0	0	0	1	1	2	7	0	0	0	0	0	0	0	0	15
Apprch %	0	100	0	0	0	0	0	0	50	50	22.2	77.8	0	0	0	0	0	0	0	0	
Total %	0	26.7	0	0	0	0	0	0	6.7	6.7	13.3	46.7	0	0	0	0	0	0	0	0	

	Fawcett Street From North						Site Drive (Connecting Road) From East						Fawcett Street From South						Raytheon Driveway From West						
Start Time	Right	Thru	Left	CW EB	CW WB	App. Total	Right	Thru	Left	CW SB	CW NB	App. Total	Right	Thru	Left	CW WB	CW EB	App. Total	Right	Thru	Left	CW NB	CW SB	App. Total	Int. 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	2	0	0	0	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	2
06:00 PM	0	1	0	0	0	1	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0	0	3
06:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	0	0	0	0	0	0	3
Total Volume	0	3	0	0	0	3	0	0	0	0	1	1	2	5	0	0	0	7	0	0	0	0	0	0	11
% App. Total	0	100	0	0	0		0	0	0	0	100		28.6	71.4	0	0	0		0	0	0	0	0		
PHF	.000	.375	.000	.000	.000	.375	.000	.000	.000	.000	.250	.250	.250	.625	.000	.000	.000	.583	.000	.000	.000	.000	.000	.000	.917

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
E/W: Connecting Road/ Raythein Drive
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

Groups Printed- Pedestrians

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	Peds EB	Peds WB	Right	Thru	Left	Peds SB	Peds NB	Right	Thru	Left	Peds WB	Peds EB	Right	Thru	Left	Peds NB	Peds SB	Int. Total
04:30 PM	0	0	0	1	1	0	0	0	3	1	0	0	0	0	0	0	0	0	0	0	6
04:45 PM	0	0	0	1	0	0	0	0	3	3	0	0	0	0	0	0	0	0	1	0	8
Total	0	0	0	2	1	0	0	0	6	4	0	0	0	0	0	0	0	0	1	0	14
05:00 PM	0	0	0	0	0	0	0	0	3	6	0	0	0	1	0	0	0	0	0	1	11
05:15 PM	0	0	0	0	0	0	0	0	6	3	0	0	0	1	1	0	0	0	0	1	12
05:30 PM	0	0	0	0	1	0	0	0	4	7	0	0	0	0	0	0	0	0	0	0	12
05:45 PM	0	0	0	0	1	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	8
Total	0	0	0	0	2	0	0	0	17	19	0	0	0	2	1	0	0	0	0	2	43
06:00 PM	0	0	0	0	0	0	0	0	2	8	0	0	0	0	1	0	0	0	0	1	12
06:15 PM	0	0	0	0	0	0	0	0	3	10	0	0	0	0	0	0	0	0	0	0	13
Grand Total	0	0	0	2	3	0	0	0	28	41	0	0	0	2	2	0	0	0	1	3	82
Apprch %	0	0	0	40	60	0	0	0	40.6	59.4	0	0	0	50	50	0	0	0	25	75	
Total %	0	0	0	2.4	3.7	0	0	0	34.1	50	0	0	0	2.4	2.4	0	0	0	1.2	3.7	

	Fawcett Street From North						Site Drive (Connecting Road) From East						Fawcett Street From South						Raytheon Driveway From West						
Start Time	Right	Thru	Left	Peds EB	Peds WB	App. Total	Right	Thru	Left	Peds SB	Peds NB	App. Total	Right	Thru	Left	Peds WB	Peds EB	App. Total	Right	Thru	Left	Peds NB	Peds SB	App. Total	Int. 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	1	1	0	0	0	4	7	11	0	0	0	0	0	0	0	0	0	0	0	0	12
05:45 PM	0	0	0	0	1	1	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	8
06:00 PM	0	0	0	0	0	0	0	0	0	2	8	10	0	0	0	0	1	1	0	0	0	0	1	1	12
06:15 PM	0	0	0	0	0	0	0	0	0	3	10	13	0	0	0	0	0	0	0	0	0	0	0	0	13
Total Volume	0	0	0	0	2	2	0	0	0	13	28	41	0	0	0	0	1	1	0	0	0	0	1	1	45
% App. Total	0	0	0	0	100		0	0	0	31.7	68.3		0	0	0	0	100		0	0	0	0	100		
PHF	.000	.000	.000	.000	.500	.500	.000	.000	.000	.813	.700	.788	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.250	.250	.865

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

N/S: Fawcett Street
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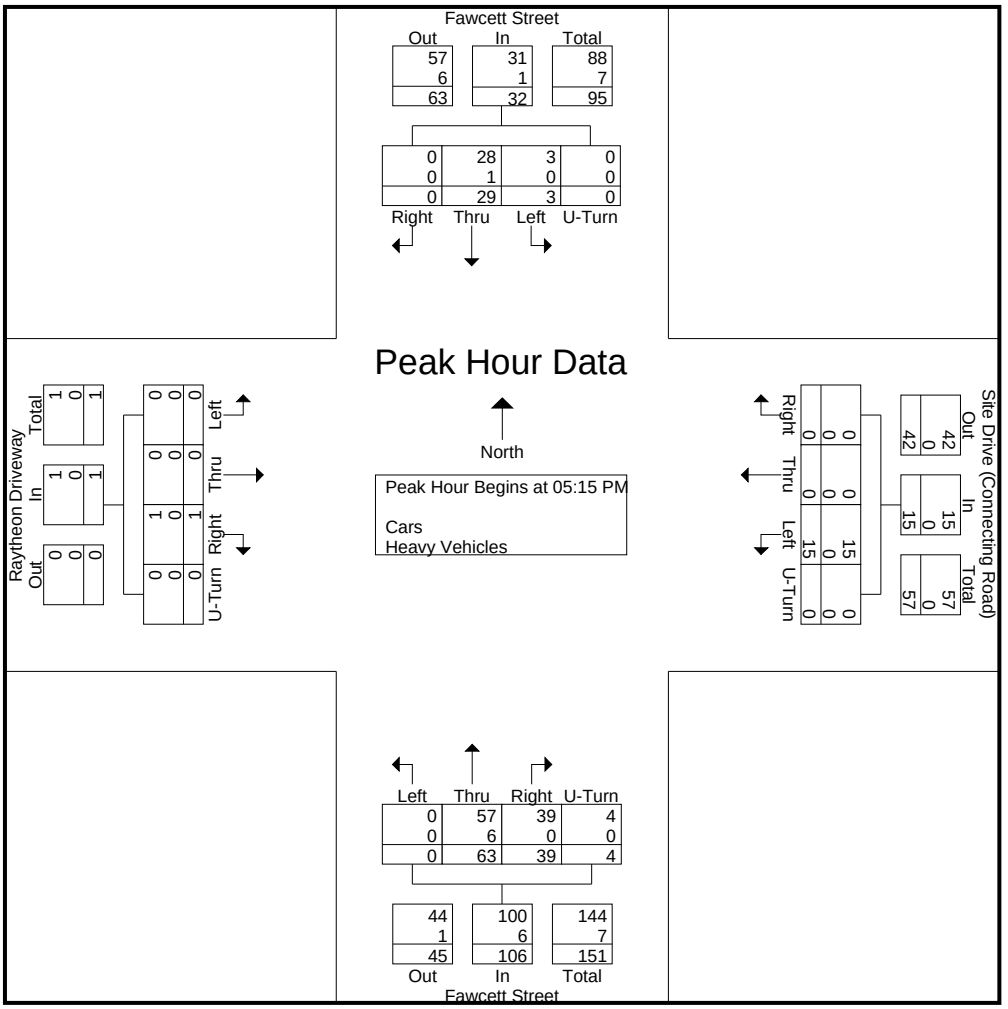
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 NN
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Fawcett Street From North					Site Drive (Connecting Road) From East					Fawcett Street From South					Raytheon Driveway From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. 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	4	1	0	5	0	0	4	0	4	6	20	0	2	28	0	0	0	0	0	37
05:30 PM	0	12	0	0	12	0	0	2	0	2	8	22	0	0	30	0	0	0	0	0	44
05:45 PM	0	10	2	0	12	0	0	4	0	4	10	10	0	1	21	1	0	0	0	1	38
06:00 PM	0	3	0	0	3	0	0	5	0	5	15	11	0	1	27	0	0	0	0	0	35
Total Volume	0	29	3	0	32	0	0	15	0	15	39	63	0	4	106	1	0	0	0	1	154
% App. Total	0	90.6	9.4	0		0	0	100	0		36.8	59.4	0	3.8		100	0	0	0		
PHF	.000	.604	.375	.000	.667	.000	.000	.750	.000	.750	.650	.716	.000	.500	.883	.250	.000	.000	.000	.250	.875
Cars	0	28	3	0	31	0	0	15	0	15	39	57	0	4	100	1	0	0	0	1	147
% Cars	0	96.6	100	0	96.9	0	0	100	0	100	100	90.5	0	100	94.3	100	0	0	0	100	95.5
Heavy Vehicles	0	1	0	0	1	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	7
% Heavy Vehicles	0	3.4	0	0	3.1	0	0	0	0	0	0	9.5	0	0	5.7	0	0	0	0	0	4.5



Pedestrian and Cyclist Counts

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	8	10	9	6	2	9	44
07:45 AM	12	15	13	6	5	7	58
Total	20	25	22	12	7	16	102
08:00 AM	16	11	10	8	3	14	62
08:15 AM	14	11	8	7	7	7	54
08:30 AM	2	14	6	11	11	12	56
08:45 AM	10	5	9	8	10	7	49
Total	42	41	33	34	31	40	221
09:00 AM	9	11	2	11	14	6	53
09:15 AM	5	10	6	3	6	5	35
09:30 AM	10	7	6	6	6	2	37
09:45 AM	9	8	1	10	11	6	45
Total	33	36	15	30	37	19	170
10:00 AM	4	9	7	4	4	5	33
10:15 AM	9	8	10	2	4	9	42
10:30 AM	9	9	5	10	5	5	43
10:45 AM	3	4	3	2	2	7	21
Total	25	30	25	18	15	26	139
11:00 AM	4	9	7	4	4	7	35
11:15 AM	5	7	6	4	8	2	32
11:30 AM	6	11	8	5	6	5	41
11:45 AM	12	6	5	6	6	5	40
Total	27	33	26	19	24	19	148
12:00 PM	21	12	5	8	8	4	58
12:15 PM	23	19	11	5	6	12	76
12:30 PM	27	6	8	7	1	6	55
12:45 PM	17	14	5	9	0	8	53
Total	88	51	29	29	15	30	242
01:00 PM	13	22	9	5	0	9	58
01:15 PM	11	9	0	8	2	6	36
01:30 PM	3	20	9	2	3	10	47
01:45 PM	8	7	6	5	6	7	39
Total	35	58	24	20	11	32	180
02:00 PM	9	10	6	7	5	3	40
02:15 PM	9	7	5	9	6	5	41
02:30 PM	3	6	10	7	2	1	29
02:45 PM	6	9	5	4	1	2	27
Total	27	32	26	27	14	11	137
03:00 PM	4	5	4	7	1	5	26
03:15 PM	2	8	6	15	3	8	42
03:30 PM	6	13	5	5	7	8	44
03:45 PM	9	9	7	6	11	5	47
Total	21	35	22	33	22	26	159
04:00 PM	6	6	8	5	7	7	39
04:15 PM	8	4	3	1	4	7	27
04:30 PM	11	1	13	10	8	16	59
04:45 PM	17	10	6	12	5	6	56
Total	42	21	30	28	24	36	181
05:00 PM	15	6	5	7	9	12	54
05:15 PM	14	9	12	14	15	14	78

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:30 PM	17	15	9	13	13	12	79
05:45 PM	19	21	8	14	26	8	96
Total	65	51	34	48	63	46	307
06:00 PM	14	18	9	20	19	17	97
06:15 PM	13	13	13	9	14	16	78
06:30 PM	12	11	9	12	4	11	59
06:45 PM	8	8	3	9	5	8	41
Total	47	50	34	50	42	52	275
07:00 PM	5	4	7	2	4	10	32
07:15 PM	3	9	0	7	3	2	24
Grand Total	480	476	327	357	312	365	2317
Apprch %	50.2	49.8	47.8	52.2	46.1	53.9	
Total %	20.7	20.5	14.1	15.4	13.5	15.8	
Pedestrians	413	397	247	230	180	175	1642
% Pedestrians	86	83.4	75.5	64.4	57.7	47.9	70.9
Bicycles	67	79	80	127	132	190	675
% Bicycles	14	16.6	24.5	35.6	42.3	52.1	29.1

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	21	12	33	5	8	13	**8**	4	12	58
12:15 PM	23	**19**	**42**	**11**	5	**16**	6	**12**	**18**	**76**
12:30 PM	**27**	6	33	8	7	15	1	6	7	55
12:45 PM	17	14	31	5	**9**	14	0	8	8	53
Total Volume	88	51	139	29	29	58	15	30	45	242
% App. Total	63.3	36.7		50	50		33.3	66.7		
PHF	.815	.671	.827	.659	.806	.906	.469	.625	.625	.796
Pedestrians	85	46	131	24	24	48	13	25	38	217
% Pedestrians	96.6	90.2	94.2	82.8	82.8	82.8	86.7	83.3	84.4	89.7
Bicycles	3	5	8	5	5	10	2	5	7	25
% Bicycles	3.4	9.8	5.8	17.2	17.2	17.2	13.3	16.7	15.6	10.3
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:15 PM										
05:15 PM	14	9	23	**12**	14	26	15	14	29	78
05:30 PM	17	15	32	9	13	22	13	12	25	79
05:45 PM	**19**	**21**	**40**	8	14	22	**26**	8	34	96
06:00 PM	14	18	32	9	**20**	**29**	19	**17**	**36**	**97**
Total Volume	64	63	127	38	61	99	73	51	124	350
% App. Total	50.4	49.6		38.4	61.6		58.9	41.1		
PHF	.842	.750	.794	.792	.763	.853	.702	.750	.861	.902
Pedestrians	43	56	99	30	33	63	41	20	61	223
% Pedestrians	67.2	88.9	78.0	78.9	54.1	63.6	56.2	39.2	49.2	63.7
Bicycles	21	7	28	8	28	36	32	31	63	127
% Bicycles	32.8	11.1	22.0	21.1	45.9	36.4	43.8	60.8	50.8	36.3

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	6	7	6	4	1	1	25
07:45 AM	11	6	5	4	2	1	29
Total	17	13	11	8	3	2	54
08:00 AM	13	5	5	6	1	3	33
08:15 AM	12	8	4	6	6	0	36
08:30 AM	1	12	5	5	5	2	30
08:45 AM	8	0	5	3	4	3	23
Total	34	25	19	20	16	8	122
09:00 AM	9	8	0	5	6	2	30
09:15 AM	5	9	5	2	4	3	28
09:30 AM	8	5	5	3	4	1	26
09:45 AM	8	5	1	10	10	1	35
Total	30	27	11	20	24	7	119
10:00 AM	4	6	5	2	3	1	21
10:15 AM	8	6	8	2	3	5	32
10:30 AM	8	8	4	9	4	3	36
10:45 AM	3	3	3	2	2	3	16
Total	23	23	20	15	12	12	105
11:00 AM	3	6	4	1	2	3	19
11:15 AM	5	6	3	4	5	1	24
11:30 AM	6	10	5	5	5	4	35
11:45 AM	11	5	5	4	4	5	34
Total	25	27	17	14	16	13	112
12:00 PM	21	10	3	7	8	1	50
12:15 PM	21	19	11	2	4	11	68
12:30 PM	27	4	5	7	1	5	49
12:45 PM	16	13	5	8	0	8	50
Total	85	46	24	24	13	25	217
01:00 PM	13	22	9	5	0	7	56
01:15 PM	9	9	0	4	1	1	24
01:30 PM	3	20	9	1	3	8	44
01:45 PM	8	6	5	5	5	4	33
Total	33	57	23	15	9	20	157
02:00 PM	9	10	6	6	5	2	38
02:15 PM	7	7	5	5	5	2	31
02:30 PM	3	5	9	6	2	0	25
02:45 PM	6	9	4	3	0	0	22
Total	25	31	24	20	12	4	116
03:00 PM	4	5	4	7	1	3	24
03:15 PM	2	8	5	9	0	7	31
03:30 PM	6	11	1	3	2	0	23
03:45 PM	8	8	6	4	5	4	35
Total	20	32	16	23	8	14	113
04:00 PM	5	5	6	3	3	6	28
04:15 PM	6	4	3	0	1	5	19
04:30 PM	9	1	10	7	5	10	42
04:45 PM	14	9	6	7	3	3	42
Total	34	19	25	17	12	24	131
05:00 PM	13	6	3	3	4	5	34
05:15 PM	10	7	9	8	7	3	44

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:30 PM	13	14	7	9	7	5	55
05:45 PM	12	18	8	5	15	5	63
Total	48	45	27	25	33	18	196
06:00 PM	8	17	6	11	12	7	61
06:15 PM	11	10	10	4	6	8	49
06:30 PM	9	10	6	8	1	5	39
06:45 PM	5	7	3	2	2	2	21
Total	33	44	25	25	21	22	170
07:00 PM	3	2	5	0	1	5	16
07:15 PM	3	6	0	4	0	1	14
Grand Total	413	397	247	230	180	175	1642
Apprch %	51	49	51.8	48.2	50.7	49.3	
Total %	25.2	24.2	15	14	11	10.7	

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:15 PM										
12:15 PM	21	19	**40**	**11**	2	13	**4**	**11**	**15**	**68**
12:30 PM	**27**	4	31	5	7	12	1	5	6	49
12:45 PM	16	13	29	5	**8**	13	0	8	8	50
01:00 PM	13	**22**	35	9	5	**14**	0	7	7	56
Total Volume	77	58	135	30	22	52	5	31	36	223
% App. Total	57	43		57.7	42.3		13.9	86.1		
PHF	.713	.659	.844	.682	.688	.929	.313	.705	.600	.820
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	**13**	14	27	7	9	16	7	5	12	55
05:45 PM	12	**18**	**30**	8	5	13	**15**	5	**20**	**63**
06:00 PM	8	17	25	6	**11**	**17**	12	7	19	61
06:15 PM	11	10	21	**10**	4	14	6	**8**	14	49
Total Volume	44	59	103	31	29	60	40	25	65	228
% App. Total	42.7	57.3		51.7	48.3		61.5	38.5		
PHF	.846	.819	.858	.775	.659	.882	.667	.781	.813	.905

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	2	3	3	2	1	8	19
07:45 AM	1	9	8	2	3	6	29
Total	3	12	11	4	4	14	48
08:00 AM	3	6	5	2	2	11	29
08:15 AM	2	3	4	1	1	7	18
08:30 AM	1	2	1	6	6	10	26
08:45 AM	2	5	4	5	6	4	26
Total	8	16	14	14	15	32	99
09:00 AM	0	3	2	6	8	4	23
09:15 AM	0	1	1	1	2	2	7
09:30 AM	2	2	1	3	2	1	11
09:45 AM	1	3	0	0	1	5	10
Total	3	9	4	10	13	12	51
10:00 AM	0	3	2	2	1	4	12
10:15 AM	1	2	2	0	1	4	10
10:30 AM	1	1	1	1	1	2	7
10:45 AM	0	1	0	0	0	4	5
Total	2	7	5	3	3	14	34
11:00 AM	1	3	3	3	2	4	16
11:15 AM	0	1	3	0	3	1	8
11:30 AM	0	1	3	0	1	1	6
11:45 AM	1	1	0	2	2	0	6
Total	2	6	9	5	8	6	36
12:00 PM	0	2	2	1	0	3	8
12:15 PM	2	0	0	3	2	1	8
12:30 PM	0	2	3	0	0	1	6
12:45 PM	1	1	0	1	0	0	3
Total	3	5	5	5	2	5	25
01:00 PM	0	0	0	0	0	2	2
01:15 PM	2	0	0	4	1	5	12
01:30 PM	0	0	0	1	0	2	3
01:45 PM	0	1	1	0	1	3	6
Total	2	1	1	5	2	12	23
02:00 PM	0	0	0	1	0	1	2
02:15 PM	2	0	0	4	1	3	10
02:30 PM	0	1	1	1	0	1	4
02:45 PM	0	0	1	1	1	2	5
Total	2	1	2	7	2	7	21
03:00 PM	0	0	0	0	0	2	2
03:15 PM	0	0	1	6	3	1	11
03:30 PM	0	2	4	2	5	8	21
03:45 PM	1	1	1	2	6	1	12
Total	1	3	6	10	14	12	46
04:00 PM	1	1	2	2	4	1	11
04:15 PM	2	0	0	1	3	2	8
04:30 PM	2	0	3	3	3	6	17
04:45 PM	3	1	0	5	2	3	14
Total	8	2	5	11	12	12	50
05:00 PM	2	0	2	4	5	7	20
05:15 PM	4	2	3	6	8	11	34

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:30 PM	4	1	2	4	6	7	24
05:45 PM	7	3	0	9	11	3	33
Total	17	6	7	23	30	28	111
06:00 PM	6	1	3	9	7	10	36
06:15 PM	2	3	3	5	8	8	29
06:30 PM	3	1	3	4	3	6	20
06:45 PM	3	1	0	7	3	6	20
Total	14	6	9	25	21	30	105
07:00 PM	2	2	2	2	3	5	16
07:15 PM	0	3	0	3	3	1	10
Grand Total	67	79	80	127	132	190	675
Apprch %	45.9	54.1	38.6	61.4	41	59	
Total %	9.9	11.7	11.9	18.8	19.6	28.1	

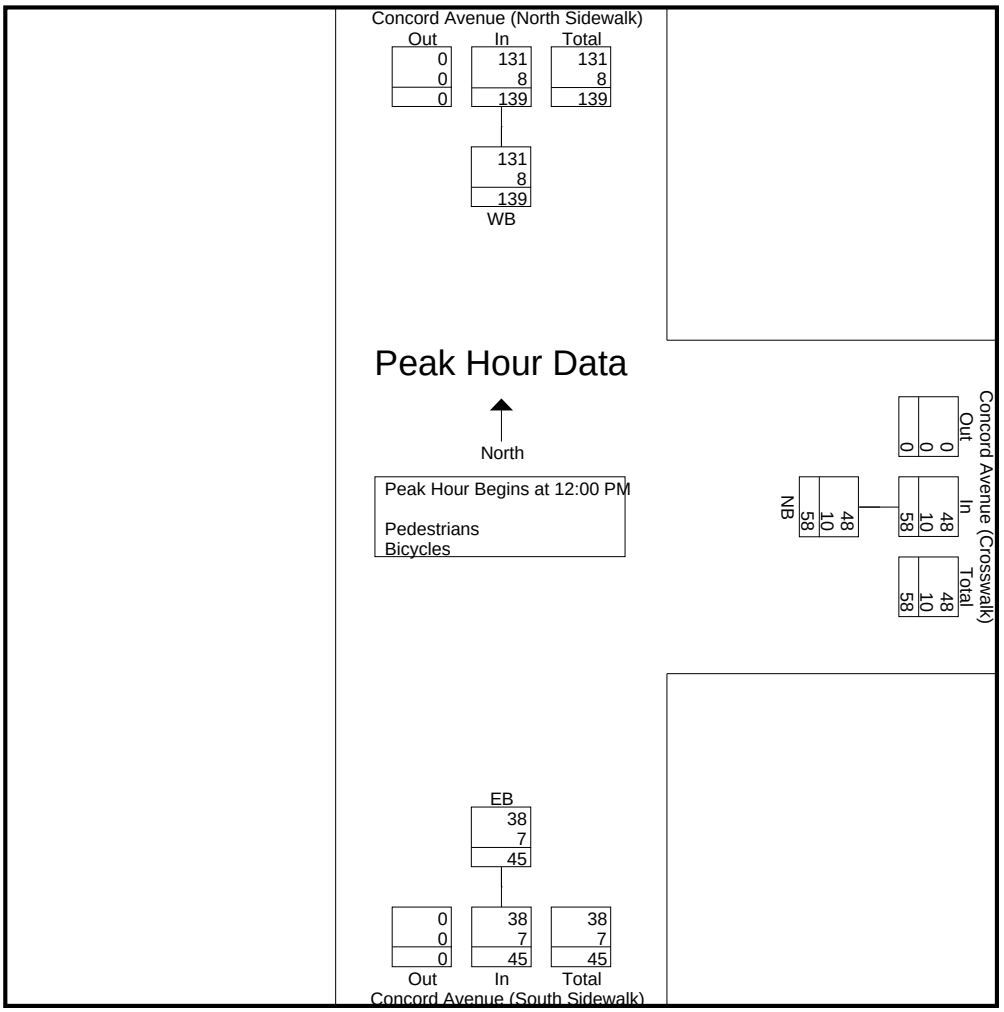
	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	1	**9**	**10**	**8**	2	**10**	3	6	9	**29**
08:00 AM	**3**	6	9	5	2	7	2	**11**	13	29
08:15 AM	2	3	5	4	1	5	1	7	8	18
08:30 AM	1	2	3	1	**6**	7	**6**	10	**16**	26
Total Volume	7	20	27	18	11	29	12	34	46	102
% App. Total	25.9	74.1		62.1	37.9		26.1	73.9		
PHF	.583	.556	.675	.563	.458	.725	.500	.773	.719	.879
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:15 PM										
05:15 PM	4	2	6	**3**	6	9	8	**11**	**19**	34
05:30 PM	4	1	5	2	4	6	6	7	13	24
05:45 PM	**7**	**3**	**10**	0	**9**	9	**11**	3	14	33
06:00 PM	6	1	7	3	9	**12**	7	10	17	**36**
Total Volume	21	7	28	8	28	36	32	31	63	127
% App. Total	75	25		22.2	77.8		50.8	49.2		
PHF	.750	.583	.700	.667	.778	.750	.727	.705	.829	.882

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016
Page No : 1

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 12:00 PM										
12:00 PM	21	12	33	5	8	13	**8**	4	12	58
12:15 PM	23	**19**	**42**	**11**	5	**16**	6	**12**	**18**	**76**
12:30 PM	**27**	6	33	8	7	15	1	6	7	55
12:45 PM	17	14	31	5	**9**	14	0	8	8	53
Total Volume	88	51	139	29	29	58	15	30	45	242
% App. Total	63.3	36.7		50	50		33.3	66.7		
PHF	.815	.671	.827	.659	.806	.906	.469	.625	.625	.796
Pedestrians	85	46	131	24	24	48	13	25	38	217
% Pedestrians	96.6	90.2	94.2	82.8	82.8	82.8	86.7	83.3	84.4	89.7
Bicycles	3	5	8	5	5	10	2	5	7	25
% Bicycles	3.4	9.8	5.8	17.2	17.2	17.2	13.3	16.7	15.6	10.3

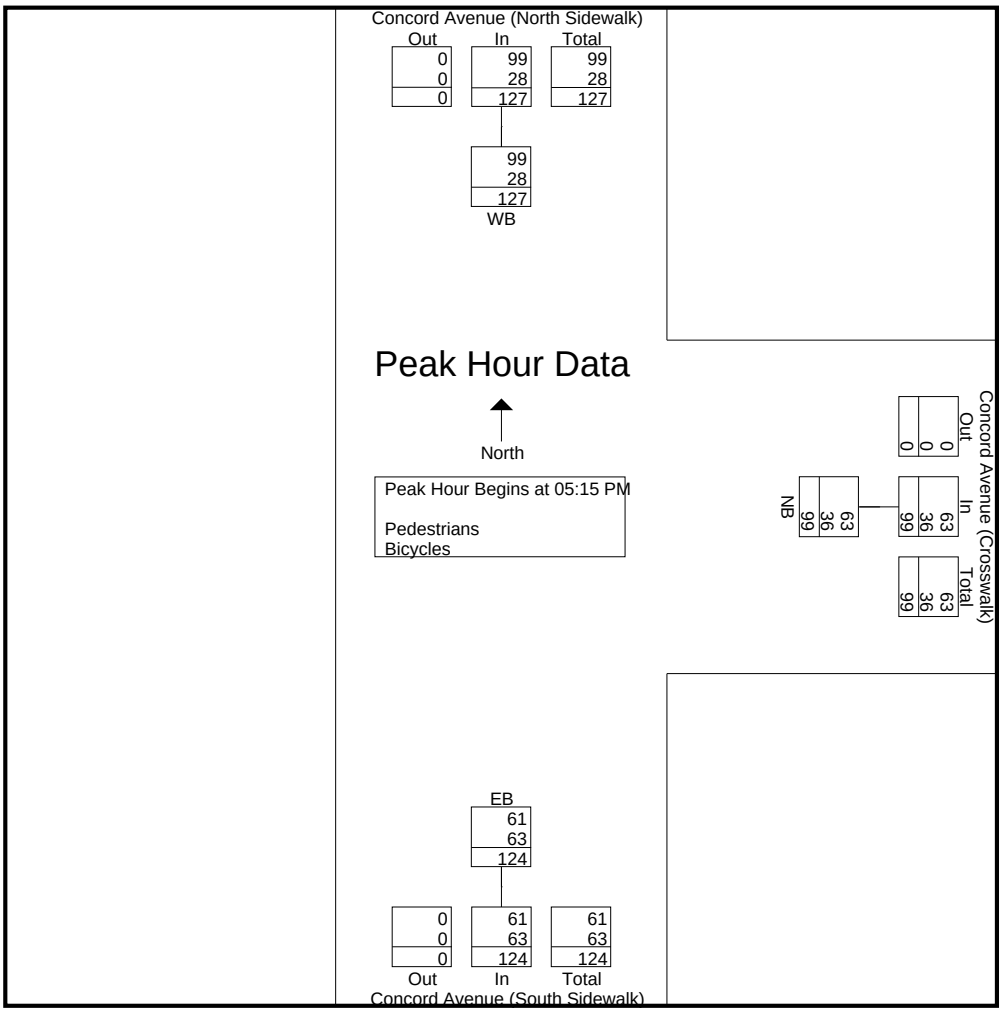


PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 F-Pathways
Site Code : TBA
Start Date : 10/5/2016

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:15 PM										
05:15 PM	14	9	23	**12**	14	26	15	14	29	78
05:30 PM	17	15	32	9	13	22	13	12	25	79
05:45 PM	**19**	**21**	**40**	8	14	22	**26**	8	34	96
06:00 PM	14	18	32	9	**20**	**29**	19	**17**	**36**	**97**
Total Volume	64	63	127	38	61	99	73	51	124	350
% App. Total	50.4	49.6		38.4	61.6		58.9	41.1		
PHF	.842	.750	.794	.792	.763	.853	.702	.750	.861	.902
Pedestrians	43	56	99	30	33	63	41	20	61	223
% Pedestrians	67.2	88.9	78.0	78.9	54.1	63.6	56.2	39.2	49.2	63.7
Bicycles	21	7	28	8	28	36	32	31	63	127
% Bicycles	32.8	11.1	22.0	21.1	45.9	36.4	43.8	60.8	50.8	36.3



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	0	10	3	8	0	0	21
07:45 AM	8	14	11	15	0	0	48
Total	8	24	14	23	0	0	69
08:00 AM	9	7	7	10	0	0	33
08:15 AM	18	4	9	9	0	0	40
08:30 AM	17	17	7	15	0	0	56
08:45 AM	19	13	10	13	0	0	55
Total	63	41	33	47	0	0	184
09:00 AM	14	19	13	8	0	0	54
09:15 AM	11	6	8	5	0	0	30
09:30 AM	4	6	8	8	0	0	26
09:45 AM	6	8	8	9	0	0	31
Total	35	39	37	30	0	0	141
10:00 AM	1	11	6	5	0	0	23
10:15 AM	3	4	4	3	0	0	14
10:30 AM	5	4	4	9	0	0	22
10:45 AM	3	5	2	8	0	0	18
Total	12	24	16	25	0	0	77
11:00 AM	9	7	8	5	0	0	29
11:15 AM	2	6	5	7	0	0	20
11:30 AM	1	11	6	7	0	0	25
11:45 AM	7	13	3	4	0	0	27
Total	19	37	22	23	0	0	101
12:00 PM	20	7	3	4	0	0	34
12:15 PM	6	2	1	3	0	0	12
12:30 PM	8	1	2	5	0	0	16
12:45 PM	4	10	5	5	0	0	24
Total	38	20	11	17	0	0	86
01:00 PM	7	4	4	4	0	0	19
01:15 PM	0	2	2	3	0	0	7
01:30 PM	6	5	6	8	0	0	25
01:45 PM	8	8	9	3	0	0	28
Total	21	19	21	18	0	0	79
02:00 PM	2	16	9	6	0	0	33
02:15 PM	5	9	7	12	0	0	33
02:30 PM	11	11	9	8	0	0	39
02:45 PM	11	5	10	10	0	0	36
Total	29	41	35	36	0	0	141
03:00 PM	6	11	2	4	0	0	23
03:15 PM	5	15	7	5	0	0	32
03:30 PM	1	9	2	8	0	0	20
03:45 PM	6	10	8	10	0	0	34
Total	18	45	19	27	0	0	109
04:00 PM	6	9	8	11	0	0	34
04:15 PM	10	16	13	5	0	0	44
04:30 PM	5	9	6	8	0	0	28
04:45 PM	6	15	5	12	0	0	38
Total	27	49	32	36	0	0	144
05:00 PM	5	12	13	8	0	0	38

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:15 PM	4	19	10	11	0	0	44
05:30 PM	9	16	13	14	0	0	52
05:45 PM	10	27	17	13	0	0	67
Total	28	74	53	46	0	0	201
06:00 PM	9	28	18	8	0	0	63
06:15 PM	9	22	12	19	0	0	62
06:30 PM	9	17	9	10	0	0	45
06:45 PM	9	11	8	13	0	0	41
Total	36	78	47	50	0	0	211
07:00 PM	6	7	5	9	0	0	27
07:15 PM	7	2	2	1	0	0	12
Grand Total	347	500	347	388	0	0	1582
Apprch %	41	59	47.2	52.8	0	0	
Total %	21.9	31.6	21.9	24.5	0	0	
Pedestrians	246	317	224	245	0	0	1032
% Pedestrians	70.9	63.4	64.6	63.1	0	0	65.2
Bicycles	101	183	123	143	0	0	550
% Bicycles	29.1	36.6	35.4	36.9	0	0	34.8

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:15 AM										
08:15 AM	18	4	22	9	9	18	0	0	0	40
08:30 AM	17	17	34	7	15	22	0	0	0	56
08:45 AM	19	13	32	10	13	23	0	0	0	55
09:00 AM	14	19	33	13	8	21	0	0	0	54
Total Volume	68	53	121	39	45	84	0	0	0	205
% App. Total	56.2	43.8		46.4	53.6		0	0		
PHF	.895	.697	.890	.750	.750	.913	.000	.000	.000	.915
Pedestrians	30	37	67	26	21	47	0	0	0	114
% Pedestrians	44.1	69.8	55.4	66.7	46.7	56.0	0	0	0	55.6
Bicycles	38	16	54	13	24	37	0	0	0	91
% Bicycles	55.9	30.2	44.6	33.3	53.3	44.0	0	0	0	44.4
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	9	16	25	13	14	27	0	0	0	52
05:45 PM	10	27	37	17	13	30	0	0	0	67
06:00 PM	9	28	37	18	8	26	0	0	0	63
06:15 PM	9	22	31	12	19	31	0	0	0	62
Total Volume	37	93	130	60	54	114	0	0	0	244
% App. Total	28.5	71.5		52.6	47.4		0	0		
PHF	.925	.830	.878	.833	.711	.919	.000	.000	.000	.910
Pedestrians	27	49	76	38	32	70	0	0	0	146
% Pedestrians	73.0	52.7	58.5	63.3	59.3	61.4	0	0	0	59.8
Bicycles	10	44	54	22	22	44	0	0	0	98
% Bicycles	27.0	47.3	41.5	36.7	40.7	38.6	0	0	0	40.2

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	0	4	1	0	0	0	5
07:45 AM	6	8	6	6	0	0	26
Total	6	12	7	6	0	0	31
08:00 AM	5	5	4	6	0	0	20
08:15 AM	9	4	6	7	0	0	26
08:30 AM	3	11	6	6	0	0	26
08:45 AM	11	8	6	6	0	0	31
Total	28	28	22	25	0	0	103
09:00 AM	7	14	8	2	0	0	31
09:15 AM	7	3	4	3	0	0	17
09:30 AM	4	4	6	6	0	0	20
09:45 AM	4	6	6	4	0	0	20
Total	22	27	24	15	0	0	88
10:00 AM	1	8	5	3	0	0	17
10:15 AM	2	3	3	1	0	0	9
10:30 AM	5	3	4	8	0	0	20
10:45 AM	2	5	2	6	0	0	15
Total	10	19	14	18	0	0	61
11:00 AM	7	3	5	2	0	0	17
11:15 AM	2	5	3	6	0	0	16
11:30 AM	0	5	1	4	0	0	10
11:45 AM	5	10	1	4	0	0	20
Total	14	23	10	16	0	0	63
12:00 PM	17	6	2	2	0	0	27
12:15 PM	5	2	1	3	0	0	11
12:30 PM	7	0	1	4	0	0	12
12:45 PM	4	8	5	5	0	0	22
Total	33	16	9	14	0	0	72
01:00 PM	5	3	3	3	0	0	14
01:15 PM	0	1	1	1	0	0	3
01:30 PM	6	4	5	6	0	0	21
01:45 PM	5	7	6	3	0	0	21
Total	16	15	15	13	0	0	59
02:00 PM	2	12	7	5	0	0	26
02:15 PM	5	7	7	7	0	0	26
02:30 PM	9	10	6	7	0	0	32
02:45 PM	7	2	7	8	0	0	24
Total	23	31	27	27	0	0	108
03:00 PM	5	11	2	3	0	0	21
03:15 PM	4	10	5	5	0	0	24
03:30 PM	0	5	0	5	0	0	10
03:45 PM	5	5	5	8	0	0	23
Total	14	31	12	21	0	0	78
04:00 PM	5	4	3	9	0	0	21
04:15 PM	9	9	10	2	0	0	30
04:30 PM	4	4	6	2	0	0	16
04:45 PM	5	15	5	9	0	0	34
Total	23	32	24	22	0	0	101
05:00 PM	5	6	8	3	0	0	22

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:15 PM	2	8	6	4	0	0	20
05:30 PM	6	10	9	8	0	0	33
05:45 PM	8	9	10	11	0	0	38
Total	21	33	33	26	0	0	113
06:00 PM	6	21	13	4	0	0	44
06:15 PM	7	9	6	9	0	0	31
06:30 PM	6	12	4	10	0	0	32
06:45 PM	8	6	3	11	0	0	28
Total	27	48	26	34	0	0	135
07:00 PM	4	2	1	7	0	0	14
07:15 PM	5	0	0	1	0	0	6
Grand Total	246	317	224	245	0	0	1032
Apprch %	43.7	56.3	47.8	52.2	0	0	
Total %	23.8	30.7	21.7	23.7	0	0	

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:15 AM										
08:15 AM	9	4	13	6	7	13	0	0	0	26
08:30 AM	3	11	14	6	6	12	0	0	0	26
08:45 AM	11	8	19	6	6	12	0	0	0	31
09:00 AM	7	14	21	8	2	10	0	0	0	31
Total Volume	30	37	67	26	21	47	0	0	0	114
% App. Total	44.8	55.2		55.3	44.7		0	0		
PHF	.682	.661	.798	.813	.750	.904	.000	.000	.000	.919
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	6	10	16	9	8	17	0	0	0	33
05:45 PM	8	9	17	10	11	21	0	0	0	38
06:00 PM	6	21	27	13	4	17	0	0	0	44
06:15 PM	7	9	16	6	9	15	0	0	0	31
Total Volume	27	49	76	38	32	70	0	0	0	146
% App. Total	35.5	64.5		54.3	45.7		0	0		
PHF	.844	.583	.704	.731	.727	.833	.000	.000	.000	.830

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
07:30 AM	0	6	2	8	0	0	16
07:45 AM	2	6	5	9	0	0	22
Total	2	12	7	17	0	0	38
08:00 AM	4	2	3	4	0	0	13
08:15 AM	9	0	3	2	0	0	14
08:30 AM	14	6	1	9	0	0	30
08:45 AM	8	5	4	7	0	0	24
Total	35	13	11	22	0	0	81
09:00 AM	7	5	5	6	0	0	23
09:15 AM	4	3	4	2	0	0	13
09:30 AM	0	2	2	2	0	0	6
09:45 AM	2	2	2	5	0	0	11
Total	13	12	13	15	0	0	53
10:00 AM	0	3	1	2	0	0	6
10:15 AM	1	1	1	2	0	0	5
10:30 AM	0	1	0	1	0	0	2
10:45 AM	1	0	0	2	0	0	3
Total	2	5	2	7	0	0	16
11:00 AM	2	4	3	3	0	0	12
11:15 AM	0	1	2	1	0	0	4
11:30 AM	1	6	5	3	0	0	15
11:45 AM	2	3	2	0	0	0	7
Total	5	14	12	7	0	0	38
12:00 PM	3	1	1	2	0	0	7
12:15 PM	1	0	0	0	0	0	1
12:30 PM	1	1	1	1	0	0	4
12:45 PM	0	2	0	0	0	0	2
Total	5	4	2	3	0	0	14
01:00 PM	2	1	1	1	0	0	5
01:15 PM	0	1	1	2	0	0	4
01:30 PM	0	1	1	2	0	0	4
01:45 PM	3	1	3	0	0	0	7
Total	5	4	6	5	0	0	20
02:00 PM	0	4	2	1	0	0	7
02:15 PM	0	2	0	5	0	0	7
02:30 PM	2	1	3	1	0	0	7
02:45 PM	4	3	3	2	0	0	12
Total	6	10	8	9	0	0	33
03:00 PM	1	0	0	1	0	0	2
03:15 PM	1	5	2	0	0	0	8
03:30 PM	1	4	2	3	0	0	10
03:45 PM	1	5	3	2	0	0	11
Total	4	14	7	6	0	0	31
04:00 PM	1	5	5	2	0	0	13
04:15 PM	1	7	3	3	0	0	14
04:30 PM	1	5	0	6	0	0	12
04:45 PM	1	0	0	3	0	0	4
Total	4	17	8	14	0	0	43
05:00 PM	0	6	5	5	0	0	16

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Concord Avenue (North Sidewalk) From North		Concord Avenue (Crosswalk) From East		Concord Avenue (South Sidewalk) From South		
Start Time	EB	WB	SB	NB	WB	EB	Int. Total
05:15 PM	2	11	4	7	0	0	24
05:30 PM	3	6	4	6	0	0	19
05:45 PM	2	18	7	2	0	0	29
Total	7	41	20	20	0	0	88
06:00 PM	3	7	5	4	0	0	19
06:15 PM	2	13	6	10	0	0	31
06:30 PM	3	5	5	0	0	0	13
06:45 PM	1	5	5	2	0	0	13
Total	9	30	21	16	0	0	76
07:00 PM	2	5	4	2	0	0	13
07:15 PM	2	2	2	0	0	0	6
Grand Total	101	183	123	143	0	0	550
Apprch %	35.6	64.4	46.2	53.8	0	0	
Total %	18.4	33.3	22.4	26	0	0	

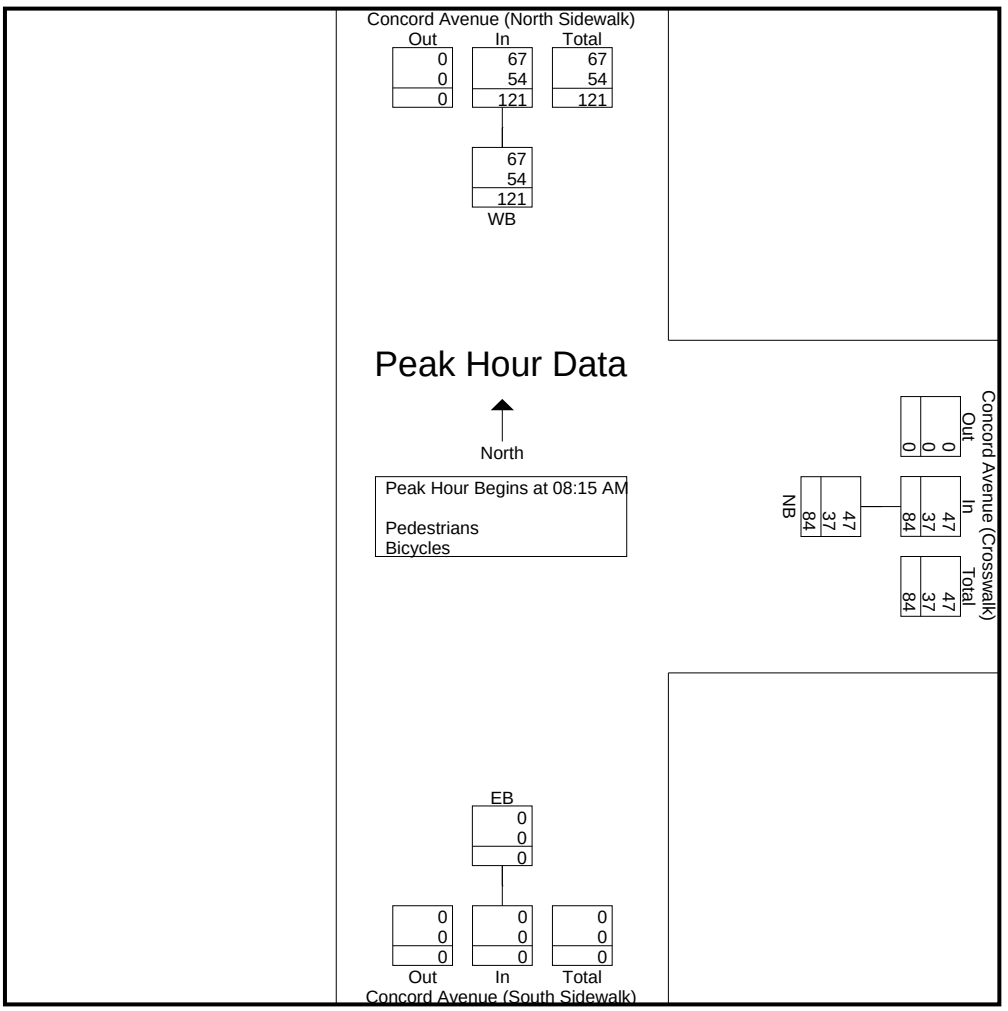
	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:15 AM										
08:15 AM	9	0	9	3	2	5	0	0	0	14
08:30 AM	14	6	20	1	9	10	0	0	0	30
08:45 AM	8	5	13	4	7	11	0	0	0	24
09:00 AM	7	5	12	5	6	11	0	0	0	23
Total Volume	38	16	54	13	24	37	0	0	0	91
% App. Total	70.4	29.6		35.1	64.9		0	0		
PHF	.679	.667	.675	.650	.667	.841	.000	.000	.000	.758
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	3	6	9	4	6	10	0	0	0	19
05:45 PM	2	18	20	7	2	9	0	0	0	29
06:00 PM	3	7	10	5	4	9	0	0	0	19
06:15 PM	2	13	15	6	10	16	0	0	0	31
Total Volume	10	44	54	22	22	44	0	0	0	98
% App. Total	18.5	81.5		50	50		0	0		
PHF	.833	.611	.675	.786	.550	.688	.000	.000	.000	.790

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:15 AM										
08:15 AM	18	4	22	9	9	18	0	0	0	40
08:30 AM	17	17	34	7	15	22	0	0	0	56
08:45 AM	19	13	32	10	13	23	0	0	0	55
09:00 AM	14	19	33	13	8	21	0	0	0	54
Total Volume	68	53	121	39	45	84	0	0	0	205
% App. Total	56.2	43.8		46.4	53.6		0	0		
PHF	.895	.697	.890	.750	.750	.913	.000	.000	.000	.915
Pedestrians	30	37	67	26	21	47	0	0	0	114
% Pedestrians	44.1	69.8	55.4	66.7	46.7	56.0	0	0	0	55.6
Bicycles	38	16	54	13	24	37	0	0	0	91
% Bicycles	55.9	30.2	44.6	33.3	53.3	44.0	0	0	0	44.4

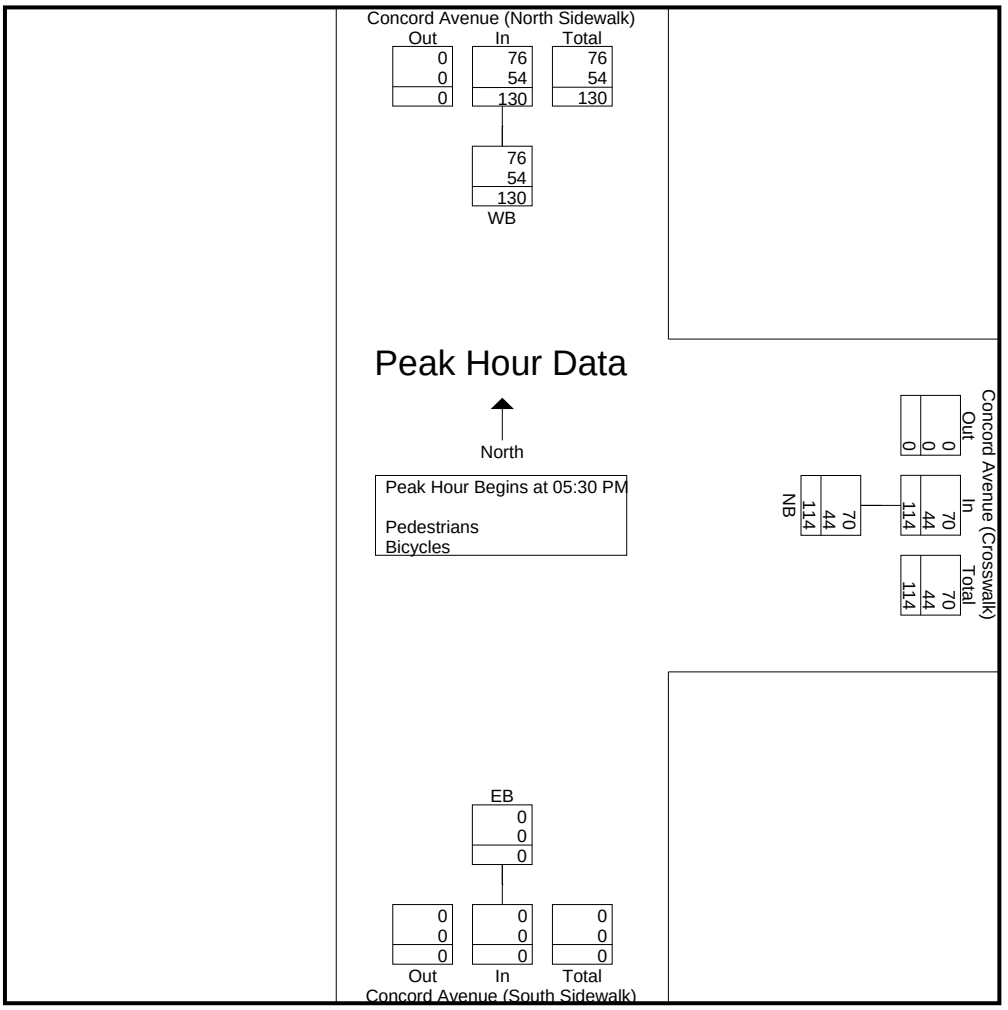


PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks between Rotaries
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 I-Pathways
Site Code : TBA
Start Date : 10/5/2016

	Concord Avenue (North Sidewalk) From North			Concord Avenue (Crosswalk) From East			Concord Avenue (South Sidewalk) From South			
Start Time	EB	WB	App. Total	SB	NB	App. Total	WB	EB	App. Total	Int. Total
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:30 PM										
05:30 PM	9	16	25	13	14	27	0	0	0	52
05:45 PM	10	27	37	17	13	30	0	0	0	67
06:00 PM	9	28	37	18	8	26	0	0	0	63
06:15 PM	9	22	31	12	19	31	0	0	0	62
Total Volume	37	93	130	60	54	114	0	0	0	244
% App. Total	28.5	71.5		52.6	47.4		0	0		
PHF	.925	.830	.878	.833	.711	.919	.000	.000	.000	.910
Pedestrians	27	49	76	38	32	70	0	0	0	146
% Pedestrians	73.0	52.7	58.5	63.3	59.3	61.4	0	0	0	59.8
Bicycles	10	44	54	22	22	44	0	0	0	98
% Bicycles	27.0	47.3	41.5	36.7	40.7	38.6	0	0	0	40.2



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
07:30 AM	0	3	0	1	2	2	8
07:45 AM	0	2	0	0	0	0	2
Total	0	5	0	1	2	2	10
08:00 AM	0	2	0	2	3	1	8
08:15 AM	0	0	3	2	0	5	10
08:30 AM	0	3	0	1	5	1	10
08:45 AM	0	2	0	0	3	3	8
Total	0	7	3	5	11	10	36
09:00 AM	0	4	0	1	5	3	13
09:15 AM	0	1	0	1	4	5	11
09:30 AM	0	1	2	2	1	1	7
09:45 AM	0	1	1	0	2	2	6
Total	0	7	3	4	12	11	37
10:00 AM	1	0	1	0	2	1	5
10:15 AM	1	0	0	0	1	2	4
10:30 AM	0	1	1	3	1	3	9
10:45 AM	0	0	0	1	0	2	3
Total	2	1	2	4	4	8	21
11:00 AM	0	0	0	0	2	2	4
11:15 AM	0	0	0	0	0	1	1
11:30 AM	2	0	2	0	4	2	10
11:45 AM	0	0	1	2	2	0	5
Total	2	0	3	2	8	5	20
12:00 PM	0	0	0	2	5	6	13
12:15 PM	0	0	0	0	3	3	6
12:30 PM	1	0	2	0	5	3	11
12:45 PM	0	0	0	1	4	2	7
Total	1	0	2	3	17	14	37
01:00 PM	0	0	1	1	4	3	9
01:15 PM	0	0	0	0	6	0	6
01:30 PM	0	0	0	0	1	2	3
01:45 PM	0	3	2	2	3	1	11
Total	0	3	3	3	14	6	29
02:00 PM	0	0	0	0	1	1	2
02:15 PM	0	0	2	0	1	1	4
02:30 PM	0	2	0	2	3	2	9
02:45 PM	2	0	2	0	1	2	7
Total	2	2	4	2	6	6	22
03:00 PM	0	0	3	0	2	0	5
03:15 PM	0	1	0	0	4	0	5
03:30 PM	0	0	0	0	2	0	2
03:45 PM	0	0	1	0	2	2	5
Total	0	1	4	0	10	2	17
04:00 PM	0	0	0	0	1	0	1
04:15 PM	0	0	1	0	5	0	6
04:30 PM	2	1	2	0	3	1	9
04:45 PM	1	0	1	0	1	0	3
Total	3	1	4	0	10	1	19
05:00 PM	5	0	5	2	4	2	18

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians - Bicycles

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
05:15 PM	5	0	3	1	5	1	15
05:30 PM	3	1	0	0	3	5	12
05:45 PM	3	0	0	1	4	1	9
Total	16	1	8	4	16	9	54
06:00 PM	1	0	0	2	3	2	8
06:15 PM	1	0	1	1	5	1	9
06:30 PM	1	0	2	0	0	0	3
06:45 PM	0	0	0	0	0	0	0
Total	3	0	3	3	8	3	20
07:00 PM	0	0	1	2	1	0	4
07:15 PM	0	0	1	0	0	0	1
Grand Total	29	28	41	33	119	77	327
Apprch %	50.9	49.1	55.4	44.6	60.7	39.3	
Total %	8.9	8.6	12.5	10.1	36.4	23.5	
Pedestrians	29	28	37	29	118	77	318
% Pedestrians	100	100	90.2	87.9	99.2	100	97.2
Bicycles	0	0	4	4	1	0	9
% Bicycles	0	0	9.8	12.1	0.8	0	2.8

	Wheeler Street (Crosswalk) From North			East Sidewalk From East			West Sidewalk From West			
Start Time	EB	WB	App. Total	SB	NB	App. Total	NB	SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:30 AM										
08:30 AM	0	3	3	0	1	1	5	1	6	10
08:45 AM	0	2	2	0	0	0	3	3	6	8
09:00 AM	0	4	4	0	1	1	5	3	8	13
09:15 AM	0	1	1	0	1	1	4	5	9	11
Total Volume	0	10	10	0	3	3	17	12	29	42
% App. Total	0	100		0	100		58.6	41.4		
PHF	.000	.625	.625	.000	.750	.750	.850	.600	.806	.808
Pedestrians	0	10	10	0	2	2	17	12	29	41
% Pedestrians	0	100	100	0	66.7	66.7	100	100	100	97.6
Bicycles	0	0	0	0	1	1	0	0	0	1
% Bicycles	0	0	0	0	33.3	33.3	0	0	0	2.4
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	5	2	7	4	2	6	18
05:15 PM	5	0	5	3	1	4	5	1	6	15
05:30 PM	3	1	4	0	0	0	3	5	8	12
05:45 PM	3	0	3	0	1	1	4	1	5	9
Total Volume	16	1	17	8	4	12	16	9	25	54
% App. Total	94.1	5.9		66.7	33.3		64	36		
PHF	.800	.250	.850	.400	.500	.429	.800	.450	.781	.750
Pedestrians	16	1	17	8	2	10	16	9	25	52
% Pedestrians	100	100	100	100	50.0	83.3	100	100	100	96.3
Bicycles	0	0	0	0	2	2	0	0	0	2
% Bicycles	0	0	0	0	50.0	16.7	0	0	0	3.7

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
07:30 AM	0	3	0	1	2	2	8
07:45 AM	0	2	0	0	0	0	2
Total	0	5	0	1	2	2	10
08:00 AM	0	2	0	2	3	1	8
08:15 AM	0	0	3	2	0	5	10
08:30 AM	0	3	0	1	5	1	10
08:45 AM	0	2	0	0	3	3	8
Total	0	7	3	5	11	10	36
09:00 AM	0	4	0	0	5	3	12
09:15 AM	0	1	0	1	4	5	11
09:30 AM	0	1	0	2	1	1	5
09:45 AM	0	1	0	0	2	2	5
Total	0	7	0	3	12	11	33
10:00 AM	1	0	1	0	2	1	5
10:15 AM	1	0	0	0	1	2	4
10:30 AM	0	1	1	3	1	3	9
10:45 AM	0	0	0	1	0	2	3
Total	2	1	2	4	4	8	21
11:00 AM	0	0	0	0	2	2	4
11:15 AM	0	0	0	0	0	1	1
11:30 AM	2	0	2	0	4	2	10
11:45 AM	0	0	1	2	2	0	5
Total	2	0	3	2	8	5	20
12:00 PM	0	0	0	2	5	6	13
12:15 PM	0	0	0	0	3	3	6
12:30 PM	1	0	2	0	5	3	11
12:45 PM	0	0	0	1	3	2	6
Total	1	0	2	3	16	14	36
01:00 PM	0	0	1	1	4	3	9
01:15 PM	0	0	0	0	6	0	6
01:30 PM	0	0	0	0	1	2	3
01:45 PM	0	3	2	2	3	1	11
Total	0	3	3	3	14	6	29
02:00 PM	0	0	0	0	1	1	2
02:15 PM	0	0	2	0	1	1	4
02:30 PM	0	2	0	2	3	2	9
02:45 PM	2	0	2	0	1	2	7
Total	2	2	4	2	6	6	22
03:00 PM	0	0	3	0	2	0	5
03:15 PM	0	1	0	0	4	0	5
03:30 PM	0	0	0	0	2	0	2
03:45 PM	0	0	1	0	2	2	5
Total	0	1	4	0	10	2	17
04:00 PM	0	0	0	0	1	0	1
04:15 PM	0	0	1	0	5	0	6
04:30 PM	2	1	2	0	3	1	9
04:45 PM	1	0	1	0	1	0	3
Total	3	1	4	0	10	1	19
05:00 PM	5	0	5	1	4	2	17

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D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Pedestrians

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
05:15 PM	5	0	3	0	5	1	14
05:30 PM	3	1	0	0	3	5	12
05:45 PM	3	0	0	1	4	1	9
Total	16	1	8	2	16	9	52
06:00 PM	1	0	0	2	3	2	8
06:15 PM	1	0	1	0	5	1	8
06:30 PM	1	0	2	0	0	0	3
06:45 PM	0	0	0	0	0	0	0
Total	3	0	3	2	8	3	19
07:00 PM	0	0	0	2	1	0	3
07:15 PM	0	0	1	0	0	0	1
Grand Total	29	28	37	29	118	77	318
Apprch %	50.9	49.1	56.1	43.9	60.5	39.5	
Total %	9.1	8.8	11.6	9.1	37.1	24.2	

	Wheeler Street (Crosswalk) From North			East Sidewalk From East			West Sidewalk From West			
Start Time	EB	WB	App. Total	SB	NB	App. Total	NB	SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:30 AM										
08:30 AM	0	3	3	0	1	1	5	1	6	10
08:45 AM	0	2	2	0	0	0	3	3	6	8
09:00 AM	0	4	4	0	0	0	5	3	8	12
09:15 AM	0	1	1	0	1	1	4	5	9	11
Total Volume	0	10	10	0	2	2	17	12	29	41
% App. Total	0	100		0	100		58.6	41.4		
PHF	.000	.625	.625	.000	.500	.500	.850	.600	.806	.854
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	5	1	6	4	2	6	17
05:15 PM	5	0	5	3	0	3	5	1	6	14
05:30 PM	3	1	4	0	0	0	3	5	8	12
05:45 PM	3	0	3	0	1	1	4	1	5	9
Total Volume	16	1	17	8	2	10	16	9	25	52
% App. Total	94.1	5.9		80	20		64	36		
PHF	.800	.250	.850	.400	.500	.417	.800	.450	.781	.765

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
07:30 AM	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
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	1	0	0	1
09:15 AM	0	0	0	0	0	0	0
09:30 AM	0	0	2	0	0	0	2
09:45 AM	0	0	1	0	0	0	1
Total	0	0	3	1	0	0	4
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
11:45 AM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
12:00 PM	0	0	0	0	0	0	0
12:15 PM	0	0	0	0	0	0	0
12:30 PM	0	0	0	0	0	0	0
12:45 PM	0	0	0	0	1	0	1
Total	0	0	0	0	1	0	1
01:00 PM	0	0	0	0	0	0	0
01:15 PM	0	0	0	0	0	0	0
01:30 PM	0	0	0	0	0	0	0
01:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
02:00 PM	0	0	0	0	0	0	0
02:15 PM	0	0	0	0	0	0	0
02:30 PM	0	0	0	0	0	0	0
02:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
03:00 PM	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0
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	0	0	0
05:00 PM	0	0	0	1	0	0	1

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

Groups Printed- Bicycles

	Wheeler Street (Crosswalk) From North		East Sidewalk From East		West Sidewalk From West		
Start Time	EB	WB	SB	NB	NB	SB	Int. Total
05:15 PM	0	0	0	1	0	0	1
05:30 PM	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	2
06:00 PM	0	0	0	0	0	0	0
06:15 PM	0	0	0	1	0	0	1
06:30 PM	0	0	0	0	0	0	0
06:45 PM	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	1
07:00 PM	0	0	1	0	0	0	1
07:15 PM	0	0	0	0	0	0	0
Grand Total	0	0	4	4	1	0	9
Apprch %	0	0	50	50	100	0	
Total %	0	0	44.4	44.4	11.1	0	

	Wheeler Street (Crosswalk) From North			East Sidewalk From East			West Sidewalk From West			
Start Time	EB	WB	App. Total	SB	NB	App. Total	NB	SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 09:00 AM										
09:00 AM	0	0	0	0	1	1	0	0	0	1
09:15 AM	0	0	0	0	0	0	0	0	0	0
09:30 AM	0	0	0	2	0	2	0	0	0	2
09:45 AM	0	0	0	1	0	1	0	0	0	1
Total Volume	0	0	0	3	1	4	0	0	0	4
% App. Total	0	0		75	25		0	0		
PHF	.000	.000	.000	.375	.250	.500	.000	.000	.000	.500
Peak Hour Analysis From 01:45 PM to 07:15 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
04:45 PM	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	1	1	0	0	0	1
05:15 PM	0	0	0	0	1	1	0	0	0	1
Total Volume	0	0	0	0	2	2	0	0	0	2
% App. Total	0	0		0	100		0	0		
PHF	.000	.000	.000	.000	.500	.500	.000	.000	.000	.500

PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
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Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
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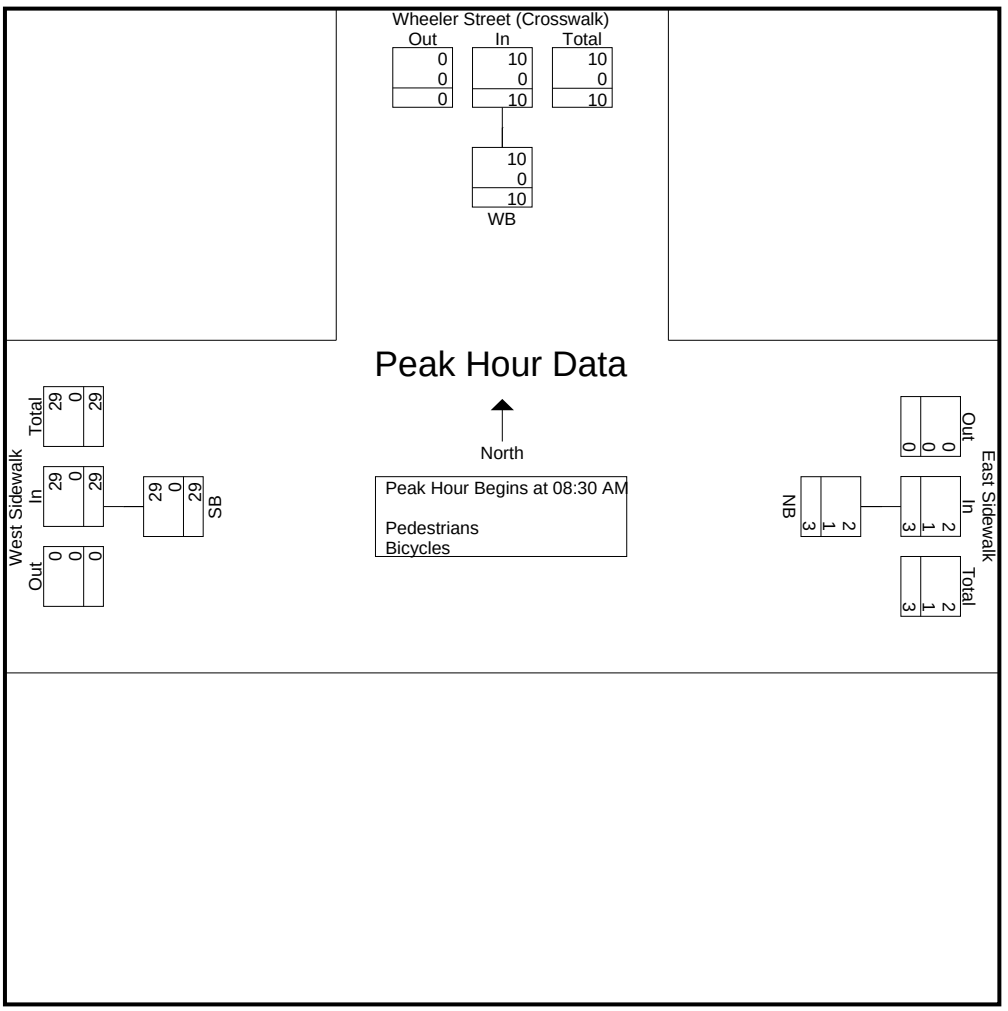
Page No : 1

	Wheeler Street (Crosswalk) From North			East Sidewalk From East			West Sidewalk From West			
Start Time	EB	WB	App. Total	SB	NB	App. Total	NB	SB	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 01:30 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 08:30 AM										
08:30 AM	0	3	3	0	1	1	5	1	6	10
08:45 AM	0	2	2	0	0	0	3	3	6	8
09:00 AM	0	4	4	0	1	1	5	3	8	13
09:15 AM	0	1	1	0	1	1	4	5	9	11
Total Volume	0	10	10	0	3	3	17	12	29	42
% App. Total	0	100		0	100		58.6	41.4		
PHF	.000	.625	.625	.000	.750	.750	.850	.600	.806	.808
Pedestrians	0	10	10	0	2	2	17	12	29	41
% Pedestrians	0	100	100	0	66.7	66.7	100	100	100	97.6
Bicycles	0	0	0	0	1	1	0	0	0	1
% Bicycles	0	0	0	0	33.3	33.3	0	0	0	2.4



PRECISION
D A T A
INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Concord Avenue Crosswalk and Sidewalks
west of Wheeler Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo

File Name : 165280 M-Pathways
Site Code : TBA
Start Date : 10/5/2016

	Wheeler Street (Crosswalk) From North			East Sidewalk From East			West Sidewalk From West			
Start Time	EB	WB	App. Total	SB	NB	App. Total	NB	SB	App. Total	Int. Total
Peak Hour Analysis From 01:45 PM to 07:15 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 05:00 PM										
05:00 PM	5	0	5	5	2	7	4	2	6	18
05:15 PM	5	0	5	3	1	4	5	1	6	15
05:30 PM	3	1	4	0	0	0	3	5	8	12
05:45 PM	3	0	3	0	1	1	4	1	5	9
Total Volume	16	1	17	8	4	12	16	9	25	54
% App. Total	94.1	5.9		66.7	33.3		64	36		
PHF	.800	.250	.850	.400	.500	.429	.800	.450	.781	.750
Pedestrians	16	1	17	8	2	10	16	9	25	52
% Pedestrians	100	100	100	100	50.0	83.3	100	100	100	96.3
Bicycles	0	0	0	0	2	2	0	0	0	2
% Bicycles	0	0	0	0	50.0	16.7	0	0	0	3.7

Trip Generation Calculation

55 Wheeler Street

Trip Generation Estimate
11/22/2016

	Size	Distri-bution	Trip Rate	Unadjusted Vehicle Trips	VOR	Person Trips	SOV	HOV	Transit	Walk	Bike	work from home	Other	Local VOR	SOV	HOV	Transit	Walk	Bike	work from home	Other
Daily Residential			6.65	3,658		4,133									1,364	113	1,942	310	165	145	83
In	550	50%	3.33	1,829	1.13	2,066	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	682	56	971	155	83	72	41
Out	units	50%	3.33	1,829	1.13	2,066	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	682	56	971	155	83	72	41
AM Residential			0.51	281		317									105	9	149	24	13	11	6
In	550	20%	0.10	56	1.13	63	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	21	2	30	5	3	2	1
Out	units	80%	0.41	224	1.13	254	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	84	7	119	19	10	9	5
PM Residential			0.62	341		385									127	11	181	29	15	13	8
In	550	65%	0.40	222	1.13	250	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	83	7	118	19	10	9	5
Out	units	35%	0.22	119	1.13	135	33.0%	3.0%	47.0%	7.5%	4.0%	3.5%	2.0%	1.10	45	4	63	10	5	5	3

	ADAM APPROVED RATES	Trip Gen
AM Peak Hour		
In	0.04	22
Out	0.17	94
PM Peak Hour		
In	0.13	72
Out	0.09	50

Notes:
Trip Generation based on *ITE Trip Generation Manual* , 9th Edition
LUC 220 - Apartment, average rate

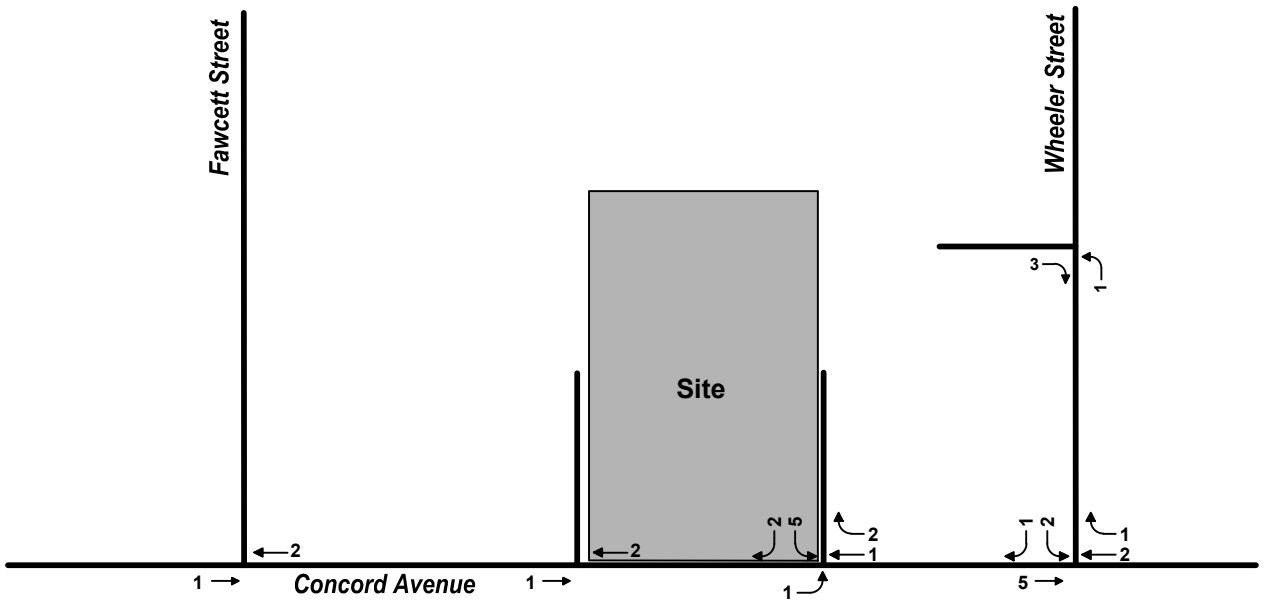
Mode shares based on Residential: 2010-2014 ACS 5-yesr estimates for census tract 3546
VOR stands for Vehicle Occupancy Rate from 2009 NHTS
Local VOR from Residential: American Community Survey 2010-2014 census tract 3546

Background Traffic

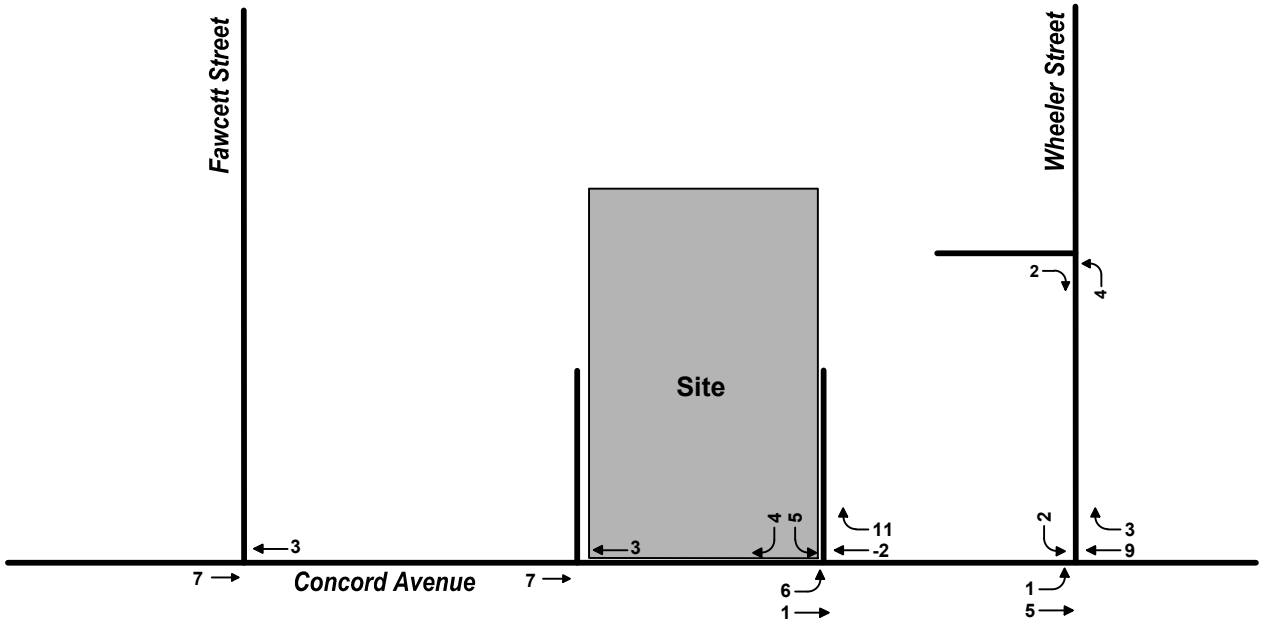
605 Concord Avenue
95 Fawcett Street
75 New Street
130 Cambridge Park Drive
88 Cambridge Park Drive
35 Cambridge Park Drive

605 Concord Avenue

Technical Appendix



Weekday Morning Peak Hour



Weekday Evening Peak Hour

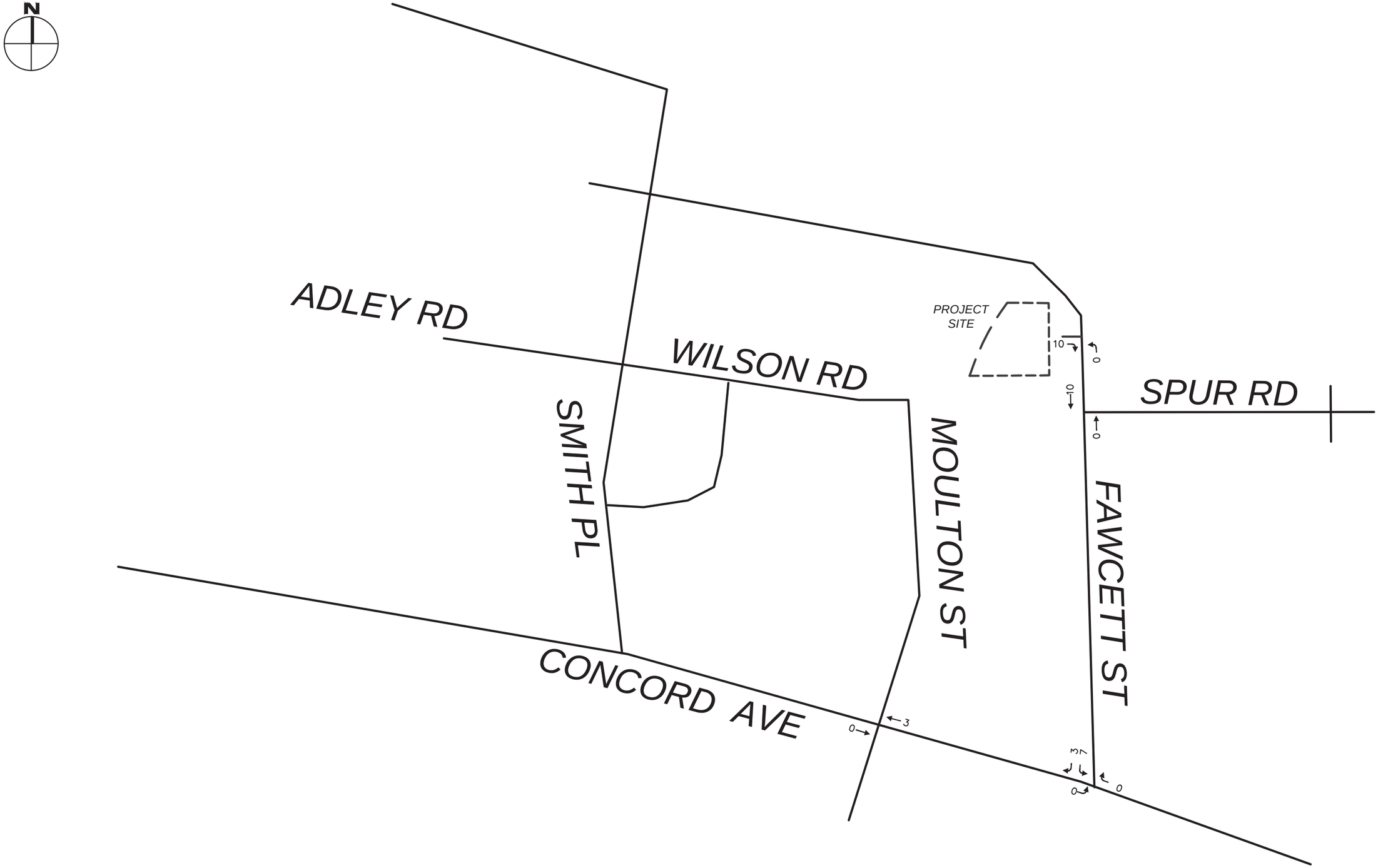
Not to Scale

Figure 3.d.2

Project Generated Trips

Mixed-Use Development
605 Concord Avenue
Cambridge, Massachusetts

95 Fawcett Street



P:\2015 PROJECTS\2015-009 87-95 FAWCETT ST CAMBRIDGE_TRAFFIC\DIAGRAMS\15-009 TRAFFIC FIGURES.DWG

Design Consultants, Inc.
Consulting Engineers and Surveyors

120 MIDDLESEX AVENUE
SOMERVILLE, MA 02145
617-776-3350

68 PLEASANT STREET
NEWBURYPORT, MA 01950
978-358-7173

SCALE:
HORIZ: N.T.S.
VERT: N.T.S.

NO.	DATE	BY	REVISIONS

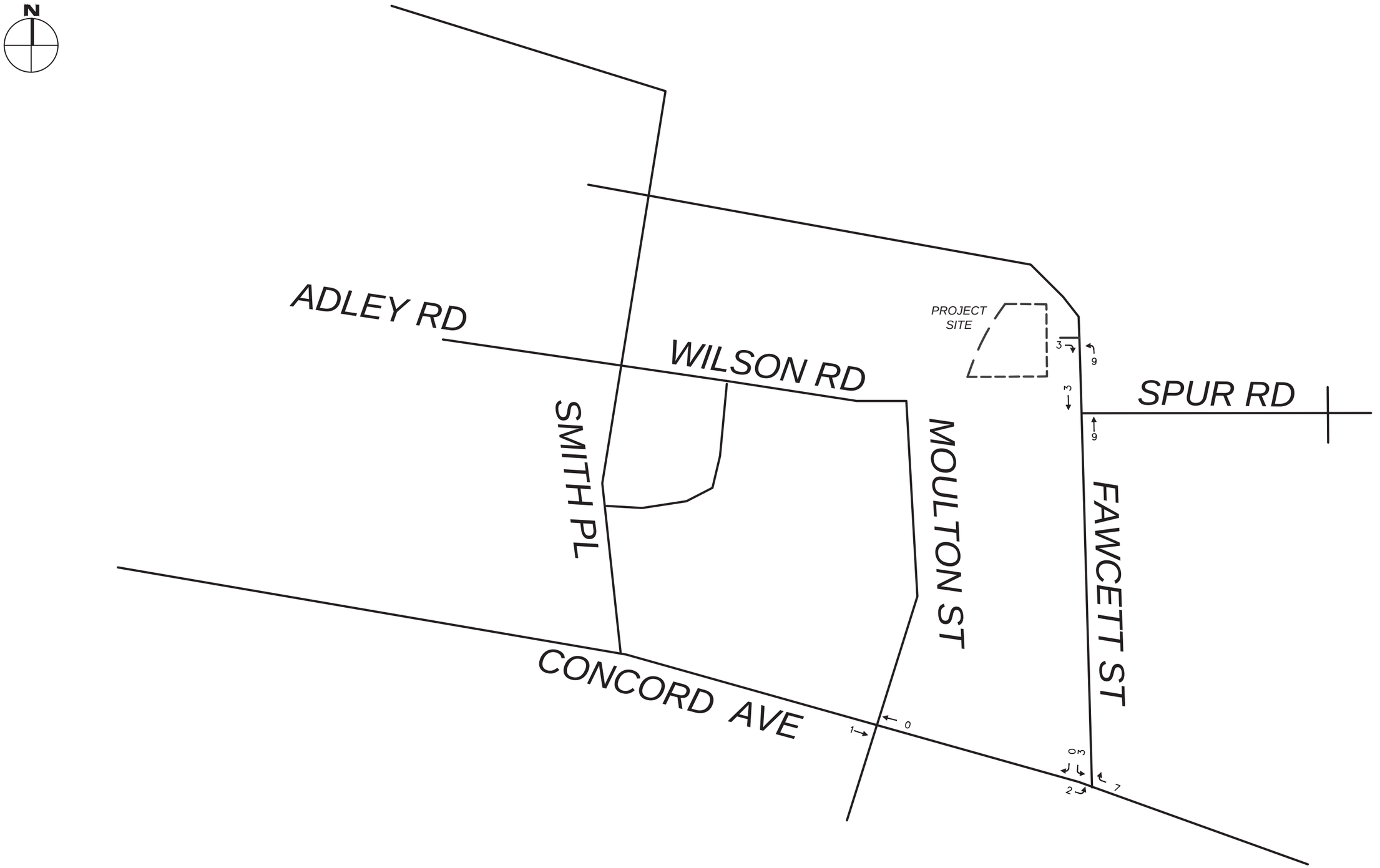
95 FAWCETT STREET CAMBRIDGE, MA

AM Peak Hour Project Trips

PROJECT NO. 2015-009

DATE: OCTOBER 2015

Figure 3.a.1



P:\2015 PROJECTS\2015-009 87-95 FAWCETT ST CAMBRIDGE_TRAFFIC\DIAGRAMS\15-009 TRAFFIC FIGURES.DWG

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SCALE:
HORIZ: N.T.S.
VERT: N.T.S.

NO.	DATE	BY	REVISIONS

95 FAWCETT STREET CAMBRIDGE, MA

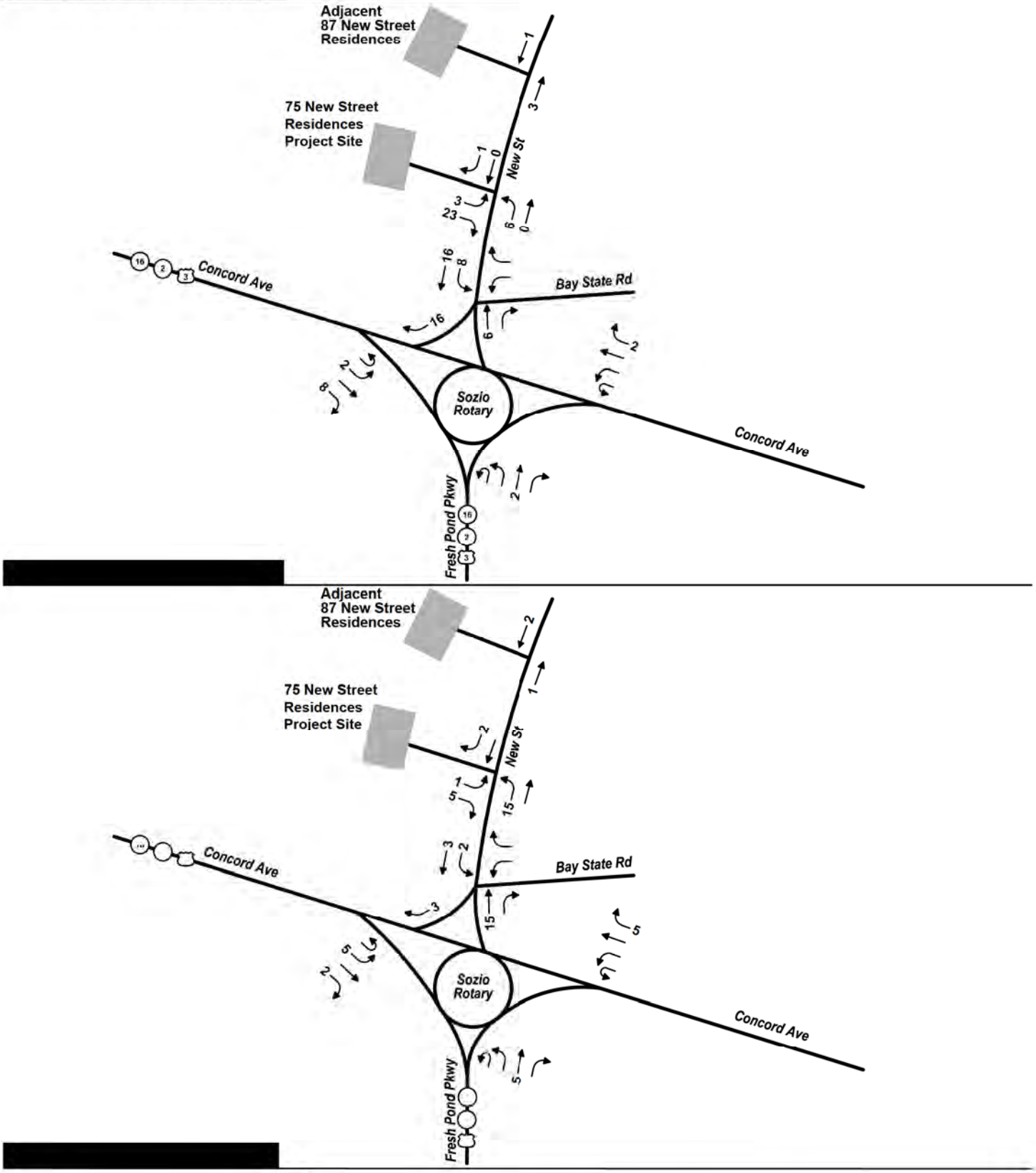
PM Peak Hour Project Trips

PROJECT NO. 2015-009

DATE: OCTOBER 2015

Figure 3.a.2

75 New Street

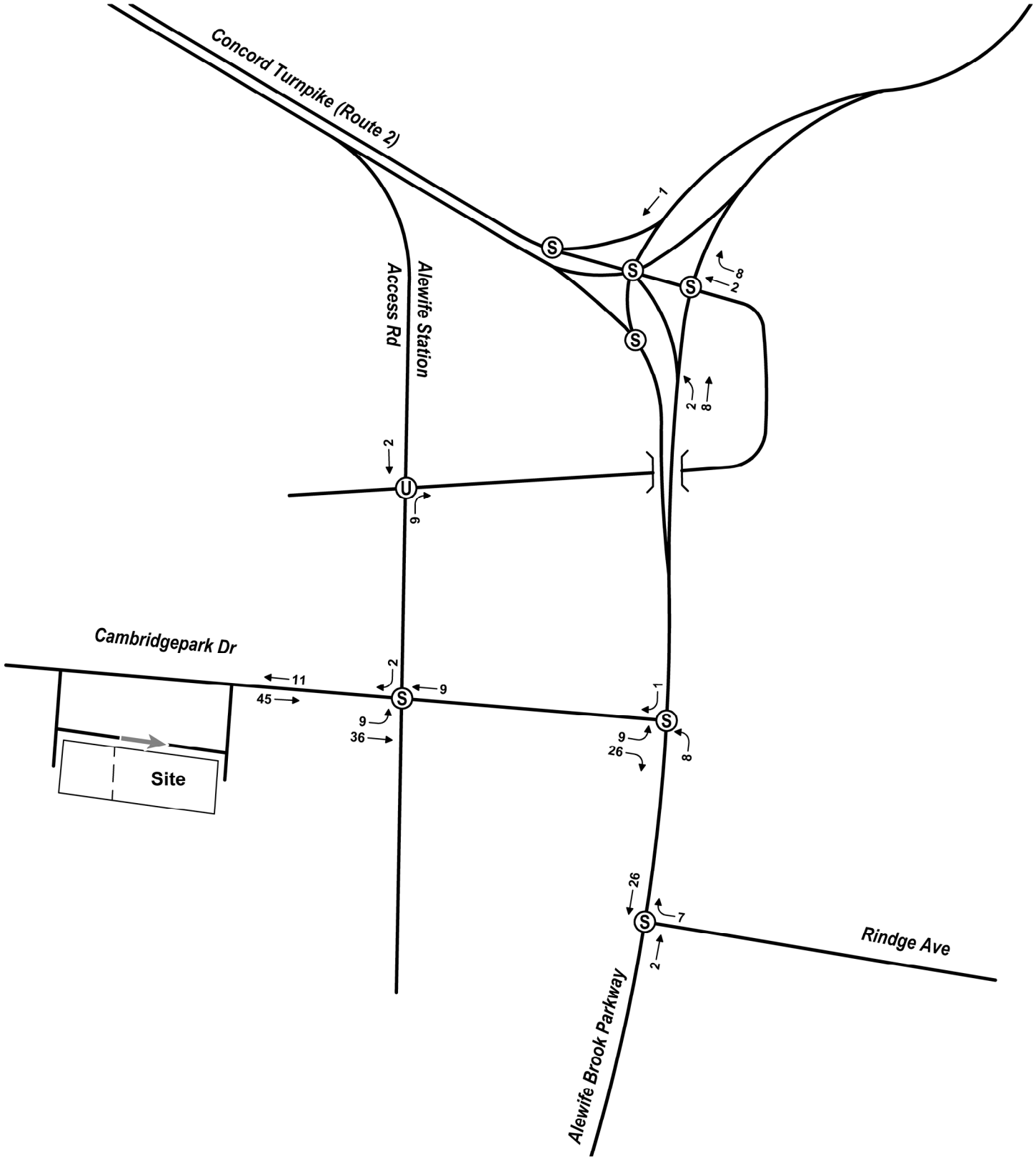


Not to Scale

Project Generated Trips **Figure 3.d.3**

75 New Street Residences
Cambridge, Massachusetts

130 Cambridge Park Drive



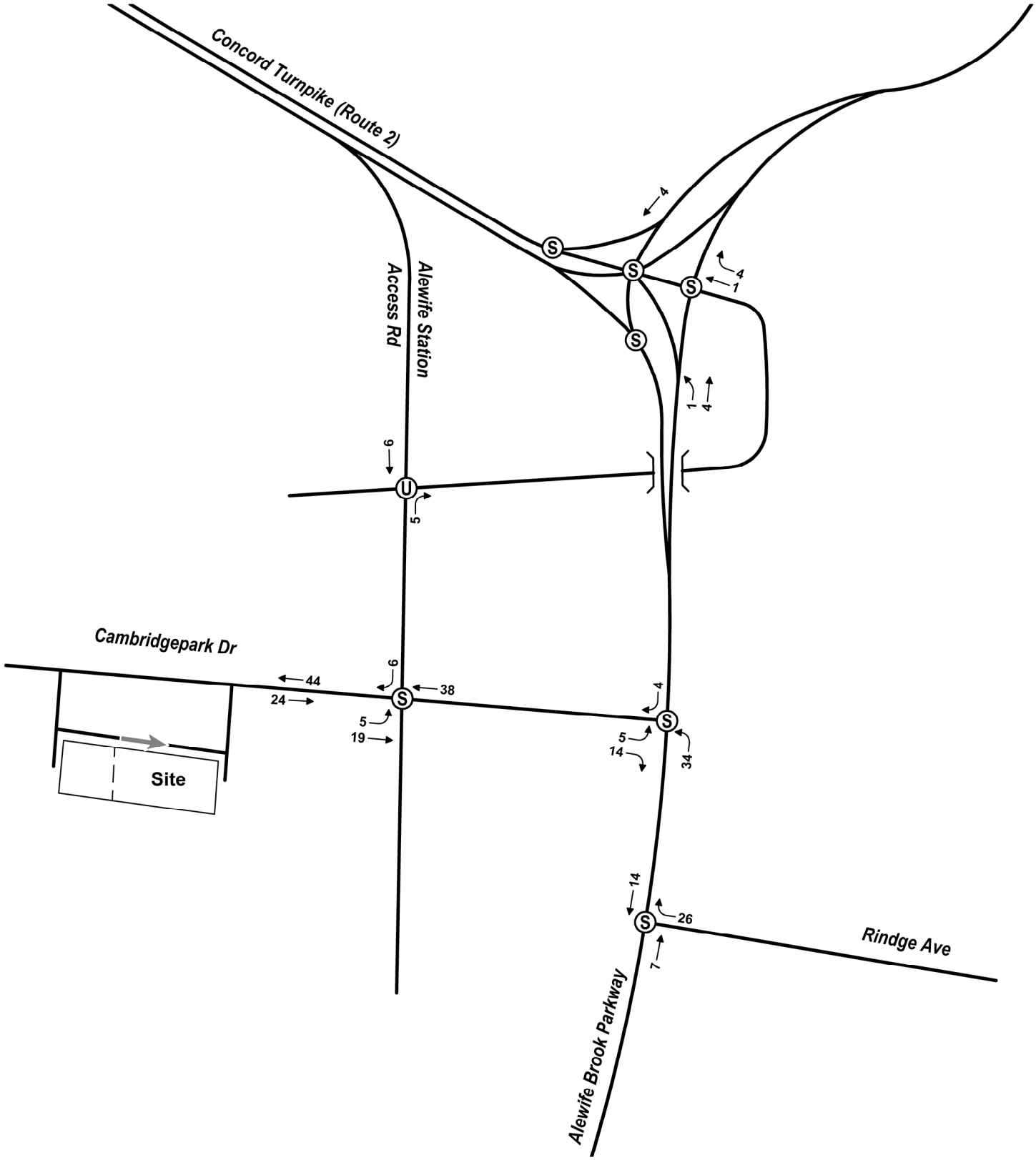
Not to Scale

Vanasse Hangen Brustlin, Inc.

Project Generated Trips
Morning Peak Hour

Figure 3.D.4

The Residences at
130 Cambridgepark Drive
Cambridge, Massachusetts



Not to Scale

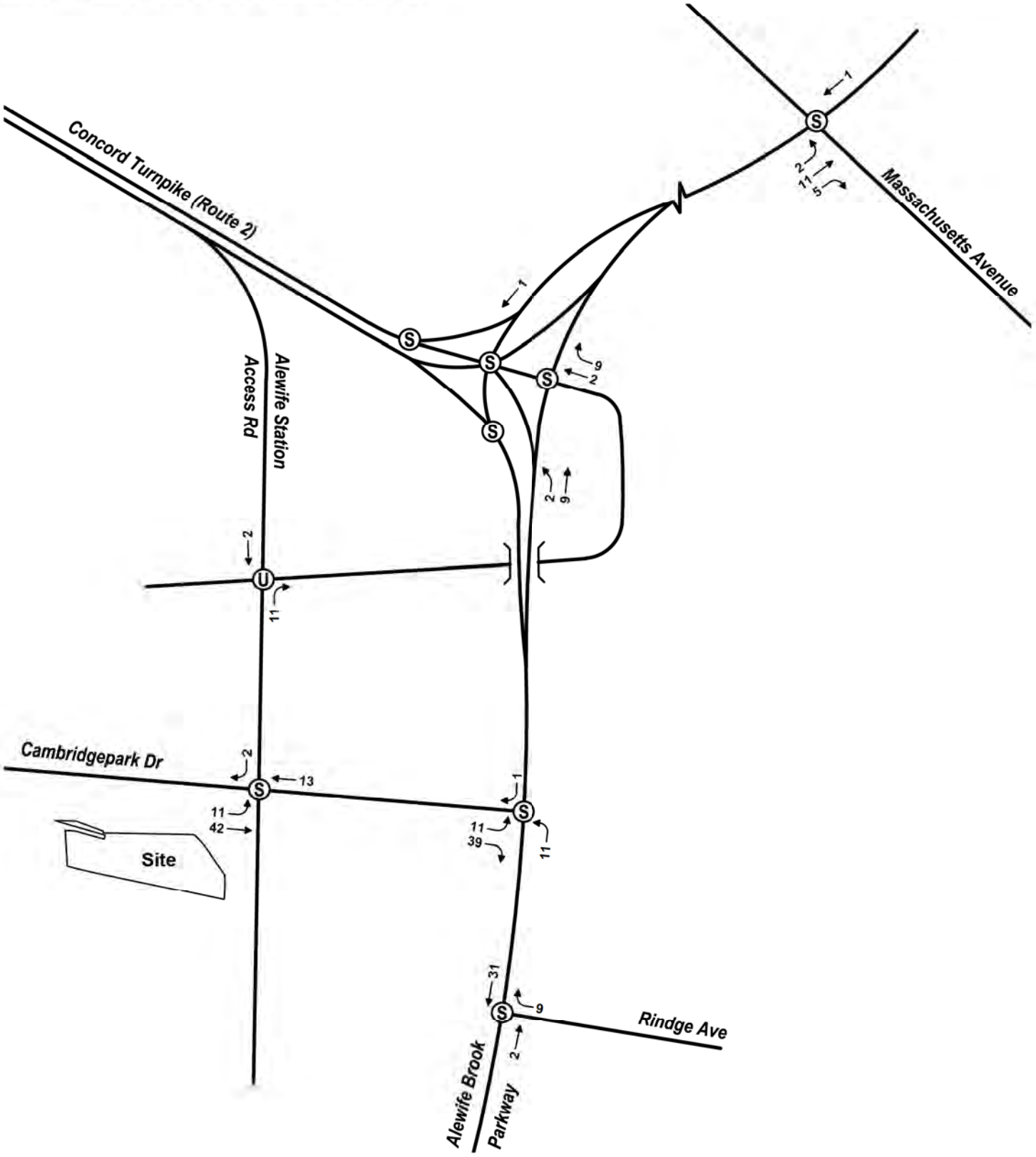
Vanasse Hangen Brustlin, Inc.

Project Generated Trips
Evening Peak Hour

Figure 3.D.5

The Residences at
130 Cambridgepark Drive
Cambridge, Massachusetts

88 Cambridge Park Drive



Not to Scale

Project Generated Trips
Morning Peak Hour

Figure 3.D.4

The Residences at
180R Cambridgepark Drive
Cambridge, Massachusetts

Not to Scale

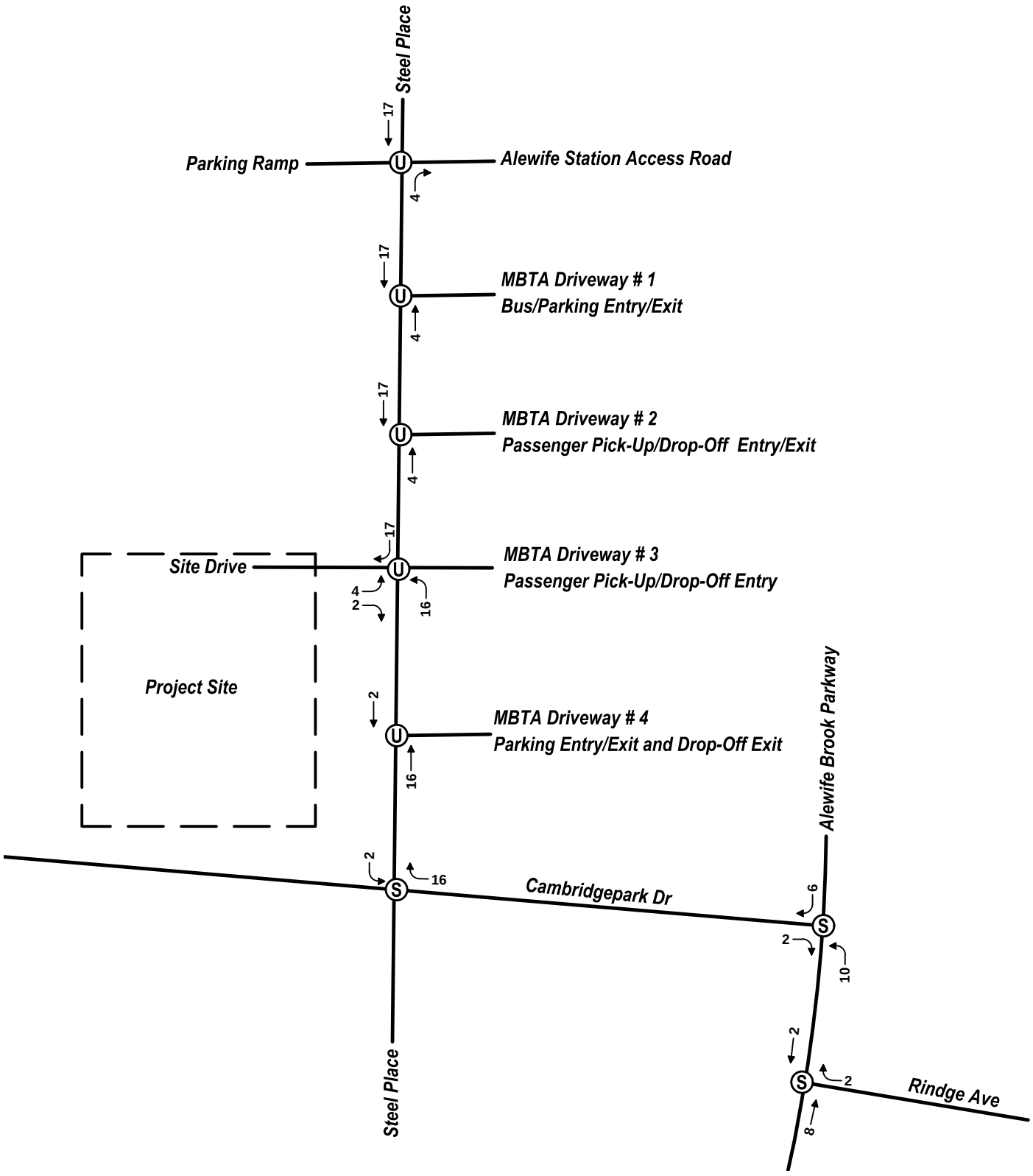
Project Generated Trips
Evening Peak Hour

Figure 3.D.5

The Residences at
180R Cambridgepark Drive
Cambridge, Massachusetts

35 Cambridge Park Drive

Technical Appendix

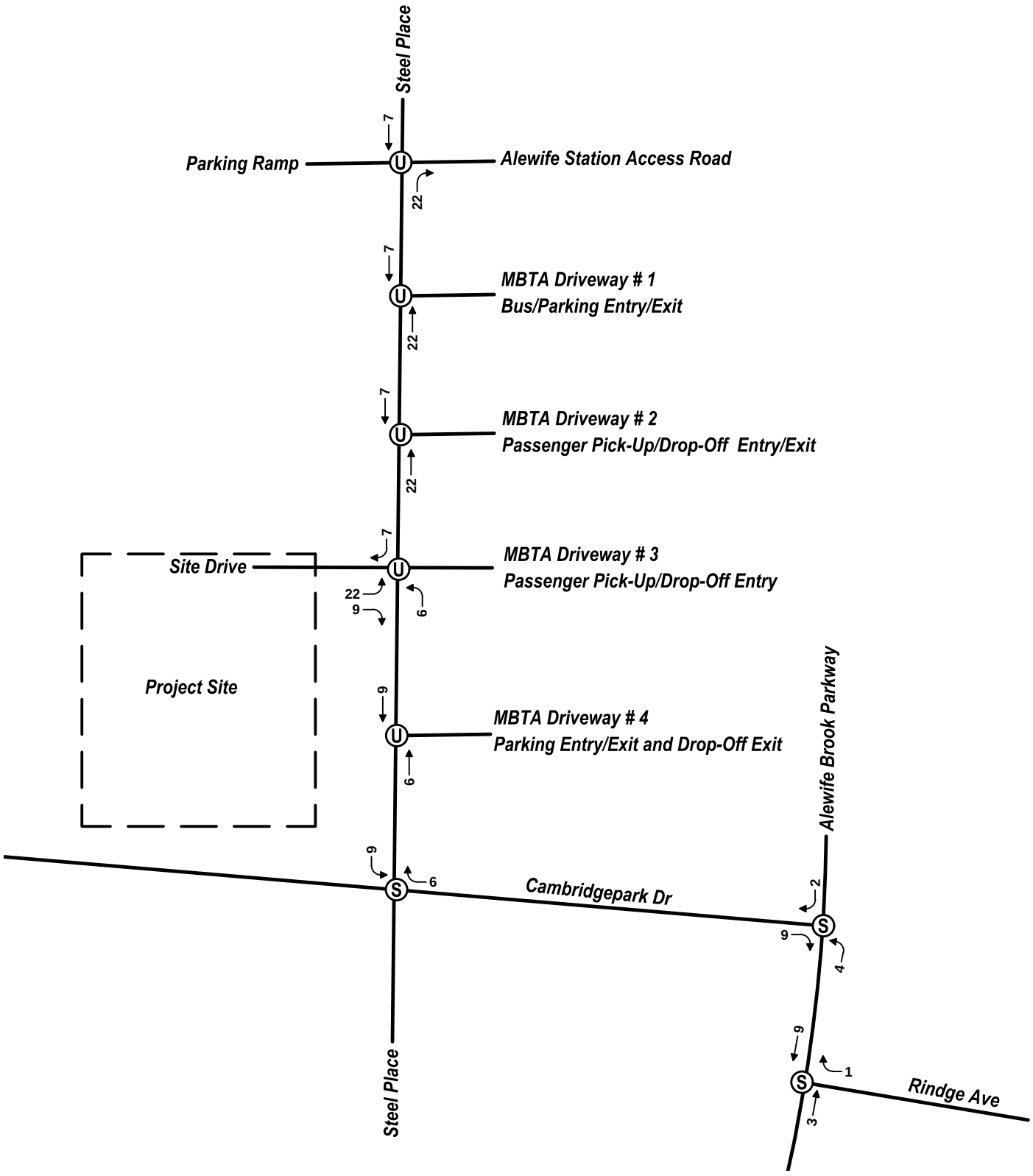


Not to Scale

Figure 17.1

Project Generated Trips
Morning Peak Hour (7:30-8:30 AM)

35 Cambridgepark Drive
Cambridge, Massachusetts



Not to Scale

Figure 17.2

Project Generated Trips
Evening Peak Hour (4:45-5:45 PM)

35 Cambridgepark Drive
Cambridge, Massachusetts

Synchro Results

2016 Existing Conditions
2016 Build Condition
2021 Future Condition
Supplemental Analysis

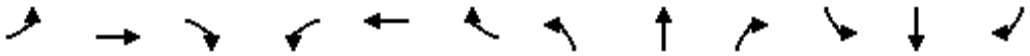
2016 Existing Conditions

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	594	142	268	168	253	290	598
v/c Ratio	1.60	1.08	0.58	0.46	0.86	0.19	0.91
Control Delay	315.4	156.8	44.5	42.3	77.7	0.3	52.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	315.4	156.8	44.5	42.3	77.7	0.3	52.8
Queue Length 50th (ft)	~365	~132	185	111	198	0	441
Queue Length 95th (ft)	#532	#293	309	202	#378	0	614
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	371	131	463	367	316	1505	827
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	1.60	1.08	0.58	0.46	0.80	0.19	0.72

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

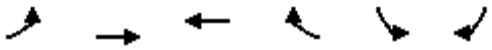
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	535	15	135	255	160	10	225	270	260	280	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00	0.96		1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		1.00		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (prot)		3296		1430	1506	1199		1657	1505		1578	
Flt Permitted		0.62		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (perm)		2034		1430	1506	1199		1657	1505		1578	
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	21	557	16	142	268	168	11	242	290	283	304	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	594	0	142	268	168	0	253	290	0	598	0
Confl. Peds. (#/hr)	6		9			6						3
Confl. Bikes (#/hr)			29			2						6
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.3		11.1	37.4	37.4		21.6	121.6		50.6	
Effective Green, g (s)		22.3		11.1	37.4	37.4		21.6	121.6		50.6	
Actuated g/C Ratio		0.18		0.09	0.31	0.31		0.18	1.00		0.42	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		373		130	463	368		294	1505		656	
v/s Ratio Prot				c0.10	0.18			c0.15			c0.38	
v/s Ratio Perm		c0.29				0.14			0.19			
v/c Ratio		1.59		1.09	0.58	0.46		0.86	0.19		0.91	
Uniform Delay, d1		49.6		55.2	35.5	33.9		48.5	0.0		33.4	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		279.0		105.8	1.8	0.9		21.8	0.3		17.0	
Delay (s)		328.7		161.1	37.2	34.8		70.3	0.3		50.4	
Level of Service		F		F	D	C		E	A		D	
Approach Delay (s)		328.7			67.0			32.9			50.4	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	121.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	121.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.0%	ICU Level of Service	F
Analysis Period (min)	15		

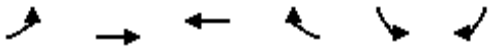
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	955	560	45	50	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	54	1027	602	48	77	69
Pedestrians		22	32		32	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.79	
vC, conflicting volume	683				1825	680
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	683				1911	680
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				0	84
cM capacity (veh/h)	884				52	429

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	54	1027	651	146
Volume Left	54	0	0	77
Volume Right	0	0	48	69
cSH	884	1700	1700	89
Volume to Capacity	0.06	0.60	0.38	1.63
Queue Length 95th (ft)	5	0	0	294
Control Delay (s)	9.3	0.0	0.0	411.2
Lane LOS	A			F
Approach Delay (s)	0.5		0.0	411.2
Approach LOS				F

Intersection Summary			
Average Delay	32.3		
Intersection Capacity Utilization	72.9%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	95	860	585	55	50	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	103	935	672	63	56	79
Pedestrians		37	27		37	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.67				0.67	0.67
vC, conflicting volume	773				1442	778
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				1413	422
tC, single (s)	4.1				7.2	7.3
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.5
p0 queue free %	86				7	77
cM capacity (veh/h)	743				60	338

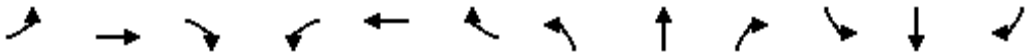
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	415	623	736	135
Volume Left	103	0	0	56
Volume Right	0	0	63	79
cSH	743	1700	1700	116
Volume to Capacity	0.14	0.37	0.43	1.16
Queue Length 95th (ft)	12	0	0	210
Control Delay (s)	4.0	0.0	0.0	205.9
Lane LOS	A			F
Approach Delay (s)	1.6		0.0	205.9
Approach LOS				F

Intersection Summary			
Average Delay	15.4		
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	989	804	11	51
v/c Ratio	0.49	0.73	0.08	0.39
Control Delay	12.0	21.7	31.4	39.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.0	21.7	31.4	39.7
Queue Length 50th (ft)	68	146	3	17
Queue Length 95th (ft)	313	#748	9	52
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	2022	1099	315	287
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	0.49	0.73	0.03	0.18

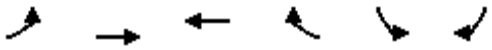
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	865	20	15	630	95	0	0	5	30	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.98			0.86			0.97	
Flt Protected		1.00			1.00			1.00			0.96	
Satd. Flow (prot)		3025			1555			1070			1212	
Flt Permitted		0.92			0.98			1.00			0.77	
Satd. Flow (perm)		2794			1518			1070			973	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.44	0.44	0.79	0.79	0.79
Adj. Flow (vph)	27	940	22	16	685	103	0	0	11	38	0	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	989	0	0	804	0	0	11	0	0	51	0
Confl. Bikes (#/hr)			43			15						
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	29%	29%	29%	27%	27%	27%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		48.3			48.3			6.2			6.2	
Effective Green, g (s)		48.3			48.3			6.2			6.2	
Actuated g/C Ratio		0.65			0.65			0.08			0.08	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1823			990			89			81	
v/s Ratio Prot								0.01				
v/s Ratio Perm		0.35			c0.53						c0.05	
v/c Ratio		0.54			0.81			0.12			0.63	
Uniform Delay, d1		6.9			9.5			31.4			32.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			7.2			0.6			14.3	
Delay (s)		8.1			16.7			32.0			47.1	
Level of Service		A			B			C			D	
Approach Delay (s)		8.1			16.7			32.0			47.1	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	40	860	715	150	75	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.75	0.75
Hourly flow rate (vph)	44	945	737	155	100	33
Pedestrians		40	40		40	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.80				0.87	0.80
vC, conflicting volume	932				1455	894
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	789				880	743
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				53	87
cM capacity (veh/h)	641				213	266

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	359	630	892	133
Volume Left	44	0	0	100
Volume Right	0	0	155	33
cSH	641	1700	1700	224
Volume to Capacity	0.07	0.37	0.52	0.59
Queue Length 95th (ft)	6	0	0	85
Control Delay (s)	2.2	0.0	0.0	42.1
Lane LOS	A			E
Approach Delay (s)	0.8		0.0	42.1
Approach LOS				E

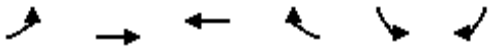
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	952	745
v/c Ratio	0.38	0.57
Control Delay	4.4	7.6
Queue Delay	0.0	0.0
Total Delay	4.4	7.6
Queue Length 50th (ft)	96	187
Queue Length 95th (ft)	129	303
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2487	1296
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.38	0.57

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	885	0	0	715	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3020			1574		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3020			1574		
Peak-hour factor, PHF	0.93	0.93	0.96	0.96	0.92	0.92
Adj. Flow (vph)	952	0	0	745	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	952	0	0	745	0	0
Heavy Vehicles (%)	4%	4%	5%	5%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2367			1234		
v/s Ratio Prot	0.32			c0.47		
v/s Ratio Perm						
v/c Ratio	0.40			0.60		
Uniform Delay, d1	2.6			3.4		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.5			2.2		
Delay (s)	3.2			5.6		
Level of Service	A			A		
Approach Delay (s)	3.2			5.6	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	885	785	75	20	80
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	54	952	818	78	22	89
Pedestrians		40	40		40	
Lane Width (ft)		11.0	16.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	4		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.91	
vC, conflicting volume	936				1520	937
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	936				1366	937
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				79	63
cM capacity (veh/h)	689				104	243

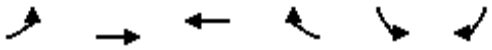
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	371	634	896	111
Volume Left	54	0	0	22
Volume Right	0	0	78	89
cSH	689	1700	1700	192
Volume to Capacity	0.08	0.37	0.53	0.58
Queue Length 95th (ft)	6	0	0	79
Control Delay (s)	2.4	0.0	0.0	46.9
Lane LOS	A			E
Approach Delay (s)	0.9		0.0	46.9
Approach LOS				E

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2054	1837
v/c Ratio	0.81	0.72
Control Delay	14.2	10.8
Queue Delay	0.0	0.0
Total Delay	14.2	10.8
Queue Length 50th (ft)	409	309
Queue Length 95th (ft)	#635	#465
Internal Link Dist (ft)	189	196
Turn Bay Length (ft)		
Base Capacity (vph)	2535	2535
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.81	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



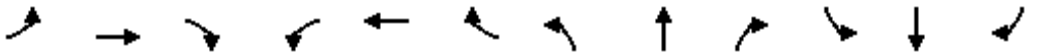
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1890	1690	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2054	1837	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2054	1837	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		46.3	46.3			
Effective Green, g (s)		46.3	46.3			
Actuated g/C Ratio		0.73	0.73			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2372	2372			
v/s Ratio Prot		c0.63	0.57			
v/s Ratio Perm						
v/c Ratio		0.87	0.77			
Uniform Delay, d1		6.3	5.3			
Progression Factor		1.00	1.00			
Incremental Delay, d2		3.6	1.6			
Delay (s)		9.9	6.9			
Level of Service		A	A			
Approach Delay (s)		9.9	6.9		0.0	
Approach LOS		A	A		A	

Intersection Summary			
HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	59	105	1337	141	1659	253
v/c Ratio	0.14	0.23	0.65	0.17	0.82	0.33
Control Delay	24.1	25.7	15.7	10.2	21.7	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	25.7	15.7	10.2	21.7	12.2
Queue Length 50th (ft)	26	48	311	40	479	81
Queue Length 95th (ft)	39	76	402	72	#677	138
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	524	559	2051	838	2031	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.19	0.65	0.17	0.82	0.33

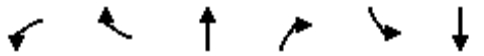
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	40	0	0	85	0	1230	130	0	1510	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	11	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.91		1.00	0.84
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1498			1597		3079	1259		3049	1141
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1498			1597		3079	1259		3049	1141
Peak-hour factor, PHF	0.68	0.68	0.68	0.81	0.81	0.81	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	0	59	0	0	105	0	1337	141	0	1659	253
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	59	0	0	105	0	1337	141	0	1659	253
Confl. Peds. (#/hr)									39			83
Confl. Bikes (#/hr)												7
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			25.1			25.1		62.5	62.5		62.5	62.5
Effective Green, g (s)			25.1			25.1		62.5	62.5		62.5	62.5
Actuated g/C Ratio			0.26			0.26		0.65	0.65		0.65	0.65
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			389			414		1992	814		1972	738
v/s Ratio Prot								0.43			c0.54	
v/s Ratio Perm			0.04			c0.07			0.11			0.22
v/c Ratio			0.15			0.25		0.67	0.17		0.84	0.34
Uniform Delay, d1			27.5			28.3		10.6	6.8		13.2	7.7
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.2			0.3		1.8	0.5		4.5	1.3
Delay (s)			27.7			28.7		12.5	7.2		17.8	9.0
Level of Service			C			C		B	A		B	A
Approach Delay (s)		27.7			28.7			12.0			16.6	
Approach LOS		C			C			B			B	

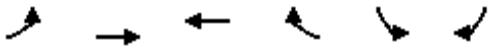
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	96.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	50	5	75	10	0	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	77	8	93	12	0	55
Pedestrians	43		43			43
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	240	185			148	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	240	185			148	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	89	99			100	
cM capacity (veh/h)	707	809			1345	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	85	105	55
Volume Left	77	0	0
Volume Right	8	12	0
cSH	715	1700	1345
Volume to Capacity	0.12	0.06	0.00
Queue Length 95th (ft)	10	0	0
Control Delay (s)	10.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	10.7	0.0	0.0
Approach LOS	B		

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	29.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1065	550	10	0	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.95	0.95	0.86	0.86
Hourly flow rate (vph)	0	1109	579	11	0	1
Pedestrians		17			17	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.83	
vC, conflicting volume	606				1156	618
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606				778	618
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	961				276	425

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	555	555	589	1
Volume Left	0	0	0	0
Volume Right	0	0	11	1
cSH	1700	1700	1700	425
Volume to Capacity	0.33	0.33	0.35	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	13.5
Lane LOS				B
Approach Delay (s)	0.0		0.0	13.5
Approach LOS				B

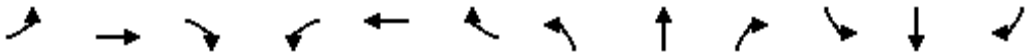
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	394	196	369	315	425	117	500
v/c Ratio	1.38	0.93	0.71	0.77	0.97	0.08	1.02
Control Delay	233.1	103.9	47.7	54.4	84.0	0.1	90.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	233.1	103.9	47.7	54.4	84.0	0.1	90.8
Queue Length 50th (ft)	~241	173	282	248	368	0	~465
Queue Length 95th (ft)	#349	#292	365	335	#576	0	#685
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	285	210	523	409	448	1500	491
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	1.38	0.93	0.71	0.77	0.95	0.08	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

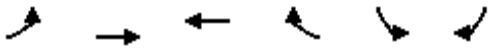
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	270	30	165	310	265	5	395	110	130	305	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.99		1.00	1.00	0.94		1.00	0.99		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		0.99		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.99		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (prot)		3209		1486	1565	1221		1675	1500		1573	
Flt Permitted		0.54		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (perm)		1747		1486	1565	1221		1675	1500		1573	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	61	300	33	196	369	315	5	420	117	144	339	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	394	0	196	369	315	0	425	117	0	500	0
Confl. Peds. (#/hr)	11		5			11						2
Confl. Bikes (#/hr)			11			3			5			9
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.0		19.0	45.0	45.0		35.4	134.4		42.0	
Effective Green, g (s)		22.0		19.0	45.0	45.0		35.4	134.4		42.0	
Actuated g/C Ratio		0.16		0.14	0.33	0.33		0.26	1.00		0.31	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		285		210	523	408		441	1500		491	
v/s Ratio Prot				c0.13	0.24			c0.25			c0.32	
v/s Ratio Perm		c0.23				0.26			0.08			
v/c Ratio		1.38		0.93	0.71	0.77		0.96	0.08		1.02	
Uniform Delay, d1		56.2		57.1	38.9	40.1		48.9	0.0		46.2	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		192.5		43.5	4.3	8.8		33.4	0.1		45.3	
Delay (s)		248.7		100.6	43.2	48.9		82.2	0.1		91.5	
Level of Service		F		F	D	D		F	A		F	
Approach Delay (s)		248.7			58.0			64.5			91.5	
Approach LOS		F			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	99.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	134.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	93.7%	ICU Level of Service	F
Analysis Period (min)	15		

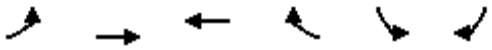
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	500	700	5	40	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.74	0.74
Hourly flow rate (vph)	12	588	769	5	54	88
Pedestrians		18	35		35	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.96	
vC, conflicting volume	810				1454	825
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	810				1452	825
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				58	75
cM capacity (veh/h)	786				128	357

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	12	588	775	142
Volume Left	12	0	0	54
Volume Right	0	0	5	88
cSH	786	1700	1700	213
Volume to Capacity	0.01	0.35	0.46	0.67
Queue Length 95th (ft)	1	0	0	103
Control Delay (s)	9.6	0.0	0.0	50.5
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	50.5
Approach LOS				F

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	520	555	35	75	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.70	0.70
Hourly flow rate (vph)	56	578	610	38	107	179
Pedestrians		41	19		41	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.69				0.69	0.69
vC, conflicting volume	689				1089	711
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	318				901	350
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				37	57
cM capacity (veh/h)	818				169	416

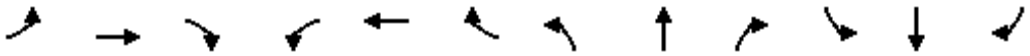
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	248	385	648	286
Volume Left	56	0	0	107
Volume Right	0	0	38	179
cSH	818	1700	1700	269
Volume to Capacity	0.07	0.23	0.38	1.06
Queue Length 95th (ft)	5	0	0	287
Control Delay (s)	2.8	0.0	0.0	113.9
Lane LOS	A			F
Approach Delay (s)	1.1		0.0	113.9
Approach LOS				F

Intersection Summary			
Average Delay	21.2		
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	653	639	63	242
v/c Ratio	0.45	0.84	0.22	0.89
Control Delay	17.5	34.1	31.6	68.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	34.1	31.6	68.1
Queue Length 50th (ft)	144	355	31	142
Queue Length 95th (ft)	197	#588	52	#173
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	1437	763	302	286
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	0.45	0.84	0.21	0.85

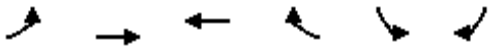
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	575	15	25	540	10	20	0	25	130	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.93			0.97	
Flt Protected		1.00			1.00			0.98			0.96	
Satd. Flow (prot)		3064			1612			1416			1533	
Flt Permitted		0.95			0.96			0.85			0.73	
Satd. Flow (perm)		2915			1546			1226			1161	
Peak-hour factor, PHF	0.91	0.91	0.91	0.90	0.90	0.90	0.71	0.71	0.71	0.66	0.66	0.66
Adj. Flow (vph)	5	632	16	28	600	11	28	0	35	197	0	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	653	0	0	639	0	0	63	0	0	242	0
Confl. Bikes (#/hr)			25			21						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		41.0			41.0			19.5			19.5	
Effective Green, g (s)		41.0			41.0			19.5			19.5	
Actuated g/C Ratio		0.49			0.49			0.23			0.23	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1419			752			283			268	
v/s Ratio Prot												
v/s Ratio Perm		0.22			c0.41			0.05			c0.21	
v/c Ratio		0.46			0.85			0.22			0.90	
Uniform Delay, d1		14.3			18.9			26.2			31.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			11.6			0.4			30.8	
Delay (s)		15.4			30.5			26.6			62.2	
Level of Service		B			C			C			E	
Approach Delay (s)		15.4			30.5			26.6			62.2	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	15	715	545	95	60	25
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.96	0.96
Hourly flow rate (vph)	16	769	586	102	62	26
Pedestrians		37	29		37	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.83				0.88	0.83
vC, conflicting volume	725				1120	711
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	570				693	553
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	98				79	93
cM capacity (veh/h)	808				300	367

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	272	513	688	89
Volume Left	16	0	0	62
Volume Right	0	0	102	26
cSH	808	1700	1700	317
Volume to Capacity	0.02	0.30	0.40	0.28
Queue Length 95th (ft)	2	0	0	28
Control Delay (s)	0.8	0.0	0.0	20.7
Lane LOS	A			C
Approach Delay (s)	0.3		0.0	20.7
Approach LOS				C

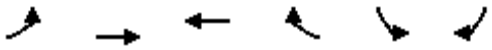
Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	816	696
v/c Ratio	0.32	0.53
Control Delay	4.0	6.7
Queue Delay	0.0	0.0
Total Delay	4.0	6.7
Queue Length 50th (ft)	77	163
Queue Length 95th (ft)	104	258
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2535	1321
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.53

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	775	0	0	640	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3079			1605		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3079			1605		
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	816	0	0	696	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	816	0	0	696	0	0
Heavy Vehicles (%)	2%	2%	3%	3%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2414			1258		
v/s Ratio Prot	0.27			c0.43		
v/s Ratio Perm						
v/c Ratio	0.34			0.55		
Uniform Delay, d1	2.5			3.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.4			1.8		
Delay (s)	2.8			5.0		
Level of Service	A			A		
Approach Delay (s)	2.8			5.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	55	720	515	55	35	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	58	758	560	60	40	142
Pedestrians		48	48		48	
Lane Width (ft)		11.0	16.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		4	5		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.93	
vC, conflicting volume	668				1180	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	668				1037	686
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				78	61
cM capacity (veh/h)	884				178	360

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	311	505	620	182
Volume Left	58	0	0	40
Volume Right	0	0	60	142
cSH	884	1700	1700	294
Volume to Capacity	0.07	0.30	0.36	0.62
Queue Length 95th (ft)	5	0	0	95
Control Delay (s)	2.3	0.0	0.0	35.2
Lane LOS	A			E
Approach Delay (s)	0.9		0.0	35.2
Approach LOS				E

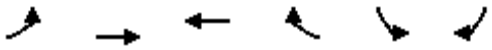
Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2152	1152
v/c Ratio	1.05	0.56
Control Delay	48.3	8.7
Queue Delay	0.0	0.0
Total Delay	48.3	8.7
Queue Length 50th (ft)	~550	130
Queue Length 95th (ft)	#684	179
Internal Link Dist (ft)	146	169
Turn Bay Length (ft)		
Base Capacity (vph)	2059	2059
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.05	0.56

Intersection Summary

~ 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.



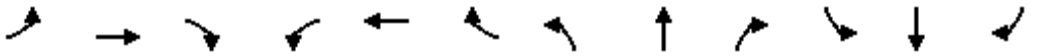
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			
Volume (vph)	0	1980	1060	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2152	1152	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2152	1152	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		45.0	45.0			
Effective Green, g (s)		45.0	45.0			
Actuated g/C Ratio		0.63	0.63			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2059	2059			
v/s Ratio Prot		c0.66	0.35			
v/s Ratio Perm						
v/c Ratio		1.05	0.56			
Uniform Delay, d1		13.0	7.4			
Progression Factor		1.00	1.00			
Incremental Delay, d2		32.8	1.1			
Delay (s)		45.8	8.5			
Level of Service		D	A			
Approach Delay (s)		45.8	8.5		0.0	
Approach LOS		D	A		A	

Intersection Summary			
HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	203	340	1169	156	1747	285
v/c Ratio	0.43	0.66	0.63	0.21	0.95	0.46
Control Delay	28.2	34.5	15.4	11.0	31.7	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	34.5	15.4	11.0	31.7	15.0
Queue Length 50th (ft)	94	172	246	45	524	98
Queue Length 95th (ft)	104	219	245	66	#725	169
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	544	591	1847	736	1847	617
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.58	0.63	0.21	0.95	0.46

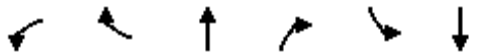
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	130	0	0	265	0	900	120	0	1625	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	12	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.89		1.00	0.76
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1528			1660		3110	1244		3110	1052
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1528			1660		3110	1244		3110	1052
Peak-hour factor, PHF	0.64	0.64	0.64	0.78	0.78	0.78	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	0	203	0	0	340	0	1169	156	0	1747	285
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	203	0	0	340	0	1169	156	0	1747	285
Confl. Peds. (#/hr)									51			137
Confl. Bikes (#/hr)									4			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			28.8			28.8		55.4	55.4		55.4	55.4
Effective Green, g (s)			28.8			28.8		55.4	55.4		55.4	55.4
Actuated g/C Ratio			0.31			0.31		0.59	0.59		0.59	0.59
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			472			512		1848	739		1848	625
v/s Ratio Prot								0.38			c0.56	
v/s Ratio Perm			0.13			c0.20			0.13			0.27
v/c Ratio			0.43			0.66		0.63	0.21		0.95	0.46
Uniform Delay, d1			25.7			28.0		12.3	8.8		17.5	10.5
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.6			3.2		1.7	0.7		11.5	2.4
Delay (s)			26.3			31.2		13.9	9.4		29.0	12.9
Level of Service			C			C		B	A		C	B
Approach Delay (s)		26.3			31.2			13.4			26.7	
Approach LOS		C			C			B			C	

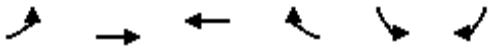
Intersection Summary			
HCM 2000 Control Delay	22.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	15	0	75	30	5	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.85	0.85	0.52	0.52
Hourly flow rate (vph)	26	0	88	35	10	48
Pedestrians	31		31			31
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	235	168			155	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	235	168			155	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	96	100			99	
cM capacity (veh/h)	719	842			1389	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	124	58
Volume Left	26	0	10
Volume Right	0	35	0
cSH	719	1700	1389
Volume to Capacity	0.04	0.07	0.01
Queue Length 95th (ft)	3	0	1
Control Delay (s)	10.2	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	10.2	0.0	1.3
Approach LOS	B		

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	27.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1065	740	15	0	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.84	0.84	0.43	0.43
Hourly flow rate (vph)	0	1183	881	18	0	12
Pedestrians		23			23	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		2			2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.90	
vC, conflicting volume	922				1505	936
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	922				1345	936
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	722				129	260

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	592	592	899	12
Volume Left	0	0	0	0
Volume Right	0	0	18	12
cSH	1700	1700	1700	260
Volume to Capacity	0.35	0.35	0.53	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	19.5
Lane LOS				C
Approach Delay (s)	0.0		0.0	19.5
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

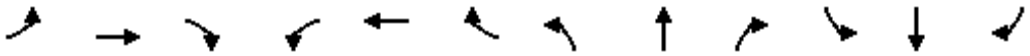
2016 Build Conditions

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	582	145	273	167	253	284	590
v/c Ratio	1.55	1.11	0.58	0.45	0.86	0.19	0.91
Control Delay	295.6	160.6	44.2	41.7	76.5	0.3	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	295.6	160.6	44.2	41.7	76.5	0.3	52.6
Queue Length 50th (ft)	~350	~135	187	108	196	0	432
Queue Length 95th (ft)	#519	#298	316	201	#378	0	601
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	375	131	467	371	319	1505	833
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	1.55	1.11	0.58	0.45	0.79	0.19	0.71

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

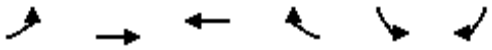
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	20	523	15	138	259	159	10	225	264	253	280	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00	0.96		1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		1.00		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (prot)		3295		1430	1506	1199		1657	1505		1579	
Flt Permitted		0.62		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (perm)		2037		1430	1506	1199		1657	1505		1579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	21	545	16	145	273	167	11	242	284	275	304	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	582	0	145	273	167	0	253	284	0	590	0
Confl. Peds. (#/hr)	6		9			6						3
Confl. Bikes (#/hr)			29			2						6
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.3		11.2	37.5	37.5		21.5	120.7		49.7	
Effective Green, g (s)		22.3		11.2	37.5	37.5		21.5	120.7		49.7	
Actuated g/C Ratio		0.18		0.09	0.31	0.31		0.18	1.00		0.41	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		376		132	467	372		295	1505		650	
v/s Ratio Prot				c0.10	0.18			c0.15			c0.37	
v/s Ratio Perm		c0.29				0.14			0.19			
v/c Ratio		1.55		1.10	0.58	0.45		0.86	0.19		0.91	
Uniform Delay, d1		49.2		54.8	35.0	33.3		48.1	0.0		33.3	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		259.4		107.2	1.9	0.9		21.0	0.3		16.4	
Delay (s)		308.6		161.9	36.9	34.2		69.1	0.3		49.7	
Level of Service		F		F	D	C		E	A		D	
Approach Delay (s)		308.6			67.1			32.7			49.7	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	115.9	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	120.7	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

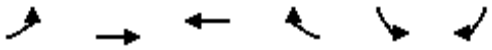
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	930	566	45	50	45
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	54	1000	609	48	77	69
Pedestrians		22	32		32	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.80	
vC, conflicting volume	689				1804	687
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	689				1883	687
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				0	84
cM capacity (veh/h)	879				55	425

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	54	1000	657	146
Volume Left	54	0	0	77
Volume Right	0	0	48	69
cSH	879	1700	1700	93
Volume to Capacity	0.06	0.59	0.39	1.57
Queue Length 95th (ft)	5	0	0	286
Control Delay (s)	9.4	0.0	0.0	381.2
Lane LOS	A			F
Approach Delay (s)	0.5		0.0	381.2
Approach LOS				F

Intersection Summary			
Average Delay	30.3		
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	95	835	591	55	50	70
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	103	908	679	63	56	79
Pedestrians		37	27		37	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.66				0.66	0.66
vC, conflicting volume	780				1435	785
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	414				1402	422
tC, single (s)	4.1				7.2	7.3
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.5
p0 queue free %	86				7	77
cM capacity (veh/h)	736				61	335

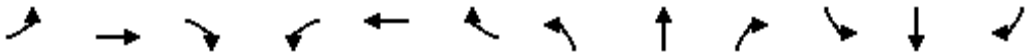
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	406	605	743	135
Volume Left	103	0	0	56
Volume Right	0	0	63	79
cSH	736	1700	1700	116
Volume to Capacity	0.14	0.36	0.44	1.16
Queue Length 95th (ft)	12	0	0	209
Control Delay (s)	4.1	0.0	0.0	204.5
Lane LOS	A			F
Approach Delay (s)	1.6		0.0	204.5
Approach LOS				F

Intersection Summary			
Average Delay	15.5		
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	962	810	11	51
v/c Ratio	0.48	0.74	0.08	0.39
Control Delay	11.8	21.9	31.4	39.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	11.8	21.9	31.4	39.7
Queue Length 50th (ft)	65	148	3	17
Queue Length 95th (ft)	301	#755	9	52
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	2019	1100	315	287
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	0.48	0.74	0.03	0.18

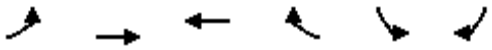
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	840	20	15	636	95	0	0	5	30	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.98			0.86			0.97	
Flt Protected		1.00			1.00			1.00			0.96	
Satd. Flow (prot)		3024			1555			1070			1212	
Flt Permitted		0.92			0.98			1.00			0.77	
Satd. Flow (perm)		2790			1520			1070			973	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.44	0.44	0.79	0.79	0.79
Adj. Flow (vph)	27	913	22	16	691	103	0	0	11	38	0	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	962	0	0	810	0	0	11	0	0	51	0
Confl. Bikes (#/hr)			43			15						
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	29%	29%	29%	27%	27%	27%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		48.3			48.3			6.2			6.2	
Effective Green, g (s)		48.3			48.3			6.2			6.2	
Actuated g/C Ratio		0.65			0.65			0.08			0.08	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1821			992			89			81	
v/s Ratio Prot								0.01				
v/s Ratio Perm		0.34			c0.53						c0.05	
v/c Ratio		0.53			0.82			0.12			0.63	
Uniform Delay, d1		6.8			9.6			31.4			32.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			7.4			0.6			14.3	
Delay (s)		7.9			17.0			32.0			47.1	
Level of Service		A			B			C			D	
Approach Delay (s)		7.9			17.0			32.0			47.1	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	74.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	834	715	160	116	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.75	0.75
Hourly flow rate (vph)	45	916	737	165	155	41
Pedestrians		40	40		40	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.70				0.76	0.70
vC, conflicting volume	942				1448	900
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	705				830	645
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				23	85
cM capacity (veh/h)	605				202	271

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	351	611	902	196
Volume Left	45	0	0	155
Volume Right	0	0	165	41
cSH	605	1700	1700	213
Volume to Capacity	0.07	0.36	0.53	0.92
Queue Length 95th (ft)	6	0	0	189
Control Delay (s)	2.4	0.0	0.0	89.3
Lane LOS	A			F
Approach Delay (s)	0.9		0.0	89.3
Approach LOS				F

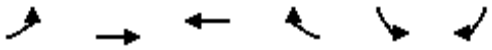
Intersection Summary			
Average Delay	8.9		
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	1022	874
v/c Ratio	0.41	0.67
Control Delay	4.6	10.0
Queue Delay	0.0	0.0
Total Delay	4.6	10.0
Queue Length 50th (ft)	107	260
Queue Length 95th (ft)	143	444
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2487	1296
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.41	0.67

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	950	0	0	839	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3020			1574		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3020			1574		
Peak-hour factor, PHF	0.93	0.93	0.96	0.96	0.92	0.92
Adj. Flow (vph)	1022	0	0	874	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1022	0	0	874	0	0
Heavy Vehicles (%)	4%	4%	5%	5%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2367			1234		
v/s Ratio Prot	0.34			c0.56		
v/s Ratio Perm						
v/c Ratio	0.43			0.71		
Uniform Delay, d1	2.7			4.1		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.6			3.5		
Delay (s)	3.3			7.5		
Level of Service	A			A		
Approach Delay (s)	3.3			7.5	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	53.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	927	795	44	60	80
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	25	997	828	46	67	89
Pedestrians		40	40		40	
Lane Width (ft)		11.0	16.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	4		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.89	
vC, conflicting volume	914				1479	931
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	914				1299	931
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				44	64
cM capacity (veh/h)	703				119	246

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	357	665	874	156
Volume Left	25	0	0	67
Volume Right	0	0	46	89
cSH	703	1700	1700	168
Volume to Capacity	0.04	0.39	0.51	0.92
Queue Length 95th (ft)	3	0	0	172
Control Delay (s)	1.1	0.0	0.0	105.2
Lane LOS	A			F
Approach Delay (s)	0.4		0.0	105.2
Approach LOS				F

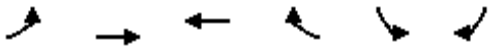
Intersection Summary			
Average Delay	8.2		
Intersection Capacity Utilization	69.0%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2126	1823
v/c Ratio	0.84	0.72
Control Delay	15.7	10.7
Queue Delay	0.0	0.0
Total Delay	15.7	10.7
Queue Length 50th (ft)	~537	304
Queue Length 95th (ft)	#671	#448
Internal Link Dist (ft)	189	196
Turn Bay Length (ft)		
Base Capacity (vph)	2535	2535
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.84	0.72

Intersection Summary

~ 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.



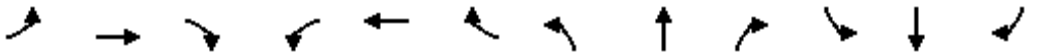
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	0	1956	1677	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2126	1823	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2126	1823	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		46.3	46.3			
Effective Green, g (s)		46.3	46.3			
Actuated g/C Ratio		0.73	0.73			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2372	2372			
v/s Ratio Prot		c0.65	0.56			
v/s Ratio Perm						
v/c Ratio		0.90	0.77			
Uniform Delay, d1		6.7	5.3			
Progression Factor		1.00	1.00			
Incremental Delay, d2		4.9	1.5			
Delay (s)		11.6	6.8			
Level of Service		B	A			
Approach Delay (s)		11.6	6.8		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	59	105	1354	141	1651	253
v/c Ratio	0.14	0.23	0.66	0.17	0.81	0.33
Control Delay	24.1	25.7	15.9	10.2	21.5	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.1	25.7	15.9	10.2	21.5	12.2
Queue Length 50th (ft)	26	48	317	40	474	81
Queue Length 95th (ft)	39	76	412	72	#671	138
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	524	559	2051	838	2031	758
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.19	0.66	0.17	0.81	0.33

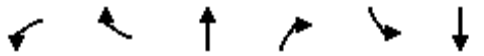
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	40	0	0	85	0	1246	130	0	1502	230
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	11	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.91		1.00	0.84
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1498			1597		3079	1259		3049	1141
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1498			1597		3079	1259		3049	1141
Peak-hour factor, PHF	0.68	0.68	0.68	0.81	0.81	0.81	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	0	59	0	0	105	0	1354	141	0	1651	253
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	59	0	0	105	0	1354	141	0	1651	253
Confl. Peds. (#/hr)									39			83
Confl. Bikes (#/hr)												7
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			25.1			25.1		62.5	62.5		62.5	62.5
Effective Green, g (s)			25.1			25.1		62.5	62.5		62.5	62.5
Actuated g/C Ratio			0.26			0.26		0.65	0.65		0.65	0.65
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			389			414		1992	814		1972	738
v/s Ratio Prot								0.44			c0.54	
v/s Ratio Perm			0.04			c0.07			0.11			0.22
v/c Ratio			0.15			0.25		0.68	0.17		0.84	0.34
Uniform Delay, d1			27.5			28.3		10.7	6.8		13.1	7.7
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.2			0.3		1.9	0.5		4.4	1.3
Delay (s)			27.7			28.7		12.6	7.2		17.6	9.0
Level of Service			C			C		B	A		B	A
Approach Delay (s)		27.7			28.7			12.1			16.4	
Approach LOS		C			C			B			B	

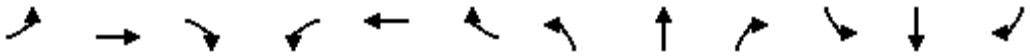
Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	96.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	97	5	75	21	0	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	149	8	93	26	0	55
Pedestrians	43		43			43
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	247	192			162	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	247	192			162	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	79	99			100	
cM capacity (veh/h)	700	802			1329	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	157	119	55
Volume Left	149	0	0
Volume Right	8	26	0
cSH	705	1700	1329
Volume to Capacity	0.22	0.07	0.00
Queue Length 95th (ft)	21	0	0
Control Delay (s)	11.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.6	0.0	0.0
Approach LOS	B		

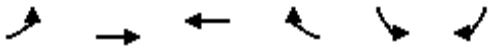
Intersection Summary			
Average Delay	5.5		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	12	0	0	45	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	13	0	0	49	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	13	49
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.0	4.0	3.9	3.9
Degree Utilization, x	0.00	0.00	0.01	0.05
Capacity (veh/h)	885	885	907	915
Control Delay (s)	7.0	7.0	7.0	7.1
Approach Delay (s)	0.0	0.0	7.0	7.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.1			
Level of Service	A			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1065	550	10	0	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.95	0.95	0.86	0.86
Hourly flow rate (vph)	0	1109	579	11	0	1
Pedestrians		17			17	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.83	
vC, conflicting volume	606				1156	618
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	606				785	618
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	961				274	425

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	555	555	589	1
Volume Left	0	0	0	0
Volume Right	0	0	11	1
cSH	1700	1700	1700	425
Volume to Capacity	0.33	0.33	0.35	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	13.5
Lane LOS				B
Approach Delay (s)	0.0		0.0	13.5
Approach LOS				B

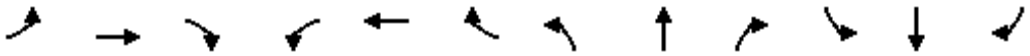
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	397	187	351	298	425	116	500
v/c Ratio	1.39	0.89	0.67	0.73	0.97	0.08	1.02
Control Delay	237.2	95.8	46.0	51.5	84.0	0.1	90.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	237.2	95.8	46.0	51.5	84.0	0.1	90.8
Queue Length 50th (ft)	~244	163	264	230	368	0	~465
Queue Length 95th (ft)	#351	#274	344	315	#576	0	#685
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	285	210	523	409	448	1500	491
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	1.39	0.89	0.67	0.73	0.95	0.08	1.02

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

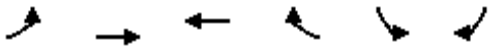
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	273	30	157	295	250	5	395	109	130	305	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		0.99		1.00	1.00	0.94		1.00	0.99		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		0.99		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.99		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (prot)		3209		1486	1565	1221		1675	1500		1573	
Flt Permitted		0.54		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (perm)		1746		1486	1565	1221		1675	1500		1573	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	61	303	33	187	351	298	5	420	116	144	339	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	397	0	187	351	298	0	425	116	0	500	0
Confl. Peds. (#/hr)	11		5			11						2
Confl. Bikes (#/hr)			11			3			5			9
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.0		19.0	45.0	45.0		35.4	134.4		42.0	
Effective Green, g (s)		22.0		19.0	45.0	45.0		35.4	134.4		42.0	
Actuated g/C Ratio		0.16		0.14	0.33	0.33		0.26	1.00		0.31	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		285		210	523	408		441	1500		491	
v/s Ratio Prot				c0.13	0.22			c0.25			c0.32	
v/s Ratio Perm		c0.23				0.24			0.08			
v/c Ratio		1.39		0.89	0.67	0.73		0.96	0.08		1.02	
Uniform Delay, d1		56.2		56.7	38.4	39.4		48.9	0.0		46.2	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		196.9		34.0	3.4	6.6		33.4	0.1		45.3	
Delay (s)		253.1		90.7	41.7	46.0		82.2	0.1		91.5	
Level of Service		F		F	D	D		F	A		F	
Approach Delay (s)		253.1			54.2			64.6			91.5	
Approach LOS		F			D			E			F	

Intersection Summary			
HCM 2000 Control Delay	99.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	134.4	Sum of lost time (s)	16.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		

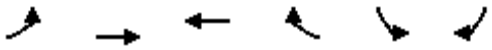
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	507	661	5	40	65
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.74	0.74
Hourly flow rate (vph)	12	596	726	5	54	88
Pedestrians		18	35		35	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.86	
vC, conflicting volume	767				1419	782
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	767				1406	782
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				56	77
cM capacity (veh/h)	816				123	378

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	12	596	732	142
Volume Left	12	0	0	54
Volume Right	0	0	5	88
cSH	816	1700	1700	211
Volume to Capacity	0.01	0.35	0.43	0.67
Queue Length 95th (ft)	1	0	0	104
Control Delay (s)	9.5	0.0	0.0	51.2
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	51.2
Approach LOS				F

Intersection Summary			
Average Delay	5.0		
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	50	527	513	35	75	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.70	0.70
Hourly flow rate (vph)	56	586	564	38	107	179
Pedestrians		41	19		41	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.73				0.73	0.73
vC, conflicting volume	643				1047	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	322				877	352
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				43	59
cM capacity (veh/h)	865				186	440

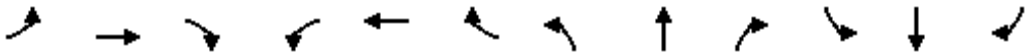
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	251	390	602	286
Volume Left	56	0	0	107
Volume Right	0	0	38	179
cSH	865	1700	1700	291
Volume to Capacity	0.06	0.23	0.35	0.98
Queue Length 95th (ft)	5	0	0	250
Control Delay (s)	2.6	0.0	0.0	86.9
Lane LOS	A			F
Approach Delay (s)	1.0		0.0	86.9
Approach LOS				F

Intersection Summary			
Average Delay	16.7		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	661	596	63	242
v/c Ratio	0.46	0.79	0.22	0.89
Control Delay	17.5	30.4	31.6	68.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.5	30.4	31.6	68.1
Queue Length 50th (ft)	146	317	31	142
Queue Length 95th (ft)	200	#532	52	#173
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	1439	759	302	286
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	0.46	0.79	0.21	0.85

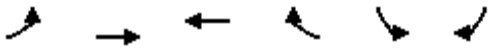
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	582	15	25	501	10	20	0	25	130	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.93			0.97	
Flt Protected		1.00			1.00			0.98			0.96	
Satd. Flow (prot)		3064			1612			1416			1533	
Flt Permitted		0.95			0.95			0.85			0.73	
Satd. Flow (perm)		2917			1540			1226			1161	
Peak-hour factor, PHF	0.91	0.91	0.91	0.90	0.90	0.90	0.71	0.71	0.71	0.66	0.66	0.66
Adj. Flow (vph)	5	640	16	28	557	11	28	0	35	197	0	45
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	661	0	0	596	0	0	63	0	0	242	0
Confl. Bikes (#/hr)			25			21						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		41.0			41.0			19.5			19.5	
Effective Green, g (s)		41.0			41.0			19.5			19.5	
Actuated g/C Ratio		0.49			0.49			0.23			0.23	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1420			749			283			268	
v/s Ratio Prot												
v/s Ratio Perm		0.23			c0.39			0.05			c0.21	
v/c Ratio		0.47			0.80			0.22			0.90	
Uniform Delay, d1		14.3			18.1			26.2			31.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.1			8.6			0.4			30.8	
Delay (s)		15.4			26.7			26.6			62.2	
Level of Service		B			C			C			E	
Approach Delay (s)		15.4			26.7			26.6			62.2	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	84.2	Sum of lost time (s)	13.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	20	717	503	126	82	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.96	0.96
Hourly flow rate (vph)	22	771	541	135	85	29
Pedestrians		37	29		37	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.84				0.88	0.84
vC, conflicting volume	713				1103	683
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560				667	523
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	97				73	92
cM capacity (veh/h)	819				312	386

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	278	514	676	115
Volume Left	22	0	0	85
Volume Right	0	0	135	29
cSH	819	1700	1700	328
Volume to Capacity	0.03	0.30	0.40	0.35
Queue Length 95th (ft)	2	0	0	38
Control Delay (s)	1.0	0.0	0.0	21.8
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	21.8
Approach LOS				C

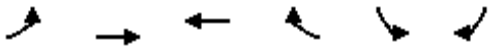
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	816	696
v/c Ratio	0.32	0.53
Control Delay	4.0	6.7
Queue Delay	0.0	0.0
Total Delay	4.0	6.7
Queue Length 50th (ft)	77	163
Queue Length 95th (ft)	104	258
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2535	1321
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.32	0.53

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	775	0	0	640	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3079			1605		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3079			1605		
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	816	0	0	696	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	816	0	0	696	0	0
Heavy Vehicles (%)	2%	2%	3%	3%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2414			1258		
v/s Ratio Prot	0.27			c0.43		
v/s Ratio Perm						
v/c Ratio	0.34			0.55		
Uniform Delay, d1	2.5			3.2		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.4			1.8		
Delay (s)	2.8			5.0		
Level of Service	A			A		
Approach Delay (s)	2.8			5.0	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	41.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	57	742	546	82	44	83
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	60	781	593	89	50	94
Pedestrians		48	48		48	
Lane Width (ft)		11.0	16.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		4	5		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.93	
vC, conflicting volume	731				1245	734
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	731				1106	734
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				69	72
cM capacity (veh/h)	838				159	334

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	320	521	683	144
Volume Left	60	0	0	50
Volume Right	0	0	89	94
cSH	838	1700	1700	242
Volume to Capacity	0.07	0.31	0.40	0.60
Queue Length 95th (ft)	6	0	0	86
Control Delay (s)	2.5	0.0	0.0	39.6
Lane LOS	A			E
Approach Delay (s)	0.9		0.0	39.6
Approach LOS				E

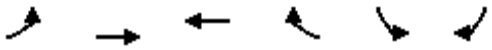
Intersection Summary			
Average Delay	3.9		
Intersection Capacity Utilization	85.4%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2180	1203
v/c Ratio	1.06	0.58
Control Delay	53.2	9.0
Queue Delay	0.0	0.0
Total Delay	53.2	9.0
Queue Length 50th (ft)	~563	139
Queue Length 95th (ft)	#697	191
Internal Link Dist (ft)	146	169
Turn Bay Length (ft)		
Base Capacity (vph)	2059	2059
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.06	0.58

Intersection Summary

~ 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.



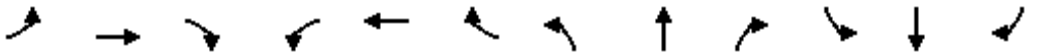
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			
Volume (vph)	0	2006	1107	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2180	1203	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2180	1203	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		45.0	45.0			
Effective Green, g (s)		45.0	45.0			
Actuated g/C Ratio		0.63	0.63			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2059	2059			
v/s Ratio Prot		c0.67	0.37			
v/s Ratio Perm						
v/c Ratio		1.06	0.58			
Uniform Delay, d1		13.0	7.6			
Progression Factor		1.00	1.00			
Incremental Delay, d2		37.5	1.2			
Delay (s)		50.5	8.8			
Level of Service		D	A			
Approach Delay (s)		50.5	8.8		0.0	
Approach LOS		D	A		A	

Intersection Summary			
HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	65.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	203	340	1175	156	1759	285
v/c Ratio	0.43	0.66	0.64	0.21	0.95	0.46
Control Delay	28.2	34.5	15.5	11.0	32.7	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	34.5	15.5	11.0	32.7	15.0
Queue Length 50th (ft)	94	172	248	45	533	98
Queue Length 95th (ft)	104	219	246	66	#734	169
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	544	591	1847	736	1847	617
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.58	0.64	0.21	0.95	0.46

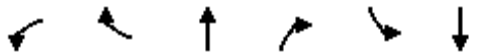
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	130	0	0	265	0	905	120	0	1636	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	12	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.89		1.00	0.76
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1528			1660		3110	1244		3110	1052
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1528			1660		3110	1244		3110	1052
Peak-hour factor, PHF	0.64	0.64	0.64	0.78	0.78	0.78	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	0	203	0	0	340	0	1175	156	0	1759	285
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	203	0	0	340	0	1175	156	0	1759	285
Confl. Peds. (#/hr)									51			137
Confl. Bikes (#/hr)									4			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			28.8			28.8		55.4	55.4		55.4	55.4
Effective Green, g (s)			28.8			28.8		55.4	55.4		55.4	55.4
Actuated g/C Ratio			0.31			0.31		0.59	0.59		0.59	0.59
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			472			512		1848	739		1848	625
v/s Ratio Prot								0.38			c0.57	
v/s Ratio Perm			0.13			c0.20			0.13			0.27
v/c Ratio			0.43			0.66		0.64	0.21		0.95	0.46
Uniform Delay, d1			25.7			28.0		12.3	8.8		17.7	10.5
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.6			3.2		1.7	0.7		12.3	2.4
Delay (s)			26.3			31.2		14.0	9.4		29.9	12.9
Level of Service			C			C		B	A		C	B
Approach Delay (s)		26.3			31.2			13.5			27.6	
Approach LOS		C			C			B			C	

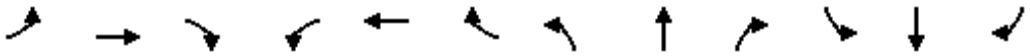
Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	0	75	66	5	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.85	0.85	0.52	0.52
Hourly flow rate (vph)	69	0	88	78	10	48
Pedestrians	31		31			31
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	256	189			197	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256	189			197	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			99	
cM capacity (veh/h)	699	820			1340	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	166	58
Volume Left	69	0	10
Volume Right	0	78	0
cSH	699	1700	1340
Volume to Capacity	0.10	0.10	0.01
Queue Length 95th (ft)	8	0	1
Control Delay (s)	10.7	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	10.7	0.0	1.3
Approach LOS	B		

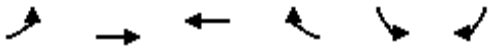
Intersection Summary			
Average Delay	2.8		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	29	0	0	27	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	32	0	0	29	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	32	29
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.0	4.0	3.9	3.9
Degree Utilization, x	0.00	0.00	0.03	0.03
Capacity (veh/h)	886	886	912	910
Control Delay (s)	7.0	7.0	7.1	7.1
Approach Delay (s)	0.0	0.0	7.1	7.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.1			
Level of Service	A			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	517	716	14	0	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.84	0.84	0.43	0.43
Hourly flow rate (vph)	0	574	852	17	0	12
Pedestrians		23			23	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		2			2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.90	
vC, conflicting volume	892				1171	907
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	892				973	907
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	741				224	272

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	287	287	869	12
Volume Left	0	0	0	0
Volume Right	0	0	17	12
cSH	1700	1700	1700	272
Volume to Capacity	0.17	0.17	0.51	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	18.8
Lane LOS				C
Approach Delay (s)	0.0		0.0	18.8
Approach LOS				C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	58.2%	ICU Level of Service	B
Analysis Period (min)	15		

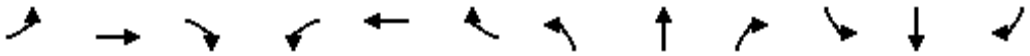
2021 Future Conditions

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	602	153	286	176	259	291	606
v/c Ratio	1.66	1.19	0.63	0.48	0.88	0.19	0.92
Control Delay	341.6	187.7	46.7	43.5	79.4	0.3	53.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	341.6	187.7	46.7	43.5	79.4	0.3	53.6
Queue Length 50th (ft)	~380	~154	203	119	207	0	451
Queue Length 95th (ft)	#541	#316	333	212	#391	0	629
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	363	129	457	363	313	1505	817
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	1.66	1.19	0.63	0.48	0.83	0.19	0.74

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

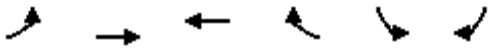
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	541	15	145	272	167	10	231	271	260	287	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00	0.96		1.00	1.00		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		1.00		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		1.00		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (prot)		3296		1430	1506	1199		1657	1505		1579	
Flt Permitted		0.61		0.95	1.00	1.00		1.00	1.00		0.98	
Satd. Flow (perm)		2010		1430	1506	1199		1657	1505		1579	
Peak-hour factor, PHF	0.96	0.96	0.96	0.95	0.95	0.95	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	22	564	16	153	286	176	11	248	291	283	312	11
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	602	0	153	286	176	0	259	291	0	606	0
Confl. Peds. (#/hr)	6		9			6						3
Confl. Bikes (#/hr)			29			2						6
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.2		11.1	37.3	37.3		22.0	122.8		51.5	
Effective Green, g (s)		22.2		11.1	37.3	37.3		22.0	122.8		51.5	
Actuated g/C Ratio		0.18		0.09	0.30	0.30		0.18	1.00		0.42	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		363		129	457	364		296	1505		662	
v/s Ratio Prot				c0.11	0.19			c0.16			c0.38	
v/s Ratio Perm		c0.30				0.15			0.19			
v/c Ratio		1.66		1.19	0.63	0.48		0.88	0.19		0.92	
Uniform Delay, d1		50.3		55.9	36.8	34.9		49.1	0.0		33.6	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		308.3		137.8	2.7	1.0		23.7	0.3		17.3	
Delay (s)		358.6		193.6	39.4	35.9		72.8	0.3		50.9	
Level of Service		F		F	D	D		E	A		D	
Approach Delay (s)		358.6			76.8			34.4			50.9	
Approach LOS		F			E			C			D	

Intersection Summary			
HCM 2000 Control Delay	131.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	122.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

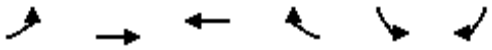
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	51	958	595	46	51	46
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.65	0.65
Hourly flow rate (vph)	55	1030	640	49	78	71
Pedestrians		22	32		32	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.79	
vC, conflicting volume	721				1868	719
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	721				1965	719
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				0	83
cM capacity (veh/h)	855				48	408

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	55	1030	689	149
Volume Left	55	0	0	78
Volume Right	0	0	49	71
cSH	855	1700	1700	83
Volume to Capacity	0.06	0.61	0.41	1.80
Queue Length 95th (ft)	5	0	0	317
Control Delay (s)	9.5	0.0	0.0	487.8
Lane LOS	A			F
Approach Delay (s)	0.5		0.0	487.8
Approach LOS				F

Intersection Summary			
Average Delay	38.1		
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	97	861	621	56	51	72
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.87	0.87	0.89	0.89
Hourly flow rate (vph)	105	936	714	64	57	81
Pedestrians		37	27		37	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.62				0.62	0.62
vC, conflicting volume	815				1489	820
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	397				1482	405
tC, single (s)	4.1				7.2	7.3
tC, 2 stage (s)						
tF (s)	2.2				3.7	3.5
p0 queue free %	85				0	75
cM capacity (veh/h)	699				49	322

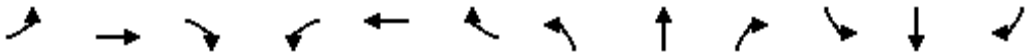
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	417	624	778	138
Volume Left	105	0	0	57
Volume Right	0	0	64	81
cSH	699	1700	1700	98
Volume to Capacity	0.15	0.37	0.46	1.41
Queue Length 95th (ft)	13	0	0	254
Control Delay (s)	4.3	0.0	0.0	313.1
Lane LOS	A			F
Approach Delay (s)	1.7		0.0	313.1
Approach LOS				F

Intersection Summary			
Average Delay	23.0		
Intersection Capacity Utilization	92.2%	ICU Level of Service	F
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	992	846	11	52
v/c Ratio	0.49	0.77	0.08	0.39
Control Delay	12.1	23.2	31.2	39.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.1	23.2	31.2	39.7
Queue Length 50th (ft)	69	164	3	17
Queue Length 95th (ft)	316	#803	9	52
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	2013	1099	315	286
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	0.49	0.77	0.03	0.18

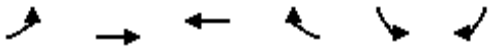
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	26	866	21	15	667	97	0	0	5	31	0	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.98			0.86			0.97	
Flt Protected		1.00			1.00			1.00			0.96	
Satd. Flow (prot)		3024			1556			1070			1212	
Flt Permitted		0.92			0.98			1.00			0.77	
Satd. Flow (perm)		2783			1521			1070			972	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.44	0.44	0.44	0.79	0.79	0.79
Adj. Flow (vph)	28	941	23	16	725	105	0	0	11	39	0	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	992	0	0	846	0	0	11	0	0	52	0
Confl. Bikes (#/hr)			43			15						
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	29%	29%	29%	27%	27%	27%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		48.3			48.3			6.2			6.2	
Effective Green, g (s)		48.3			48.3			6.2			6.2	
Actuated g/C Ratio		0.65			0.65			0.08			0.08	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1816			992			89			81	
v/s Ratio Prot								0.01				
v/s Ratio Perm		0.36			c0.56						c0.05	
v/c Ratio		0.55			0.85			0.12			0.64	
Uniform Delay, d1		6.9			10.1			31.4			32.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			9.2			0.6			16.1	
Delay (s)		8.1			19.3			32.0			48.9	
Level of Service		A			B			C			D	
Approach Delay (s)		8.1			19.3			32.0			48.9	
Approach LOS		A			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	42	860	745	164	125	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.75	0.75
Hourly flow rate (vph)	46	945	768	169	167	47
Pedestrians		40	40		40	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.80				0.87	0.80
vC, conflicting volume	977				1497	933
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	846				928	790
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				16	81
cM capacity (veh/h)	610				197	247

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	361	630	937	213
Volume Left	46	0	0	167
Volume Right	0	0	169	47
cSH	610	1700	1700	206
Volume to Capacity	0.08	0.37	0.55	1.03
Queue Length 95th (ft)	6	0	0	235
Control Delay (s)	2.4	0.0	0.0	120.3
Lane LOS	A			F
Approach Delay (s)	0.9		0.0	120.3
Approach LOS				F

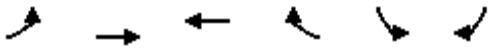
Intersection Summary			
Average Delay	12.4		
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	952	745
v/c Ratio	0.38	0.57
Control Delay	4.4	7.6
Queue Delay	0.0	0.0
Total Delay	4.4	7.6
Queue Length 50th (ft)	96	187
Queue Length 95th (ft)	129	303
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2487	1296
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.38	0.57

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	885	0	0	715	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3020			1574		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3020			1574		
Peak-hour factor, PHF	0.93	0.93	0.96	0.96	0.92	0.92
Adj. Flow (vph)	952	0	0	745	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	952	0	0	745	0	0
Heavy Vehicles (%)	4%	4%	5%	5%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2367			1234		
v/s Ratio Prot	0.32			c0.47		
v/s Ratio Perm						
v/c Ratio	0.40			0.60		
Uniform Delay, d1	2.6			3.4		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.5			2.2		
Delay (s)	3.2			5.6		
Level of Service	A			A		
Approach Delay (s)	3.2			5.6	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	46.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	24	964	827	47	63	83
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	26	1037	861	49	70	92
Pedestrians		40	40		40	
Lane Width (ft)		11.0	16.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	4		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.91	
vC, conflicting volume	950				1536	966
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	950				1383	966
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				33	60
cM capacity (veh/h)	681				105	233

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	371	691	910	162
Volume Left	26	0	0	70
Volume Right	0	0	49	92
cSH	681	1700	1700	153
Volume to Capacity	0.04	0.41	0.54	1.06
Queue Length 95th (ft)	3	0	0	210
Control Delay (s)	1.2	0.0	0.0	149.3
Lane LOS	A			F
Approach Delay (s)	0.4		0.0	149.3
Approach LOS				F

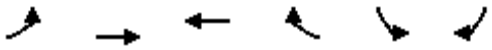
Intersection Summary			
Average Delay	11.6		
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2259	1901
v/c Ratio	0.89	0.75
Control Delay	18.9	11.7
Queue Delay	0.0	0.0
Total Delay	18.9	11.7
Queue Length 50th (ft)	~602	335
Queue Length 95th (ft)	#737	#559
Internal Link Dist (ft)	189	196
Turn Bay Length (ft)		
Base Capacity (vph)	2535	2535
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.89	0.75

Intersection Summary

~ 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.



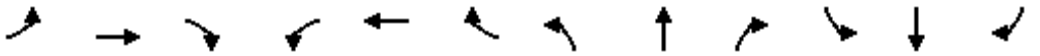
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			
Volume (vph)	0	2078	1749	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2259	1901	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2259	1901	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		46.3	46.3			
Effective Green, g (s)		46.3	46.3			
Actuated g/C Ratio		0.73	0.73			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2372	2372			
v/s Ratio Prot		c0.70	0.59			
v/s Ratio Perm						
v/c Ratio		0.95	0.80			
Uniform Delay, d1		7.6	5.6			
Progression Factor		1.00	1.00			
Incremental Delay, d2		9.6	2.0			
Delay (s)		17.2	7.6			
Level of Service		B	A			
Approach Delay (s)		17.2	7.6		0.0	
Approach LOS		B	A		A	

Intersection Summary			
HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	63.4	Sum of lost time (s)	7.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	60	107	1410	145	1759	259
v/c Ratio	0.14	0.24	0.69	0.17	0.87	0.34
Control Delay	24.0	25.7	16.6	10.3	24.6	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.0	25.7	16.6	10.3	24.6	12.3
Queue Length 50th (ft)	27	49	342	41	547	84
Queue Length 95th (ft)	40	77	442	74	#745	142
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	525	560	2048	837	2028	757
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.19	0.69	0.17	0.87	0.34

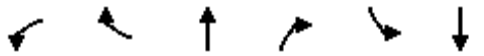
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	41	0	0	87	0	1297	133	0	1601	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	11	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.91		1.00	0.84
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1498			1597		3079	1259		3049	1141
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1498			1597		3079	1259		3049	1141
Peak-hour factor, PHF	0.68	0.68	0.68	0.81	0.81	0.81	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	0	60	0	0	107	0	1410	145	0	1759	259
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	60	0	0	107	0	1410	145	0	1759	259
Confl. Peds. (#/hr)									39			83
Confl. Bikes (#/hr)												7
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			25.1			25.1		62.3	62.3		62.3	62.3
Effective Green, g (s)			25.1			25.1		62.3	62.3		62.3	62.3
Actuated g/C Ratio			0.26			0.26		0.65	0.65		0.65	0.65
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			390			415		1989	813		1970	737
v/s Ratio Prot								0.46			c0.58	
v/s Ratio Perm			0.04			c0.07			0.12			0.23
v/c Ratio			0.15			0.26		0.71	0.18		0.89	0.35
Uniform Delay, d1			27.5			28.3		11.1	6.8		14.3	7.8
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.2			0.3		2.2	0.5		6.7	1.3
Delay (s)			27.7			28.6		13.3	7.3		20.9	9.1
Level of Service			C			C		B	A		C	A
Approach Delay (s)		27.7			28.6			12.7			19.4	
Approach LOS		C			C			B			B	

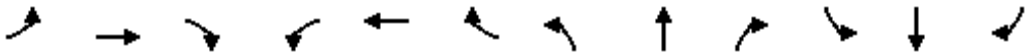
Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	96.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	98	5	77	21	0	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	151	8	95	26	0	67
Pedestrians	43		43			43
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	261	194			164	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	261	194			164	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	78	99			100	
cM capacity (veh/h)	687	800			1326	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	158	121	67
Volume Left	151	0	0
Volume Right	8	26	0
cSH	692	1700	1326
Volume to Capacity	0.23	0.07	0.00
Queue Length 95th (ft)	22	0	0
Control Delay (s)	11.7	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.7	0.0	0.0
Approach LOS	B		

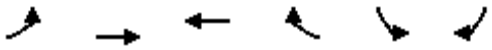
Intersection Summary			
Average Delay	5.4		
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	14	0	0	45	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	15	0	0	49	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	15	49
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.0	4.0	3.9	3.9
Degree Utilization, x	0.00	0.00	0.02	0.05
Capacity (veh/h)	884	884	907	914
Control Delay (s)	7.0	7.0	7.0	7.1
Approach Delay (s)	0.0	0.0	7.0	7.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.1			
Level of Service	A			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	1009	594	10	0	1
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.95	0.95	0.86	0.86
Hourly flow rate (vph)	0	1051	625	11	0	1
Pedestrians		17			17	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		1			1	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.83	
vC, conflicting volume	653				1173	665
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	653				804	665
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	923				266	396

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	526	526	636	1
Volume Left	0	0	0	0
Volume Right	0	0	11	1
cSH	1700	1700	1700	396
Volume to Capacity	0.31	0.31	0.37	0.00
Queue Length 95th (ft)	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	14.1
Lane LOS				B
Approach Delay (s)	0.0		0.0	14.1
Approach LOS				B

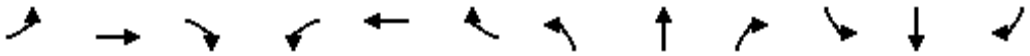
Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	49.8%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	WBL	WBT	WBR	NBT	NBR	SBT
Lane Group Flow (vph)	420	192	365	307	436	120	517
v/c Ratio	1.48	0.92	0.70	0.75	0.98	0.08	1.06
Control Delay	272.5	101.3	47.6	53.4	86.4	0.1	101.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	272.5	101.3	47.6	53.4	86.4	0.1	101.2
Queue Length 50th (ft)	~266	168	278	239	381	0	~495
Queue Length 95th (ft)	#376	#283	361	326	#598	0	#717
Internal Link Dist (ft)	255		164		369		463
Turn Bay Length (ft)		185		100		75	
Base Capacity (vph)	284	209	521	407	446	1500	489
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	1.48	0.92	0.70	0.75	0.98	0.08	1.06

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

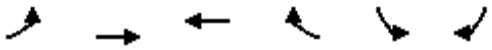
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	292	31	161	307	258	5	405	113	137	313	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	10	10	10	12	12	14	12	11	12
Total Lost time (s)		4.0		4.0	4.0	4.0		4.0	4.0		4.0	
Lane Util. Factor		0.95		1.00	1.00	1.00		1.00	1.00		1.00	
Frpb, ped/bikes		1.00		1.00	1.00	0.94		1.00	0.99		1.00	
Flpb, ped/bikes		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Frt		0.99		1.00	1.00	0.85		1.00	0.85		1.00	
Flt Protected		0.99		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (prot)		3212		1486	1565	1221		1676	1500		1573	
Flt Permitted		0.54		0.95	1.00	1.00		1.00	1.00		0.99	
Satd. Flow (perm)		1744		1486	1565	1221		1676	1500		1573	
Peak-hour factor, PHF	0.90	0.90	0.90	0.84	0.84	0.84	0.94	0.94	0.94	0.90	0.90	0.90
Adj. Flow (vph)	62	324	34	192	365	307	5	431	120	152	348	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	420	0	192	365	307	0	436	120	0	517	0
Confl. Peds. (#/hr)	11		5			11						2
Confl. Bikes (#/hr)			11			3			5			9
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Turn Type	Perm	NA		Prot	NA	Perm	Split	NA	Free	Split	NA	
Protected Phases		1		4	1 4		3	3		2	2	
Permitted Phases	1					1 4			Free			
Actuated Green, G (s)		22.0		19.0	45.0	45.0		36.0	135.0		42.0	
Effective Green, g (s)		22.0		19.0	45.0	45.0		36.0	135.0		42.0	
Actuated g/C Ratio		0.16		0.14	0.33	0.33		0.27	1.00		0.31	
Clearance Time (s)		4.0		4.0				4.0			4.0	
Vehicle Extension (s)		3.0		3.0				3.0			3.0	
Lane Grp Cap (vph)		284		209	521	407		446	1500		489	
v/s Ratio Prot				c0.13	0.23			c0.26			c0.33	
v/s Ratio Perm		c0.24				0.25			0.08			
v/c Ratio		1.48		0.92	0.70	0.75		0.98	0.08		1.06	
Uniform Delay, d1		56.5		57.2	39.1	40.1		49.1	0.0		46.5	
Progression Factor		1.00		1.00	1.00	1.00		1.00	1.00		1.00	
Incremental Delay, d2		233.6		39.9	4.2	7.7		36.4	0.1		56.7	
Delay (s)		290.1		97.1	43.4	47.8		85.5	0.1		103.2	
Level of Service		F		F	D	D		F	A		F	
Approach Delay (s)		290.1			56.9			67.0			103.2	
Approach LOS		F			E			E			F	

Intersection Summary			
HCM 2000 Control Delay	111.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	95.7%	ICU Level of Service	F
Analysis Period (min)	15		

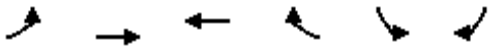
c Critical Lane Group



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	10	537	685	5	41	67
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.85	0.85	0.91	0.91	0.74	0.74
Hourly flow rate (vph)	12	632	753	5	55	91
Pedestrians		18	35		35	
Lane Width (ft)		10.5	12.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		886				
pX, platoon unblocked					0.85	
vC, conflicting volume	793				1481	808
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	793				1477	808
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				50	75
cM capacity (veh/h)	797				110	365

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	12	632	758	146
Volume Left	12	0	0	55
Volume Right	0	0	5	91
cSH	797	1700	1700	194
Volume to Capacity	0.01	0.37	0.45	0.75
Queue Length 95th (ft)	1	0	0	124
Control Delay (s)	9.6	0.0	0.0	64.3
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	64.3
Approach LOS				F

Intersection Summary			
Average Delay	6.1		
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	51	557	536	36	77	128
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.91	0.91	0.70	0.70
Hourly flow rate (vph)	57	619	589	40	110	183
Pedestrians		41	19		41	
Lane Width (ft)		11.0	13.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)			672			
pX, platoon unblocked	0.70				0.70	0.70
vC, conflicting volume	670				1092	691
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	321				920	351
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				35	57
cM capacity (veh/h)	838				169	426

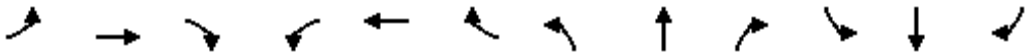
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	263	413	629	293
Volume Left	57	0	0	110
Volume Right	0	0	40	183
cSH	838	1700	1700	271
Volume to Capacity	0.07	0.24	0.37	1.08
Queue Length 95th (ft)	5	0	0	298
Control Delay (s)	2.6	0.0	0.0	118.8
Lane LOS	A			F
Approach Delay (s)	1.0		0.0	118.8
Approach LOS				F

Intersection Summary			
Average Delay	22.2		
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	696	618	67	249
v/c Ratio	0.49	0.82	0.23	0.87
Control Delay	18.0	33.0	31.8	63.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.0	33.0	31.8	63.9
Queue Length 50th (ft)	156	338	33	146
Queue Length 95th (ft)	212	#563	55	#176
Internal Link Dist (ft)	592	549	169	169
Turn Bay Length (ft)				
Base Capacity (vph)	1430	752	298	294
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	0.49	0.82	0.22	0.85

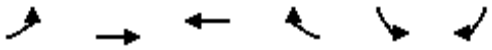
Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	614	15	26	520	10	21	0	26	133	0	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	10	12	12	11	12
Total Lost time (s)		5.0			5.0			5.0			5.0	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frpb, ped/bikes		1.00			1.00			1.00			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			1.00			0.93			0.97	
Flt Protected		1.00			1.00			0.98			0.96	
Satd. Flow (prot)		3065			1612			1416			1533	
Flt Permitted		0.95			0.95			0.84			0.75	
Satd. Flow (perm)		2917			1535			1221			1199	
Peak-hour factor, PHF	0.91	0.91	0.91	0.90	0.90	0.90	0.71	0.71	0.71	0.66	0.66	0.66
Adj. Flow (vph)	5	675	16	29	578	11	30	0	37	202	0	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	696	0	0	618	0	0	67	0	0	249	0
Confl. Bikes (#/hr)			25			21						
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Bus Blockages (#/hr)	0	0	6	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1			2			2		
Actuated Green, G (s)		40.9			40.9			19.9			19.9	
Effective Green, g (s)		40.9			40.9			19.9			19.9	
Actuated g/C Ratio		0.48			0.48			0.24			0.24	
Clearance Time (s)		5.0			5.0			5.0			5.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		1410			742			287			282	
v/s Ratio Prot												
v/s Ratio Perm		0.24			c0.40			0.05			c0.21	
v/c Ratio		0.49			0.83			0.23			0.88	
Uniform Delay, d1		14.8			18.9			26.2			31.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			10.6			0.4			26.0	
Delay (s)		16.1			29.5			26.6			57.3	
Level of Service		B			C			C			E	
Approach Delay (s)		16.1			29.5			26.6			57.3	
Approach LOS		B			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	84.6	Sum of lost time (s)	13.0
Intersection Capacity Utilization	79.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	750	523	135	87	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.96	0.96
Hourly flow rate (vph)	24	806	562	145	91	30
Pedestrians		37	29		37	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.82				0.87	0.82
vC, conflicting volume	745				1151	709
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	582				664	539
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	97				71	92
cM capacity (veh/h)	790				310	370

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	292	538	708	121
Volume Left	24	0	0	91
Volume Right	0	0	145	30
cSH	790	1700	1700	323
Volume to Capacity	0.03	0.32	0.42	0.37
Queue Length 95th (ft)	2	0	0	42
Control Delay (s)	1.1	0.0	0.0	22.7
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	22.7
Approach LOS				C

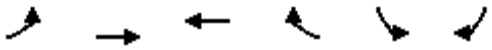
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	879	715
v/c Ratio	0.35	0.54
Control Delay	4.1	7.0
Queue Delay	0.0	0.0
Total Delay	4.1	7.0
Queue Length 50th (ft)	85	170
Queue Length 95th (ft)	115	271
Internal Link Dist (ft)	370	10
Turn Bay Length (ft)		
Base Capacity (vph)	2535	1321
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.35	0.54

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	835	0	0	658	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	12	12
Total Lost time (s)	5.0			5.0		
Lane Util. Factor	0.95			1.00		
Frt	1.00			1.00		
Flt Protected	1.00			1.00		
Satd. Flow (prot)	3079			1605		
Flt Permitted	1.00			1.00		
Satd. Flow (perm)	3079			1605		
Peak-hour factor, PHF	0.95	0.95	0.92	0.92	0.92	0.92
Adj. Flow (vph)	879	0	0	715	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	879	0	0	715	0	0
Heavy Vehicles (%)	2%	2%	3%	3%	0%	0%
Turn Type	NA			NA		
Protected Phases	1			1		
Permitted Phases						
Actuated Green, G (s)	61.0			61.0		
Effective Green, g (s)	61.0			61.0		
Actuated g/C Ratio	0.78			0.78		
Clearance Time (s)	5.0			5.0		
Vehicle Extension (s)	3.0			3.0		
Lane Grp Cap (vph)	2414			1258		
v/s Ratio Prot	0.29			c0.45		
v/s Ratio Perm						
v/c Ratio	0.36			0.57		
Uniform Delay, d1	2.5			3.3		
Progression Factor	1.00			1.00		
Incremental Delay, d2	0.4			1.9		
Delay (s)	3.0			5.1		
Level of Service	A			A		
Approach Delay (s)	3.0			5.1	0.0	
Approach LOS	A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	77.8	Sum of lost time (s)	7.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	62	773	579	89	47	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	65	814	629	97	53	97
Pedestrians		48	48		48	
Lane Width (ft)		11.0	16.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		4	5		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.92	
vC, conflicting volume	774				1311	774
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774				1161	774
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				63	69
cM capacity (veh/h)	807				144	315

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	336	542	726	150
Volume Left	65	0	0	53
Volume Right	0	0	97	97
cSH	807	1700	1700	221
Volume to Capacity	0.08	0.32	0.43	0.68
Queue Length 95th (ft)	7	0	0	107
Control Delay (s)	2.7	0.0	0.0	49.9
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	49.9
Approach LOS				E

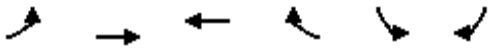
Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		

Lane Group	EBT	WBT
Lane Group Flow (vph)	2271	1263
v/c Ratio	1.10	0.61
Control Delay	70.6	9.4
Queue Delay	0.0	0.0
Total Delay	70.6	9.4
Queue Length 50th (ft)	~608	151
Queue Length 95th (ft)	#743	206
Internal Link Dist (ft)	146	169
Turn Bay Length (ft)		
Base Capacity (vph)	2059	2059
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.10	0.61

Intersection Summary

~ 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.



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑			
Volume (vph)	0	2089	1162	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0	5.0			
Lane Util. Factor		0.95	0.95			
Frt		1.00	1.00			
Flt Protected		1.00	1.00			
Satd. Flow (prot)		3249	3249			
Flt Permitted		1.00	1.00			
Satd. Flow (perm)		3249	3249			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	2271	1263	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2271	1263	0	0	0
Turn Type		NA	NA			
Protected Phases		1	1			
Permitted Phases						
Actuated Green, G (s)		45.0	45.0			
Effective Green, g (s)		45.0	45.0			
Actuated g/C Ratio		0.63	0.63			
Clearance Time (s)		5.0	5.0			
Vehicle Extension (s)		3.0	3.0			
Lane Grp Cap (vph)		2059	2059			
v/s Ratio Prot		c0.70	0.39			
v/s Ratio Perm						
v/c Ratio		1.10	0.61			
Uniform Delay, d1		13.0	7.8			
Progression Factor		1.00	1.00			
Incremental Delay, d2		54.3	1.4			
Delay (s)		67.3	9.2			
Level of Service		E	A			
Approach Delay (s)		67.3	9.2		0.0	
Approach LOS		E	A		A	

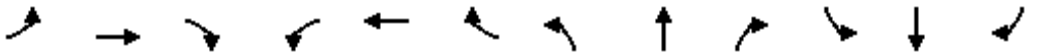
Intersection Summary			
HCM 2000 Control Delay	46.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	7.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBR	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	208	349	1230	160	1841	292
v/c Ratio	0.44	0.68	0.67	0.22	1.00	0.47
Control Delay	28.4	35.2	16.1	11.1	42.0	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	35.2	16.1	11.1	42.0	15.3
Queue Length 50th (ft)	97	178	267	46	~652	102
Queue Length 95th (ft)	107	225	263	67	#790	174
Internal Link Dist (ft)			274		990	
Turn Bay Length (ft)				100		100
Base Capacity (vph)	543	590	1845	736	1845	616
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.59	0.67	0.22	1.00	0.47

Intersection Summary

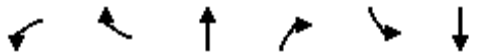
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	133	0	0	272	0	947	123	0	1712	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	13	12	12	16	12	11	11	12	11	11
Total Lost time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Lane Util. Factor			1.00			1.00		0.95	1.00		0.95	1.00
Frpb, ped/bikes			1.00			1.00		1.00	0.89		1.00	0.76
Flpb, ped/bikes			1.00			1.00		1.00	1.00		1.00	1.00
Frt			0.86			0.86		1.00	0.85		1.00	0.85
Flt Protected			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)			1528			1660		3110	1244		3110	1052
Flt Permitted			1.00			1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)			1528			1660		3110	1244		3110	1052
Peak-hour factor, PHF	0.64	0.64	0.64	0.78	0.78	0.78	0.77	0.77	0.77	0.93	0.93	0.93
Adj. Flow (vph)	0	0	208	0	0	349	0	1230	160	0	1841	292
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	208	0	0	349	0	1230	160	0	1841	292
Confl. Peds. (#/hr)									51			137
Confl. Bikes (#/hr)									4			
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type			Perm			Perm		NA	Perm		NA	Perm
Protected Phases								1			1	
Permitted Phases			2			2			1			1
Actuated Green, G (s)			28.9			28.9		55.4	55.4		55.4	55.4
Effective Green, g (s)			28.9			28.9		55.4	55.4		55.4	55.4
Actuated g/C Ratio			0.31			0.31		0.59	0.59		0.59	0.59
Clearance Time (s)			4.0			4.0		5.0	5.0		5.0	5.0
Vehicle Extension (s)			3.0			3.0		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)			473			514		1846	738		1846	624
v/s Ratio Prot								0.40			c0.59	
v/s Ratio Perm			0.14			c0.21			0.13			0.28
v/c Ratio			0.44			0.68		0.67	0.22		1.00	0.47
Uniform Delay, d1			25.7			28.1		12.7	8.8		18.9	10.7
Progression Factor			1.00			1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2			0.7			3.6		1.9	0.7		20.3	2.5
Delay (s)			26.4			31.7		14.7	9.5		39.2	13.2
Level of Service			C			C		B	A		D	B
Approach Delay (s)		26.4			31.7			14.1			35.6	
Approach LOS		C			C			B			D	

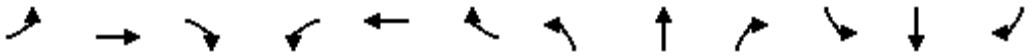
Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	93.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	0	81	67	5	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.85	0.85	0.52	0.52
Hourly flow rate (vph)	69	0	95	79	10	56
Pedestrians	31		31			31
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	272	197			205	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	272	197			205	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	90	100			99	
cM capacity (veh/h)	685	812			1331	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	69	174	65
Volume Left	69	0	10
Volume Right	0	79	0
cSH	685	1700	1331
Volume to Capacity	0.10	0.10	0.01
Queue Length 95th (ft)	8	0	1
Control Delay (s)	10.8	0.0	1.2
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	1.2
Approach LOS	B		

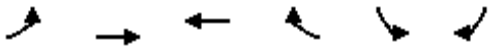
Intersection Summary			
Average Delay	2.7		
Intersection Capacity Utilization	28.8%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	0	0	0	0	0	0	0	36	0	0	25	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	0	0	0	0	39	0	0	27	0

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	0	0	39	27
Volume Left (vph)	0	0	0	0
Volume Right (vph)	0	0	0	0
Hadj (s)	0.00	0.00	0.00	0.00
Departure Headway (s)	4.0	4.0	3.9	3.9
Degree Utilization, x	0.00	0.00	0.04	0.03
Capacity (veh/h)	883	883	913	908
Control Delay (s)	7.0	7.0	7.1	7.1
Approach Delay (s)	0.0	0.0	7.1	7.1
Approach LOS	A	A	A	A

Intersection Summary				
Delay	7.1			
Level of Service	A			
Intersection Capacity Utilization	6.7%	ICU Level of Service	A	
Analysis Period (min)	15			

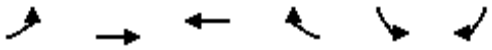


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	0	547	726	14	0	5
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.90	0.90	0.84	0.84	0.43	0.43
Hourly flow rate (vph)	0	608	864	17	0	12
Pedestrians		23			23	
Lane Width (ft)		12.0			12.0	
Walking Speed (ft/s)		4.0			4.0	
Percent Blockage		2			2	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		244				
pX, platoon unblocked					0.89	
vC, conflicting volume	904				1200	919
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	904				985	919
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	96
cM capacity (veh/h)	734				218	267

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	304	304	881	12
Volume Left	0	0	0	0
Volume Right	0	0	17	12
cSH	1700	1700	1700	267
Volume to Capacity	0.18	0.18	0.52	0.04
Queue Length 95th (ft)	0	0	0	3
Control Delay (s)	0.0	0.0	0.0	19.1
Lane LOS				C
Approach Delay (s)	0.0		0.0	19.1
Approach LOS				C

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

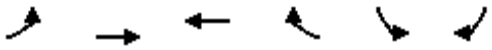
Supplemental Analysis



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	41	834	715	126	116	31
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.75	0.75
Hourly flow rate (vph)	45	916	737	130	155	41
Pedestrians		40	40		40	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.69				0.75	0.69
vC, conflicting volume	907				1430	882
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	634				791	598
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				26	85
cM capacity (veh/h)	627				209	284

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	351	611	867	196
Volume Left	45	0	0	155
Volume Right	0	0	130	41
cSH	627	1700	1700	222
Volume to Capacity	0.07	0.36	0.51	0.88
Queue Length 95th (ft)	6	0	0	178
Control Delay (s)	2.3	0.0	0.0	79.7
Lane LOS	A			F
Approach Delay (s)	0.8		0.0	79.7
Approach LOS				F

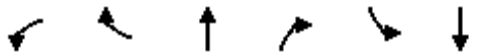
Intersection Summary			
Average Delay	8.1		
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	23	927	761	78	60	80
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	25	997	793	81	67	89
Pedestrians		40	40		40	
Lane Width (ft)		11.0	16.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	4		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.89	
vC, conflicting volume	914				1461	913
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	914				1279	913
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				45	65
cM capacity (veh/h)	703				122	252

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	357	665	874	156
Volume Left	25	0	0	67
Volume Right	0	0	81	89
cSH	703	1700	1700	173
Volume to Capacity	0.04	0.39	0.51	0.90
Queue Length 95th (ft)	3	0	0	165
Control Delay (s)	1.1	0.0	0.0	97.2
Lane LOS	A			F
Approach Delay (s)	0.4		0.0	97.2
Approach LOS				F

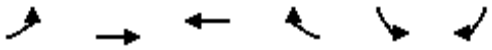
Intersection Summary			
Average Delay	7.6		
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	97	35	45	17	0	50
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	149	54	56	21	0	55
Pedestrians	43		43			43
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	207	152			120	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	207	152			120	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	80	94			100	
cM capacity (veh/h)	737	844			1378	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	203	77	55
Volume Left	149	0	0
Volume Right	54	21	0
cSH	763	1700	1378
Volume to Capacity	0.27	0.05	0.00
Queue Length 95th (ft)	27	0	0
Control Delay (s)	11.4	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.4	0.0	0.0
Approach LOS	B		

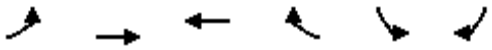
Intersection Summary			
Average Delay	6.9		
Intersection Capacity Utilization	30.3%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	20	720	503	83	82	28
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.96	0.96
Hourly flow rate (vph)	22	774	541	89	85	29
Pedestrians		37	29		37	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.85				0.90	0.85
vC, conflicting volume	667				1082	659
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	523				655	515
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	98				74	93
cM capacity (veh/h)	861				324	398

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	280	516	630	115
Volume Left	22	0	0	85
Volume Right	0	0	89	29
cSH	861	1700	1700	340
Volume to Capacity	0.02	0.30	0.37	0.34
Queue Length 95th (ft)	2	0	0	36
Control Delay (s)	1.0	0.0	0.0	20.9
Lane LOS	A			C
Approach Delay (s)	0.3		0.0	20.9
Approach LOS				C

Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	60	742	503	128	44	83
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	63	781	547	139	50	94
Pedestrians		48	48		48	
Lane Width (ft)		11.0	16.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		4	5		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.92	
vC, conflicting volume	734				1229	712
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	734				1082	712
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				69	73
cM capacity (veh/h)	835				164	346

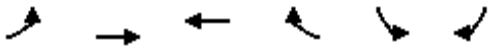
Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	324	521	686	144
Volume Left	63	0	0	50
Volume Right	0	0	139	94
cSH	835	1700	1700	250
Volume to Capacity	0.08	0.31	0.40	0.58
Queue Length 95th (ft)	6	0	0	82
Control Delay (s)	2.6	0.0	0.0	37.4
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	37.4
Approach LOS				E

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	30	40	53	5	25
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.85	0.85	0.52	0.52
Hourly flow rate (vph)	69	52	47	62	10	48
Pedestrians	31		31			31
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	208	140			140	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	208	140			140	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	94			99	
cM capacity (veh/h)	745	872			1406	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	121	109	58
Volume Left	69	0	10
Volume Right	52	62	0
cSH	795	1700	1406
Volume to Capacity	0.15	0.06	0.01
Queue Length 95th (ft)	13	0	1
Control Delay (s)	10.3	0.0	1.3
Lane LOS	B		A
Approach Delay (s)	10.3	0.0	1.3
Approach LOS	B		

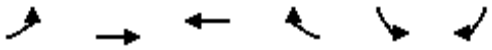
Intersection Summary			
Average Delay	4.6		
Intersection Capacity Utilization	28.6%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	42	859	745	129	125	35
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.91	0.91	0.97	0.97	0.75	0.75
Hourly flow rate (vph)	46	944	768	133	167	47
Pedestrians		40	40		40	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	3		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.65				0.71	0.65
vC, conflicting volume	941				1479	915
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	635				779	594
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				17	83
cM capacity (veh/h)	591				202	269

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	361	629	901	213
Volume Left	46	0	0	167
Volume Right	0	0	133	47
cSH	591	1700	1700	214
Volume to Capacity	0.08	0.37	0.53	1.00
Queue Length 95th (ft)	6	0	0	223
Control Delay (s)	2.5	0.0	0.0	108.7
Lane LOS	A			F
Approach Delay (s)	0.9		0.0	108.7
Approach LOS				F

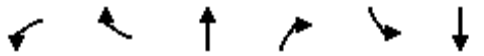
Intersection Summary			
Average Delay	11.4		
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	24	964	792	81	62	83
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.96	0.96	0.90	0.90
Hourly flow rate (vph)	26	1037	825	84	69	92
Pedestrians		40	40		40	
Lane Width (ft)		11.0	16.0		13.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	4		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.89	
vC, conflicting volume	949				1517	947
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	949				1328	947
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				39	61
cM capacity (veh/h)	681				112	240

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	371	691	909	161
Volume Left	26	0	0	69
Volume Right	0	0	84	92
cSH	681	1700	1700	161
Volume to Capacity	0.04	0.41	0.53	1.00
Queue Length 95th (ft)	3	0	0	194
Control Delay (s)	1.2	0.0	0.0	127.4
Lane LOS	A			F
Approach Delay (s)	0.4		0.0	127.4
Approach LOS				F

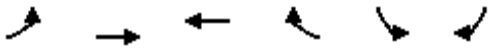
Intersection Summary			
Average Delay	9.8		
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	98	36	46	17	0	61
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.65	0.65	0.81	0.81	0.91	0.91
Hourly flow rate (vph)	151	55	57	21	0	67
Pedestrians	43		43			43
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	3		3			3
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	220	153			121	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	220	153			121	
tC, single (s)	6.4	6.2			4.2	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.3	
p0 queue free %	79	93			100	
cM capacity (veh/h)	725	843			1376	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	206	78	67
Volume Left	151	0	0
Volume Right	55	21	0
cSH	753	1700	1376
Volume to Capacity	0.27	0.05	0.00
Queue Length 95th (ft)	28	0	0
Control Delay (s)	11.6	0.0	0.0
Lane LOS	B		
Approach Delay (s)	11.6	0.0	0.0
Approach LOS	B		

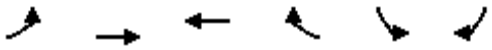
Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	30.4%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	750	523	93	87	29
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.96	0.96
Hourly flow rate (vph)	24	806	562	100	91	30
Pedestrians		37	29		37	
Lane Width (ft)		11.0	12.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		3	2		3	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		629	450			
pX, platoon unblocked	0.84				0.89	0.84
vC, conflicting volume	699				1129	686
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				651	527
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.6	3.4
p0 queue free %	97				72	92
cM capacity (veh/h)	831				321	383

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	292	538	662	121
Volume Left	24	0	0	91
Volume Right	0	0	100	30
cSH	831	1700	1700	335
Volume to Capacity	0.03	0.32	0.39	0.36
Queue Length 95th (ft)	2	0	0	40
Control Delay (s)	1.1	0.0	0.0	21.7
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	21.7
Approach LOS				C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	62	773	535	133	47	85
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.95	0.95	0.92	0.92	0.88	0.88
Hourly flow rate (vph)	65	814	582	145	53	97
Pedestrians		48	48		48	
Lane Width (ft)		11.0	16.0		11.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		4	5		4	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		90				
pX, platoon unblocked					0.92	
vC, conflicting volume	774				1287	750
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	774				1135	750
tC, single (s)	4.1				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				64	70
cM capacity (veh/h)	807				150	326

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	336	542	726	150
Volume Left	65	0	0	53
Volume Right	0	0	145	97
cSH	807	1700	1700	230
Volume to Capacity	0.08	0.32	0.43	0.65
Queue Length 95th (ft)	7	0	0	100
Control Delay (s)	2.7	0.0	0.0	46.0
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	46.0
Approach LOS				E

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	89.7%	ICU Level of Service	E
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	40	31	50	53	5	29
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.58	0.58	0.85	0.85	0.52	0.52
Hourly flow rate (vph)	69	53	59	62	10	56
Pedestrians	31		31			31
Lane Width (ft)	10.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	2		2			2
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	227	152			152	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	227	152			152	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	94			99	
cM capacity (veh/h)	726	859			1392	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	122	121	65
Volume Left	69	0	10
Volume Right	53	62	0
cSH	779	1700	1392
Volume to Capacity	0.16	0.07	0.01
Queue Length 95th (ft)	14	0	1
Control Delay (s)	10.5	0.0	1.2
Lane LOS	B		A
Approach Delay (s)	10.5	0.0	1.2
Approach LOS	B		

Intersection Summary			
Average Delay	4.4		
Intersection Capacity Utilization	28.7%	ICU Level of Service	A
Analysis Period (min)	15		

SIDRA Results

2016 Existing Conditions
2016 Build Conditions
2021 Future Conditions

2016 Existing Conditions

MOVEMENT SUMMARY

Site: 101 [PM Existing_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	38	2.0	0.459	9.8	LOS A	1.9	47.1	0.44	0.40	33.4
6	T1	367	2.0	0.459	9.8	LOS A	1.9	47.1	0.44	0.40	32.5
16	R2	924	2.0	1.046	64.1	LOS F	34.7	882.3	1.00	1.76	17.9
16b	R3	13	0.0	1.046	64.1	LOS F	34.7	882.3	1.00	1.76	17.8
Approach		1342	2.0	1.046	47.7	LOS E	34.7	882.3	0.83	1.35	20.8
NorthEast: Hotel Driveway											
1bx	L3	40	0.0	0.115	11.7	LOS B	0.3	7.2	0.70	0.70	30.0
16bx	R3	2	0.0	0.115	11.7	LOS B	0.3	7.2	0.70	0.70	28.5
Approach		42	0.0	0.115	11.7	LOS B	0.3	7.2	0.70	0.70	29.9
North: Alewife Brook Parkway											
7u	U	78	1.0	1.135	96.6	LOS F	48.8	1229.7	1.00	2.63	14.5
7b	L3	10	1.0	1.135	96.6	LOS F	48.8	1229.7	1.00	2.63	14.4
7	L2	1448	1.0	1.135	96.4	LOS F	49.2	1240.2	1.00	2.64	14.4
14	R2	292	1.0	1.135	96.1	LOS F	49.2	1240.2	1.00	2.65	14.2
Approach		1828	1.0	1.135	96.3	LOS F	49.2	1240.2	1.00	2.64	14.4
West: Concord Avenue											
5	L2	222	2.0	1.002	80.9	LOS F	10.6	270.2	1.00	1.66	16.0
2	T1	557	2.0	1.002	78.7	LOS F	10.8	273.9	1.00	1.67	16.4
Approach		778	2.0	1.002	79.3	LOS F	10.8	273.9	1.00	1.67	16.3
All Vehicles		3990	1.5	1.135	75.8	LOS F	49.2	1240.2	0.94	2.00	16.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Existing PM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	833	1.0	1.280	175.0	LOS F	42.2	1064.2	1.00	2.92	9.5
8	T1	105	1.0	1.280	175.0	LOS F	42.2	1064.2	1.00	2.92	9.3
18	R2	19	1.0	1.280	175.0	LOS F	42.2	1064.2	1.00	2.92	9.4
18b	R3	1	1.0	1.280	175.0	LOS F	42.2	1064.2	1.00	2.92	9.5
Approach		958	1.0	1.280	175.0	LOS F	42.2	1064.2	1.00	2.92	9.5
SouthEast: Gas Station Driveway											
18ax	R1	5	3.0	0.027	13.0	LOS B	0.1	1.9	0.75	0.75	31.1
18bx	R3	3	0.0	0.027	13.0	LOS B	0.1	1.9	0.75	0.75	30.2
Approach		8	2.0	0.027	13.0	LOS B	0.1	1.9	0.75	0.75	30.8
East: Concord Avenue											
1	L2	42	5.0	0.873	44.4	LOS E	6.0	157.3	0.88	1.10	21.2
6	T1	331	5.0	0.873	44.4	LOS E	6.0	157.3	0.88	1.10	21.2
16	R2	48	5.0	0.873	44.4	LOS E	6.0	157.3	0.88	1.10	19.4
Approach		422	5.0	0.873	44.4	LOS E	6.0	157.3	0.88	1.10	21.0
North: New Street											
14	R2	151	5.0	0.365	15.5	LOS C	1.2	31.9	0.71	0.74	25.8
Approach		151	5.0	0.365	15.5	LOS C	1.2	31.9	0.71	0.74	25.8
West: Concord Avenue											
5	L2	97	1.0	1.008	49.7	LOS F	87.9	2214.7	1.00	0.55	19.1
2	T1	683	1.0	1.008	49.7	LOS F	87.9	2214.7	1.00	0.55	19.6
12a	R1	1	3.0	1.008	49.7	LOS F	87.9	2214.7	1.00	0.55	20.0
12	R2	1349	1.0	1.008	49.7	LOS F	87.9	2214.7	1.00	0.54	19.2
Approach		2130	1.0	1.008	49.7	LOS E	87.9	2214.7	1.00	0.55	19.3
All Vehicles		3668	1.6	1.280	80.3	LOS F	87.9	2214.7	0.97	1.24	15.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM Existing_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	34	3.0	0.896	33.7	LOS D	10.8	276.1	0.92	1.13	24.9
6	T1	699	3.0	0.896	33.7	LOS D	10.8	276.1	0.92	1.13	24.4
16	R2	1136	3.0	1.422	212.7	LOS F	126.2	3226.9	1.00	4.66	8.1
16b	R3	51	0.0	1.422	212.7	LOS F	126.2	3226.9	1.00	4.66	8.1
Approach		1920	2.9	1.422	144.4	LOS F	126.2	3226.9	0.97	3.31	11.0
NorthEast: Hotel Driveway											
1bx	L3	71	2.0	0.282	19.0	LOS C	0.7	18.9	0.80	0.83	27.5
16bx	R3	9	2.0	0.282	19.0	LOS C	0.7	18.9	0.80	0.83	26.3
Approach		80	2.0	0.282	19.0	LOS C	0.7	18.9	0.80	0.83	27.4
North: Alewife Brook Parkway											
7u	U	76	3.0	1.300	168.8	LOS F	64.7	1655.1	1.00	3.91	10.0
7b	L3	35	3.0	1.300	168.8	LOS F	64.7	1655.1	1.00	3.91	10.0
7	L2	1207	3.0	1.300	168.3	LOS F	66.8	1710.9	1.00	3.96	10.0
14	R2	247	3.0	1.300	167.7	LOS F	66.8	1710.9	1.00	4.02	9.9
Approach		1566	3.0	1.300	168.3	LOS F	66.8	1710.9	1.00	3.97	10.0
West: Concord Avenue											
5	L2	308	3.0	1.045	84.2	LOS F	16.6	425.8	1.00	1.94	15.7
2	T1	687	3.0	1.045	82.6	LOS F	16.9	433.7	1.00	1.95	16.0
Approach		995	3.0	1.045	83.1	LOS F	16.9	433.7	1.00	1.95	15.9
All Vehicles		4561	2.9	1.422	137.0	LOS F	126.2	3226.9	0.98	3.20	11.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Existing AM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	1322	2.5	1.992	480.6	LOS F	124.1	3164.9	1.00	5.04	4.2
8	T1	80	2.5	1.992	480.6	LOS F	124.1	3164.9	1.00	5.04	4.2
18	R2	29	2.5	1.992	480.6	LOS F	124.1	3164.9	1.00	5.04	4.2
18b	R3	11	2.5	1.992	480.6	LOS F	124.1	3164.9	1.00	5.04	4.2
Approach		1443	2.5	1.992	480.6	LOS F	124.1	3164.9	1.00	5.04	4.2
SouthEast: Gas Station											
3bx	L3	17	0.0	0.068	13.5	LOS B	0.2	4.7	0.75	0.75	29.6
18ax	R1	3	0.0	0.068	13.5	LOS B	0.2	4.7	0.75	0.75	29.0
Approach		20	0.0	0.068	13.5	LOS B	0.2	4.7	0.75	0.75	29.5
East: Concord Avenue											
1u	U	6	6.0	1.250	155.3	LOS F	44.6	1169.0	1.00	3.39	10.4
1	L2	61	6.0	1.250	155.3	LOS F	44.6	1169.0	1.00	3.39	10.4
6	T1	476	6.0	1.250	155.3	LOS F	44.6	1169.0	1.00	3.39	10.4
16	R2	43	6.0	1.250	155.3	LOS F	44.6	1169.0	1.00	3.39	10.0
Approach		585	6.0	1.250	155.3	LOS F	44.6	1169.0	1.00	3.39	10.4
North: New Street											
14	R2	163	3.0	0.427	18.4	LOS C	1.5	38.0	0.76	0.80	24.9
Approach		163	3.0	0.427	18.4	LOS C	1.5	38.0	0.76	0.80	24.9
West: Concord Avenue											
5u	U	5	0.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	21.9
5	L2	120	1.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	20.7
2	T1	651	1.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	21.4
12a	R1	5	1.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	21.9
12	R2	1188	1.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	20.8
Approach		1969	1.0	0.964	40.2	LOS E	32.3	813.2	1.00	0.58	21.0
All Vehicles		4179	2.3	1.992	207.4	LOS F	124.1	3164.9	0.99	2.52	8.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

2016 Build Conditions

MOVEMENT SUMMARY

Site: 101 [PM Existing_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	38	2.0	0.529	11.2	LOS B	2.5	62.8	0.48	0.46	32.8
6	T1	428	2.0	0.529	11.2	LOS B	2.5	62.8	0.48	0.46	31.9
16	R2	924	2.0	1.047	64.5	LOS F	34.9	887.0	1.00	1.77	17.8
16b	R3	13	0.0	1.047	64.5	LOS F	34.9	887.0	1.00	1.77	17.7
Approach		1403	2.0	1.047	46.8	LOS E	34.9	887.0	0.83	1.33	21.0
NorthEast: Hotel Driveway											
1bx	L3	40	0.0	0.120	12.3	LOS B	0.3	7.5	0.72	0.72	29.8
16bx	R3	2	0.0	0.120	12.3	LOS B	0.3	7.5	0.72	0.72	28.3
Approach		42	0.0	0.120	12.3	LOS B	0.3	7.5	0.72	0.72	29.7
North: Alewife Brook Parkway											
7u	U	78	1.0	1.196	120.7	LOS F	59.9	1510.4	1.00	3.16	12.6
7b	L3	10	1.0	1.196	120.7	LOS F	59.9	1510.4	1.00	3.16	12.6
7	L2	1448	1.0	1.196	120.4	LOS F	60.9	1533.8	1.00	3.18	12.5
14	R2	305	1.0	1.196	120.1	LOS F	60.9	1533.8	1.00	3.20	12.4
Approach		1842	1.0	1.196	120.4	LOS F	60.9	1533.8	1.00	3.18	12.5
West: Concord Avenue											
5	L2	227	2.0	0.992	76.0	LOS F	10.3	261.6	0.98	1.61	16.6
2	T1	584	2.0	0.992	74.1	LOS F	10.4	263.6	0.98	1.61	17.0
Approach		810	2.0	0.992	74.6	LOS F	10.4	263.6	0.98	1.61	16.9
All Vehicles		4097	1.5	1.196	85.0	LOS F	60.9	1533.8	0.94	2.21	15.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Existing PM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	870	1.0	1.322	191.6	LOS F	47.5	1196.2	1.00	3.11	8.9
8	T1	105	1.0	1.322	191.6	LOS F	47.5	1196.2	1.00	3.11	8.7
18	R2	19	1.0	1.322	191.6	LOS F	47.5	1196.2	1.00	3.11	8.8
18b	R3	1	1.0	1.322	191.6	LOS F	47.5	1196.2	1.00	3.11	8.9
Approach		995	1.0	1.322	191.6	LOS F	47.5	1196.2	1.00	3.11	8.9
SouthEast: Gas Station Driveway											
18ax	R1	5	3.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	31.1
18bx	R3	3	0.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	30.2
Approach		8	2.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	30.8
East: Concord Avenue											
1	L2	42	5.0	0.924	53.4	LOS F	7.6	197.5	0.91	1.23	19.6
6	T1	353	5.0	0.924	53.4	LOS F	7.6	197.5	0.91	1.23	19.5
16	R2	48	5.0	0.924	53.4	LOS F	7.6	197.5	0.91	1.23	18.1
Approach		443	5.0	0.924	53.4	LOS F	7.6	197.5	0.91	1.23	19.4
North: New Street											
14	R2	151	5.0	0.376	16.2	LOS C	1.3	32.7	0.72	0.76	25.6
Approach		151	5.0	0.376	16.2	LOS C	1.3	32.7	0.72	0.76	25.6
West: Concord Avenue											
5	L2	97	1.0	1.022	53.2	LOS F	92.7	2336.3	1.00	0.59	18.6
2	T1	690	1.0	1.022	53.2	LOS F	92.7	2336.3	1.00	0.59	19.1
12a	R1	1	3.0	1.022	53.2	LOS F	92.7	2336.3	1.00	0.59	19.4
12	R2	1370	1.0	1.022	53.2	LOS F	92.7	2336.3	1.00	0.58	18.6
Approach		2158	1.0	1.022	53.2	LOS F	92.7	2336.3	1.00	0.58	18.7
All Vehicles		3755	1.6	1.322	88.4	LOS F	92.7	2336.3	0.98	1.34	14.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM Existing_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	34	3.0	0.870	30.2	LOS D	9.5	242.9	0.87	1.04	25.9
6	T1	684	3.0	0.870	30.2	LOS D	9.5	242.9	0.87	1.04	25.3
16	R2	1136	3.0	1.410	207.6	LOS F	124.4	3181.0	1.00	4.57	8.3
16b	R3	51	0.0	1.410	207.6	LOS F	124.4	3181.0	1.00	4.57	8.3
Approach		1906	2.9	1.410	140.8	LOS F	124.4	3181.0	0.95	3.24	11.2
NorthEast: Hotel Driveway											
1bx	L3	71	2.0	0.278	18.6	LOS C	0.7	18.6	0.80	0.82	27.6
16bx	R3	9	2.0	0.278	18.6	LOS C	0.7	18.6	0.80	0.82	26.4
Approach		80	2.0	0.278	18.6	LOS C	0.7	18.6	0.80	0.82	27.5
North: Alewife Brook Parkway											
7u	U	76	3.0	1.279	160.0	LOS F	61.5	1575.2	1.00	3.78	10.4
7b	L3	35	3.0	1.279	160.0	LOS F	61.5	1575.2	1.00	3.78	10.4
7	L2	1207	3.0	1.279	159.5	LOS F	63.5	1626.2	1.00	3.82	10.4
14	R2	239	3.0	1.279	159.0	LOS F	63.5	1626.2	1.00	3.88	10.2
Approach		1558	3.0	1.279	159.5	LOS F	63.5	1626.2	1.00	3.83	10.3
West: Concord Avenue											
5	L2	325	3.0	1.153	120.1	LOS F	29.9	764.9	1.00	2.67	12.6
2	T1	759	3.0	1.153	118.6	LOS F	31.1	795.8	1.00	2.73	12.8
Approach		1085	3.0	1.153	119.1	LOS F	31.1	795.8	1.00	2.71	12.7
All Vehicles		4628	2.9	1.410	139.8	LOS F	124.4	3181.0	0.98	3.27	11.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Existing AM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	1310	2.5	2.043	503.8	LOS F	126.0	3213.3	1.00	5.05	4.1
8	T1	80	2.5	2.043	503.8	LOS F	126.0	3213.3	1.00	5.04	4.0
18	R2	29	2.5	2.043	503.8	LOS F	126.0	3213.3	1.00	5.04	4.0
18b	R3	11	2.5	2.043	503.8	LOS F	126.0	3213.3	1.00	5.04	4.1
Approach		1431	2.5	2.043	503.8	LOS F	126.0	3213.3	1.00	5.04	4.1
SouthEast: Gas Station											
3bx	L3	17	0.0	0.068	13.6	LOS B	0.2	4.8	0.75	0.75	29.6
18ax	R1	3	0.0	0.068	13.6	LOS B	0.2	4.8	0.75	0.75	28.9
Approach		20	0.0	0.068	13.6	LOS B	0.2	4.8	0.75	0.75	29.5
East: Concord Avenue											
1u	U	6	6.0	1.215	141.0	LOS F	40.6	1063.1	1.00	3.18	11.1
1	L2	61	6.0	1.215	141.0	LOS F	40.6	1063.1	1.00	3.18	11.2
6	T1	474	6.0	1.215	141.0	LOS F	40.6	1063.1	1.00	3.18	11.2
16	R2	43	6.0	1.215	141.0	LOS F	40.6	1063.1	1.00	3.18	10.7
Approach		584	6.0	1.215	141.0	LOS F	40.6	1063.1	1.00	3.18	11.1
North: New Street											
14	R2	160	3.0	0.414	17.8	LOS C	1.4	36.6	0.75	0.79	25.1
Approach		160	3.0	0.414	17.8	LOS C	1.4	36.6	0.75	0.79	25.1
West: Concord Avenue											
5u	U	5	0.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	20.3
5	L2	120	1.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	19.3
2	T1	670	1.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	19.8
12a	R1	5	1.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	20.3
12	R2	1238	1.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	19.4
Approach		2038	1.0	1.000	48.4	LOS E	50.1	1262.0	1.00	0.68	19.5
All Vehicles		4233	2.3	2.043	213.8	LOS F	126.0	3213.3	0.99	2.51	8.1

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

2021 Future Conditions

MOVEMENT SUMMARY

Site: 101 [PM Future_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	42	2.0	0.568	12.2	LOS B	2.9	73.3	0.51	0.50	32.3
6	T1	456	2.0	0.568	12.2	LOS B	2.9	73.3	0.51	0.50	31.5
16	R2	961	2.0	1.095	79.8	LOS F	45.8	1163.7	1.00	2.17	15.9
16b	R3	13	0.0	1.095	79.8	LOS F	45.8	1163.7	1.00	2.17	15.8
Approach		1471	2.0	1.095	57.0	LOS F	45.8	1163.7	0.84	1.60	19.2
NorthEast: Hotel Driveway											
1bx	L3	42	0.0	0.129	12.7	LOS B	0.3	8.1	0.73	0.73	29.6
16bx	R3	2	0.0	0.129	12.7	LOS B	0.3	8.1	0.73	0.73	28.2
Approach		44	0.0	0.129	12.7	LOS B	0.3	8.1	0.73	0.73	29.5
North: Alewife Brook Parkway											
7u	U	80	1.0	1.279	154.7	LOS F	77.3	1947.3	1.00	3.81	10.7
7b	L3	10	1.0	1.279	154.7	LOS F	77.3	1947.3	1.00	3.81	10.6
7	L2	1509	1.0	1.279	154.5	LOS F	78.8	1986.8	1.00	3.83	10.6
14	R2	322	1.0	1.279	154.1	LOS F	78.8	1986.8	1.00	3.87	10.5
Approach		1922	1.0	1.279	154.4	LOS F	78.8	1986.8	1.00	3.84	10.6
West: Concord Avenue											
5	L2	241	2.0	1.013	80.8	LOS F	12.1	308.0	1.00	1.73	16.1
2	T1	604	2.0	1.013	78.9	LOS F	12.3	312.5	1.00	1.74	16.4
Approach		845	2.0	1.013	79.4	LOS F	12.3	312.5	1.00	1.73	16.3
All Vehicles		4282	1.5	1.279	104.7	LOS F	78.8	1986.8	0.94	2.62	13.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Future PM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	910	1.0	1.389	218.9	LOS F	55.4	1395.2	1.00	3.38	8.0
8	T1	107	1.0	1.389	218.9	LOS F	55.4	1395.2	1.00	3.38	7.9
18	R2	25	1.0	1.389	218.9	LOS F	55.4	1395.2	1.00	3.38	8.0
18b	R3	1	1.0	1.389	218.9	LOS F	55.4	1395.2	1.00	3.38	8.0
Approach		1043	1.0	1.389	218.9	LOS F	55.4	1395.2	1.00	3.38	8.0
SouthEast: Gas Station Driveway											
18ax	R1	5	3.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	31.1
18bx	R3	3	0.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	30.2
Approach		8	2.0	0.028	13.0	LOS B	0.1	1.9	0.75	0.75	30.8
East: Concord Avenue											
1	L2	43	5.0	0.972	63.5	LOS F	10.1	263.1	0.94	1.41	18.0
6	T1	369	5.0	0.972	63.5	LOS F	10.1	263.1	0.94	1.41	18.0
16	R2	55	5.0	0.972	63.5	LOS F	10.1	263.1	0.94	1.41	16.7
Approach		467	5.0	0.972	63.5	LOS F	10.1	263.1	0.94	1.41	17.8
North: New Street											
14	R2	160	5.0	0.404	17.1	LOS C	1.4	35.8	0.74	0.77	25.3
Approach		160	5.0	0.404	17.1	LOS C	1.4	35.8	0.74	0.77	25.3
West: Concord Avenue											
5	L2	104	1.0	1.067	66.6	LOS F	107.3	2704.4	1.00	0.74	16.7
2	T1	718	1.0	1.067	66.6	LOS F	107.3	2704.4	1.00	0.74	17.1
12a	R1	1	3.0	1.067	66.6	LOS F	107.3	2704.4	1.00	0.74	17.4
12	R2	1424	1.0	1.067	66.6	LOS F	107.3	2704.4	1.00	0.72	16.7
Approach		2247	1.0	1.067	66.6	LOS F	107.3	2704.4	1.00	0.72	16.9
All Vehicles		3926	1.6	1.389	104.6	LOS F	107.3	2704.4	0.98	1.51	13.2

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [AM Future_Fresh Pond Rotary]

New Site
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
East: Concord Avenue											
1u	U	44	3.0	0.910	35.5	LOS E	11.9	303.8	0.95	1.17	24.4
6	T1	708	3.0	0.910	35.5	LOS E	11.9	303.8	0.95	1.17	23.9
16	R2	1182	3.0	1.463	230.4	LOS F	138.9	3551.9	1.00	4.86	7.6
16b	R3	52	0.0	1.463	230.4	LOS F	138.9	3551.9	1.00	4.86	7.6
Approach		1986	2.9	1.463	156.6	LOS F	138.9	3551.9	0.98	3.47	10.4
NorthEast: Hotel Driveway											
1bx	L3	73	2.0	0.292	19.4	LOS C	0.8	19.6	0.80	0.83	27.4
16bx	R3	9	2.0	0.292	19.4	LOS C	0.8	19.6	0.80	0.83	26.1
Approach		82	2.0	0.292	19.4	LOS C	0.8	19.6	0.80	0.83	27.2
North: Alewife Brook Parkway											
7u	U	78	3.0	1.399	210.4	LOS F	81.6	2089.2	1.00	4.52	8.5
7b	L3	36	3.0	1.399	210.4	LOS F	81.6	2089.2	1.00	4.52	8.5
7	L2	1292	3.0	1.399	210.0	LOS F	84.6	2165.9	1.00	4.58	8.5
14	R2	253	3.0	1.399	209.4	LOS F	84.6	2165.9	1.00	4.66	8.4
Approach		1659	3.0	1.399	209.9	LOS F	84.6	2165.9	1.00	4.59	8.5
West: Concord Avenue											
5	L2	338	3.0	1.188	132.4	LOS F	34.9	894.2	1.00	2.92	11.8
2	T1	790	3.0	1.188	130.9	LOS F	36.4	932.6	1.00	2.98	12.0
Approach		1129	3.0	1.188	131.4	LOS F	36.4	932.6	1.00	2.96	11.9
All Vehicles		4856	3.0	1.463	166.6	LOS F	138.9	3551.9	0.99	3.69	10.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Future AM_Sozio Rotary]

Sozio Rotary
Roundabout

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Fresh Pond Parkway											
3	L2	1355	2.5	2.126	541.1	LOS F	134.7	3434.0	1.00	5.17	3.8
8	T1	83	2.5	2.126	541.1	LOS F	134.7	3434.0	1.00	5.16	3.8
18	R2	30	2.5	2.126	541.1	LOS F	134.7	3434.0	1.00	5.16	3.8
18b	R3	11	2.5	2.126	541.1	LOS F	134.7	3434.0	1.00	5.16	3.8
Approach		1479	2.5	2.126	541.1	LOS F	134.7	3434.0	1.00	5.17	3.8
SouthEast: Gas Station											
3bx	L3	20	0.0	0.091	13.9	LOS B	0.3	6.4	0.76	0.76	29.7
18ax	R1	7	0.0	0.091	13.9	LOS B	0.3	6.4	0.76	0.76	29.0
Approach		27	0.0	0.091	13.9	LOS B	0.3	6.4	0.76	0.76	29.5
East: Concord Avenue											
1u	U	6	6.0	1.257	157.2	LOS F	46.8	1224.9	1.00	3.47	10.3
1	L2	62	6.0	1.257	157.2	LOS F	46.8	1224.9	1.00	3.47	10.4
6	T1	489	6.0	1.257	157.2	LOS F	46.8	1224.9	1.00	3.47	10.4
16	R2	46	6.0	1.257	157.2	LOS F	46.8	1224.9	1.00	3.47	9.9
Approach		604	6.0	1.257	157.2	LOS F	46.8	1224.9	1.00	3.47	10.3
North: New Street											
14	R2	183	3.0	0.470	19.6	LOS C	1.7	43.3	0.77	0.82	24.6
Approach		183	3.0	0.470	19.6	LOS C	1.7	43.3	0.77	0.82	24.6
West: Concord Avenue											
5u	U	5	0.0	1.065	66.8	LOS F	73.7	1858.3	1.00	1.01	17.4
5	L2	128	1.0	1.065	66.8	LOS F	73.7	1858.3	1.00	1.01	16.7
2	T1	710	1.0	1.065	66.8	LOS F	73.7	1858.3	1.00	1.01	17.1
12a	R1	14	1.0	1.065	66.8	LOS F	73.7	1858.3	1.00	1.01	17.4
12	R2	1307	1.0	1.065	66.8	LOS F	73.7	1858.3	1.00	0.98	16.7
Approach		2165	1.0	1.065	66.8	LOS F	73.7	1858.3	1.00	0.99	16.8
All Vehicles		4457	2.2	2.126	234.2	LOS F	134.7	3434.0	0.99	2.70	7.5

Site Level of Service (LOS) Method: Delay & v/c (HCM 2010). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Siegloch M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Crash Rate Reports

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

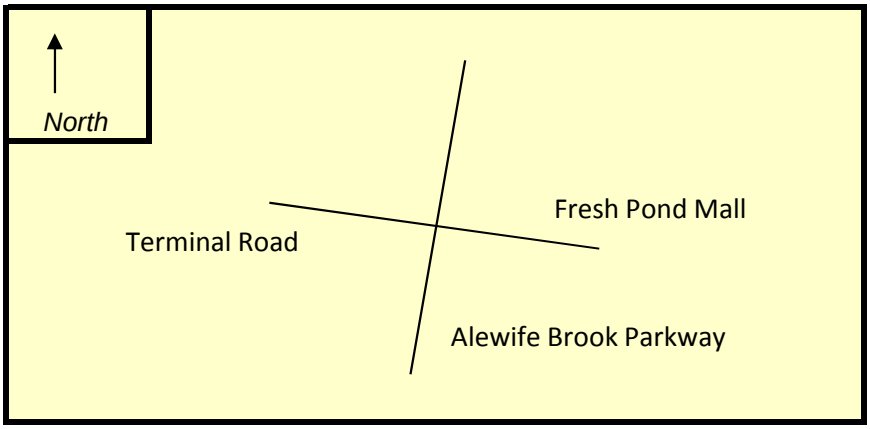
DISTRICT : 6 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Alewife Brook Parkway

MINOR STREET(S) : Terminal Road

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	1020	1890	130	265		

" K " FACTOR : 0.09 | APPROACH ADT : 36722.222 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 10 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 3.33

CRASH RATE CALCULATION : 0.25 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

last updated: 11/06/01

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

DISTRICT : 6 | UNSIGNALIZED : X | SIGNALIZED :

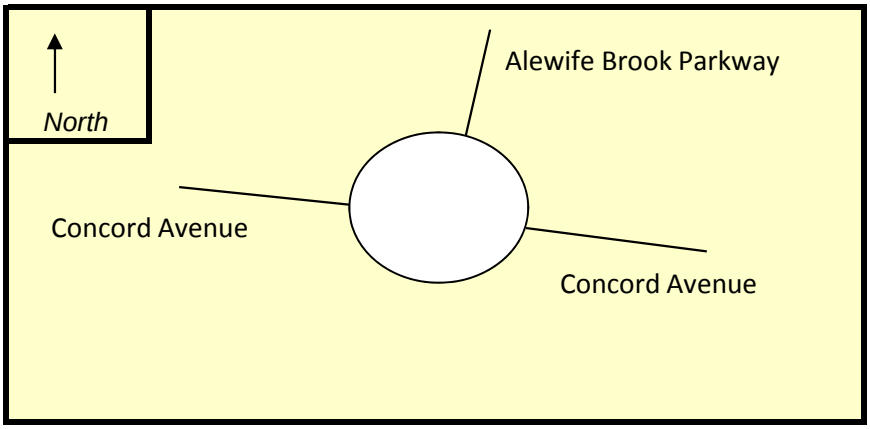
~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Alewife Brook Parkway

(Fresh Pond Rotary)

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	1060	1755	755	20		

" K " FACTOR : 0.09 | APPROACH ADT : 39888.889 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 56 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 18.67

CRASH RATE CALCULATION : 1.28 | RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

DISTRICT : 6 | UNSIGNALIZED : | SIGNALIZED : X

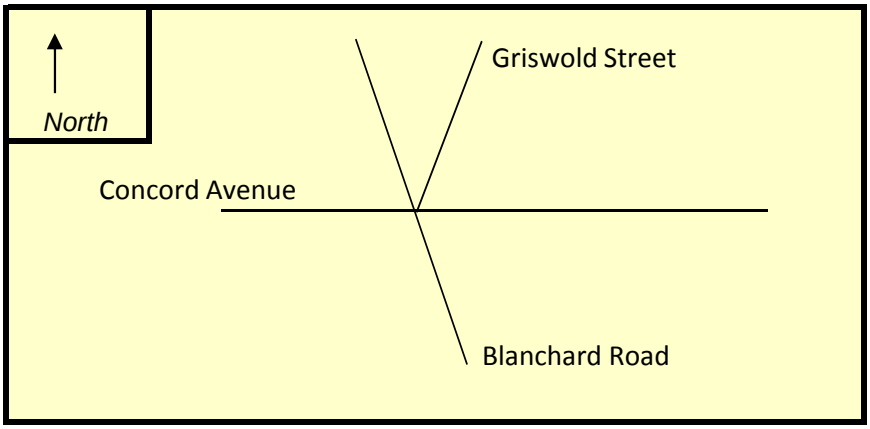
~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Blanchard Road

Griswold Street

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	510	460	355	755		

" K " FACTOR : 0.09 | APPROACH ADT : 23111.111 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 12 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 4.00

CRASH RATE CALCULATION : 0.47 | RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

last updated: 11/06/01

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

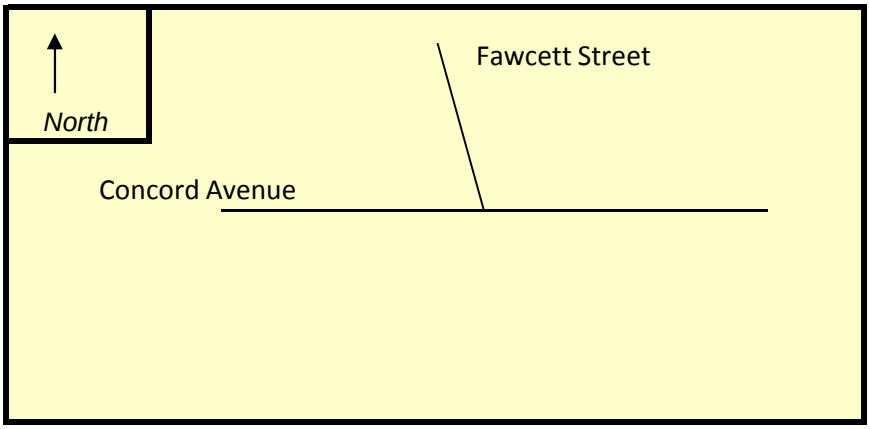
DISTRICT : 6 | UNSIGNALIZED : X | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Fawcett Street

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	0	85	730	640		

" K " FACTOR : 0.09 | APPROACH ADT : 16166.667 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 11 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 3.67

CRASH RATE CALCULATION : 0.62 | RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

DISTRICT : 6 | UNSIGNALIZED : X | SIGNALIZED :

~ INTERSECTION DATA ~

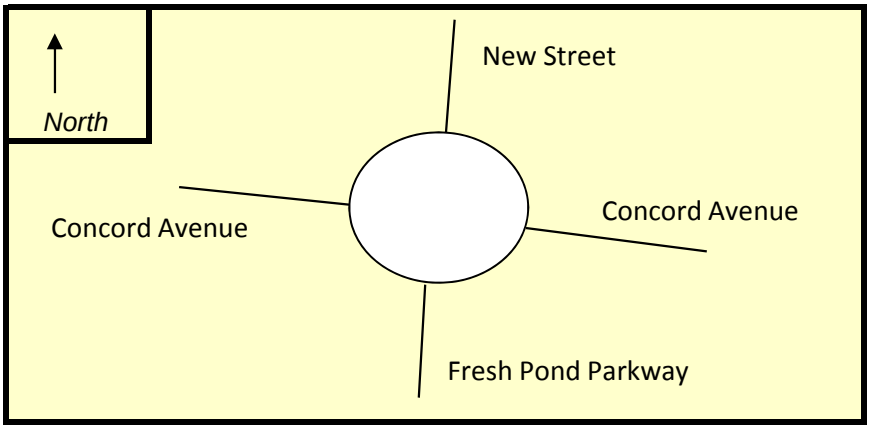
MAJOR STREET : Concord Avenue

MINOR STREET(S) : Fresh Pond Parkway

New Street

(Sozio Rotary)

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB	NWB	
VOLUMES (PM) :	775	110	1980	350	0	

" K " FACTOR : 0.09 | APPROACH ADT : 35722.222 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 32 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 10.67

CRASH RATE CALCULATION : 0.82 RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

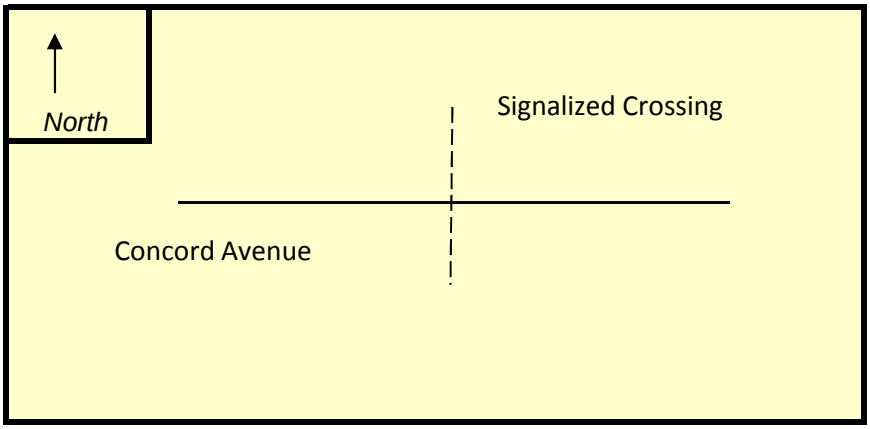
DISTRICT : 6 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) :

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	0	0	1980	1060		

" K " FACTOR : 0.09 | APPROACH ADT : 33777.778 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 3 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 1.00

CRASH RATE CALCULATION : 0.08 | RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge

COUNT DATE : Oct 2016

DISTRICT : 6

UNSIGNALIZED : X

SIGNALIZED :

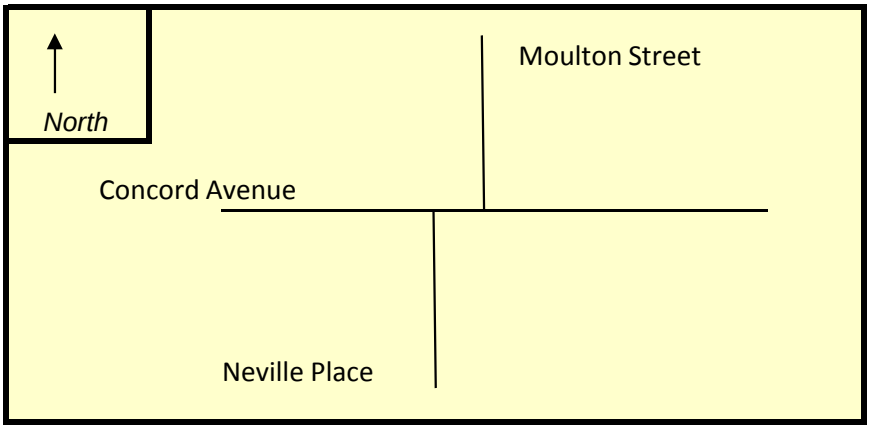
~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Moulton Street

Neville Place

INTERSECTION DIAGRAM
(Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	45	160	595	575		

" K " FACTOR : 0.09

APPROACH ADT : 15277.778 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 8

OF YEARS : 3

AVERAGE # OF ACCIDENTS (**A**) : 2.67

CRASH RATE CALCULATION : 0.48

RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge

COUNT DATE : Oct 2016

DISTRICT : 6

UNSIGNALIZED : X

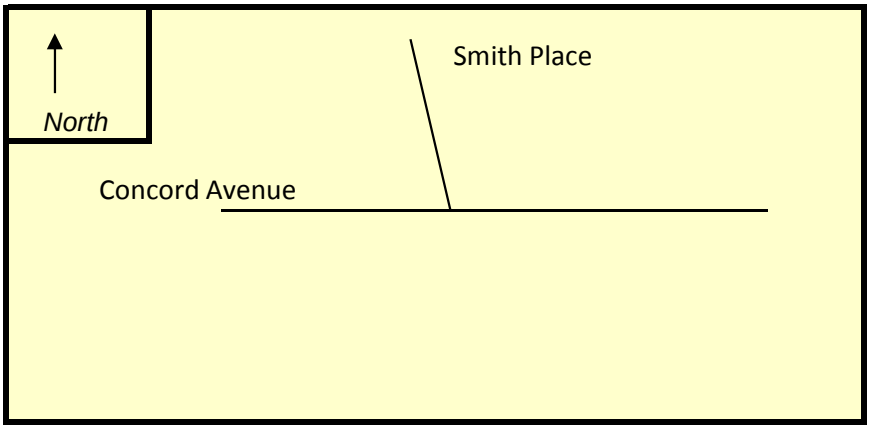
SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Smith Place

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	0	200	570	590		

" K " FACTOR : 0.09

APPROACH ADT : 15111.111 **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 9

OF YEARS : 3

AVERAGE # OF ACCIDENTS (**A**) : 3.00

CRASH RATE CALCULATION : 0.54

RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

CRASH RATE WORKSHEET

CITY/TOWN : Cambridge | COUNT DATE : Oct 2016

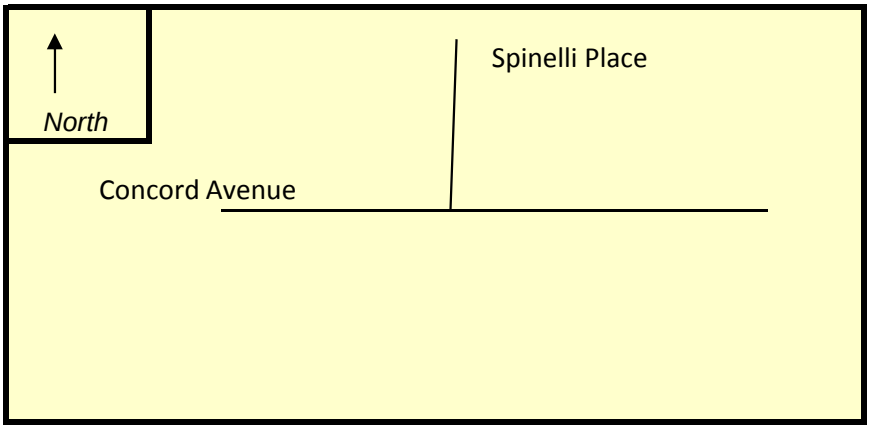
DISTRICT : 6 | UNSIGNALIZED : X | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Concord Avenue

MINOR STREET(S) : Spinelli Place

INTERSECTION DIAGRAM (Label Approaches)



Peak Hour Volumes

APPROACH :	1	2	3	4	5	6
DIRECTION :	NB	SB	EB	WB		
VOLUMES (PM) :	0	105	510	705		

" K " FACTOR : 0.09 | APPROACH ADT : 14666.667 | **ADT** = TOTAL VOL/"K" FACT.

TOTAL # OF ACCIDENTS : 4 | # OF YEARS : 3 | AVERAGE # OF ACCIDENTS (**A**) : 1.33

CRASH RATE CALCULATION : 0.25 | RATE = $\frac{(A * 1{,}000{,}000)}{(ADT * 365)}$

Source (optional): Volumes from Existing Condition PM Peak

Comments:

Transit Analysis

MBTA Analysis

Alewife TMA Schedule

MBTA Analysis

BUS LINES

Bus Routes @ Wheeler Street and Alewife Station	Frequency (# Buses/Peak Hour)****	MBTA Policy Capacity (# Pax/Bus)***	MBTA Policy Capacity (# Pax/Peak Hour)	MBTA 2015 Data										Project Generated Trips BUSES			
				AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
				Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C	OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
62 Inbound	3.0	54	162	196.7	0	196.7	0	44.5	0	45.6	-1	1.21	0.00	0.27	-0.01	0	1	0	3
62 Outbound	1.5	54	81	0	48.6	0	49	0	24.8	0	25	0.00	0.60	0.00	0.31	4	0	1	0
67 Inbound	2.0	54	108	70.5	0	71.1	-1	11.9	0	16.9	-5	0.65	-0.01	0.11	-0.05	0	0	0	1
67 Outbound	2.0	54	108	0	5.3	0	5	0	49.4	0	49	0.00	0.05	0.00	0.46	0	0	1	0
74 Inbound	1.5	54	81	63	1	1	63	14	0.4	0.5	14	0.78	0.78	0.17	0.17	0	0	0	0
74 Outbound	1.5	54	81	36	0	6	31	23	0	1	22	0.45	0.38	0.28	0.27	0	0	0	0
76 Inbound	1.5	54	81	138	0	138	0	39	0	39	0	1.70	0.00	0.48	0.00	0	1	0	3
76 Outbound	2.0	54	108	0	57	0	57	0	59	0	59	0.00	0.53	0.00	0.54	4	0	2	0
78 Inbound	3.0	54	162	58	2	0	60	44	1	0	45	0.36	0.37	0.27	0.28	0	0	0	0
78 Outbound	2.5	54	135	27	0	3	25	88	1	9	81	0.20	0.18	0.65	0.60	0	0	0	1
79 Inbound	3.0	54	162	74	0	74	0	24	0	27	-3	0.46	0.00	0.15	-0.02	0	0	0	2
79 Outbound	3.5	54	189	0	15	0	15	0	83	0	83	0.00	0.08	0.00	0.44	1	0	2	0
84 Inbound	2.0	54	108	107	0	108	-1	4	0	3	0	0.99	-0.01	0.03	0.00	0	1	0	0
84 Outbound	2.5	54	135	0	2	0	2	0	58	0	58	0.00	0.01	0.00	0.43	0	0	1	0
350 Inbound	2.5	54	135	87	0	87	0	66	0	67	-1	0.65	0.00	0.49	-0.01	0	1	0	4
350 Outbound	2.0	54	108	0	59	0	59	0	37	0	37	0.00	0.54	0.00	0.34	4	0	1	0
351 Inbound	0.5	54	27	0	0	0	0	21	0	21	0	0.00	0.00	0.79	0.00	0	0	0	1
351 Outbound	0.5	54	27	0	23	0	23	0	0	0	0	0.00	0.86	0.00	0.00	2	0	0	0
																15	4	8	15

**** MBTA Scheduled Avg. Peak Hour Frequency (ex: if a bus line runs 6 buses in the AM and 4 buses in the PM, the analysis would use an avg. of 5 buses)

All numbers are taken from the Fall 2015 spreadsheets saved to project folder for the peak hours of 8-9AM and 4:30-5:30PM

Background Project Transit Trips for 2021 Future Analysis

	Daily Enter	Daily Exit	Daily Total	AM Enter	AM Exit	AM Total	PM Enter	PM Exit	PM Total	Sat Enter	Sat Exit	Sat Total
605 Concord Ave	104	104	208	2	7	9	14	7	21	4	3	7
87-95 Fawcett Street	62	61	123	2	7	9	7	4	11			
75 New Street	96	96	192	3	12	15	12	6	18			
130 Cambridgepark Drive	291	291	582	9	36	45	35	19	54			
88 Cambridgepark Drive	781	786	1567	20	89	109	12	6	18			
35 Cambridgepark Drive Reno	84	84	168	13	2	15	5	13	18			
Total	1418	1422	2840	49	153	202	85	55	140	4	3	7

*Taken from individual project reports

MBTA 2015 Data + Project Trips											
AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
198	0	198	0	48	0	49	-1	1.22	0.00	0.29	-0.01
0	53	0	53	0	26	0	26	0.00	0.65	0.00	0.32
71	0	71	-1	13	0	18	-5	0.65	-0.01	0.12	-0.05
0	5	0	5	0	50	0	50	0.00	0.05	0.00	0.47
63	1	1	63	14	0	1	14	0.78	0.78	0.17	0.17
36	0	6	31	23	0	1	22	0.45	0.38	0.28	0.27
139	0	139	0	42	0	42	0	1.71	0.00	0.52	0.00
0	61	0	61	0	61	0	61	0.00	0.56	0.00	0.56
58	2	0	60	44	1	0	45	0.36	0.37	0.27	0.28
27	0	3	25	89	1	10	81	0.20	0.18	0.66	0.60
74	0	74	0	26	0	29	-3	0.46	0.00	0.16	-0.02
0	16	0	16	0	85	0	85	0.00	0.08	0.00	0.45
108	0	109	-1	4	0	3	0	1.00	-0.01	0.03	0.00
0	2	0	2	0	59	0	59	0.00	0.01	0.00	0.43
88	0	88	0	70	0	71	-1	0.65	0.00	0.52	-0.01
0	63	0	63	0	38	0	38	0.00	0.58	0.00	0.35
0	0	0	0	22	0	22	0	0.00	0.00	0.83	0.00
0	25	0	25	0	0	0	0	0.00	0.93	0.00	0.00

2021 Future Condition growth from 2015 MBTA data

Years	6
Rate:	2%
Growth	1.13

MBTA 2021 Grown Data							
AM Peak Hour				PM Peak Hour			
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting
222	0	222	0	50	0	51	-1
0	55	0	55	0	28	0	28
79	0	80	-1	13	0	19	-6
0	6	0	6	0	56	0	56
71	1	1	71	16	0	1	15
41	0	7	34	26	0	2	24
155	0	155	0	44	0	44	0
0	64	0	64	0	66	0	66
66	2	0	68	50	1	0	51
31	0	3	28	99	2	10	91
83	0	83	0	27	0	30	-3
0	17	0	17	0	94	0	94
120	0	121	-1	4	0	4	0
0	2	0	2	0	65	0	65
98	0	98	0	74	0	75	-1
0	66	0	66	0	42	0	42
0	0	0	0	24	0	24	0
0	26	0	26	0	0	0	0

	AM Peak Hour		PM Peak Hour	
	Enter V/C	Exit V/C	Enter V/C	Exit V/C
	1.37	0.00	0.31	-0.01
	0.00	0.68	0.00	0.35
	0.73	-0.01	0.12	-0.06
	0.00	0.06	0.00	0.52
	0.88	0.88	0.20	0.19
	0.51	0.42	0.32	0.30
	1.91	0.00	0.54	0.00
	0.00	0.59	0.00	0.61
	0.41	0.42	0.31	0.31
	0.23	0.21	0.73	0.67
	0.51	0.00	0.17	-0.02
	0.00	0.09	0.00	0.50
	1.11	-0.01	0.04	0.00
	0.00	0.01	0.00	0.48
	0.73	0.00	0.55	-0.01
	0.00	0.61	0.00	0.39
	0.00	0.00	0.89	0.00
	0.00	0.96	0.00	0.00

BACKGROUND Project Trips BUSES

AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
0	3	0	9
9	0	2	0
0	1	0	3
1	0	4	0
0	0	0	0
0	0	0	0
0	3	0	8
10	0	6	0
0	0	0	0
0	0	0	2
0	1	0	5
3	0	7	0
0	2	0	1
0	0	5	0
0	2	0	14
11	0	3	0
0	0	0	4
4	0	0	0
38	12	27	46

check:

Grown 2021 Data + Background Project Trips							
AM Peak Hour				PM Peak Hour			
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting
225	0	225	0	59	0	60	-1
0	64	0	64	0	30	0	30
80	0	81	-1	16	0	22	-6
0	7	0	7	0	60	0	60
71	1	1	71	16	0	1	15
41	0	7	34	26	0	2	24
158	0	158	0	52	0	52	0
0	74	0	74	0	72	0	72
66	2	0	68	50	1	0	51
31	0	3	28	101	2	12	91
84	0	84	0	32	0	35	-3
0	20	0	20	0	101	0	101
122	0	123	-1	5	0	5	0
0	2	0	2	0	70	0	70
100	0	100	0	88	0	89	-1
0	77	0	77	0	45	0	45
0	0	0	0	28	0	28	0
0	30	0	30	0	0	0	0

AM Peak Hour		PM Peak Hour	
Enter V/C	Exit V/C	Enter V/C	Exit V/C
1.39	0.00	0.36	-0.01
0.00	0.79	0.00	0.37
0.74	-0.01	0.15	-0.06
0.00	0.06	0.00	0.56
0.88	0.88	0.20	0.19
0.51	0.42	0.32	0.30
1.95	0.00	0.64	0.00
0.00	0.69	0.00	0.67
0.41	0.42	0.31	0.31
0.23	0.21	0.75	0.67
0.52	0.00	0.20	-0.02
0.00	0.11	0.00	0.53
1.13	-0.01	0.05	0.00
0.00	0.01	0.00	0.52
0.74	0.00	0.65	-0.01
0.00	0.71	0.00	0.42
0.00	0.00	1.04	0.00
0.00	1.11	0.00	0.00

Project Generated Trips BUSES			
AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
0	1	0	3
4	0	1	0
0	0	0	1
0	0	1	0
0	0	0	0
0	0	0	0
0	1	0	3
4	0	2	0
0	0	0	0
0	0	0	1
0	0	0	2
1	0	2	0
0	1	0	0
0	0	1	0
0	1	0	4
4	0	1	0
0	0	0	1
2	0	0	0

Grown 2021 Data + Background Project Trips + Project-Generated Trips (FINAL RESULTING 2021 CONDITONS)											
AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
226	0	226	0	62	0	63	-1	1.40	0.00	0.38	-0.01
0	68	0	68	0	31	0	31	0.00	0.84	0.00	0.38
80	0	81	-1	17	0	23	-6	0.74	-0.01	0.16	-0.06
0	7	0	7	0	61	0	61	0.00	0.06	0.00	0.56
71	1	1	71	16	0	1	15	0.88	0.88	0.20	0.19
41	0	7	34	26	0	2	24	0.51	0.42	0.32	0.30
159	0	159	0	55	0	55	0	1.96	0.00	0.68	0.00
0	78	0	78	0	74	0	74	0.00	0.72	0.00	0.69
66	2	0	68	50	1	0	51	0.41	0.42	0.31	0.31
31	0	3	28	102	2	13	91	0.23	0.21	0.76	0.67
84	0	84	0	34	0	37	-3	0.52	0.00	0.21	-0.02
0	21	0	21	0	103	0	103	0.00	0.11	0.00	0.54
123	0	124	-1	5	0	5	0	1.14	-0.01	0.05	0.00
0	2	0	2	0	71	0	71	0.00	0.01	0.00	0.53
101	0	101	0	92	0	93	-1	0.75	0.00	0.68	-0.01
0	81	0	81	0	46	0	46	0.00	0.75	0.00	0.43
0	0	0	0	29	0	29	0	0.00	0.00	1.07	0.00
0	32	0	32	0	0	0	0	0.00	1.19	0.00	0.00

EXITSING BUILD UTILIZATION ANALYSIS

RED LINE

Red Line @ Alewife

		STEP 1: Existing Capacity					STEP 2: Existing Ridership							
							MBTA October 2015 Data							
							AM Peak Hour				PM Peak Hour			
		Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting
Inbound	(Southbound to Braintree/Ashmont)	13	0.890	6	167	11,593	0	5,368	0	5,368	0	1,928	0	1,928
Outbound	(Northbound to Alewife)	13	0.890	6	167	11,593	1,434	0	1,434	0	4,943	0	4,943	0

* Schedule frequency assuming 9 minute headways for two lines = 4.5 min headway at Kendall; 60/4.5 = 13 trains
** MBTA October 16 - November 14, 2016, Past 30 Days on-time performance for Red Line from MBTA Dashboard website
*** MBTA blue book 14th edition policy capacity & crush capacity (for crush used weighted average across red line vehicle fleet)

Source: MBTA October 2015 data

EXITSING BUILD UTILIZATION ANALYSIS

STEP 3: Existing V/C | **STEP 5: Existing+Project Ridership** | **STEP 6: Existing+Project V/C**

STEP 4:

Red Line @ Alewife		MBTA CAPACITY AND MBTA RIDERSHIP				Project Generated Trips RED LINE				MBTA ADJUSTED CAPACITY WITH MBTA RIDERSHIP								AM Peak Hour		PM Peak Hour	
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour							
		Enter V/C	Exit V/C	Enter V/C	Exit V/C	OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
Inbound	(Southbound to Braintree/Ashmont)	0.00	0.46	0.00	0.17	47	0	25	0	0	5,415	0	5,415	0	1,953	0	1,953	0.00	0.47	0.00	0.17
Outbound	(Northbound to Alewife)	0.12	0.00	0.43	0.00	0	12	0	46	1,446	0	1,446	0	4,989	0	4,989	0	0.12	0.00	0.43	0.00
						47	12	25	46												

adding project trips to existing loads - not incorporating boardings & alightings directly

EXITSING BUILD UTILIZATION ANALYSIS

STEP 7: 2021 Grown Ridership Capacity

			Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)
Red Line @ Alewife		**Red Line @ Alewife**					
Inbound Braintree/Ashmont)	(Southbound to	Inbound (Southbound to Braintree/Ashmont)	13	0.890	6	167	11,593
Outbound to Alewife)	(Northbound	Outbound (Northbound to Alewife)	13	0.890	6	167	11,593

Grown at 4% per year per MIT Report

2021 Grown MBTA Data								MBTA CAPACITY AND MBTA RIDERSHIP			
AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
0	6,792	0	6,792	0	2,440	0	2,440	0.00	0.59	0.00	0.21
1,814	0	1,814	0	6,254	0	6,254	0	0.16	0.00	0.54	0.00

EXITSING BUILD UTILIZATION ANALYSIS

STEP 8 (Continued): 2021 Future+Background Project Ridership

STEP 8:

		Background Project Trips RED LINE				MBTA ADJUSTED CAPACITY WITH 2021 MBTA RIDERSHIP + Background Project Transit Trips										STEP 9: Project Generated Trips RED LINE			
		AM Peak Hour		PM Peak Hour		AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Red Line @ Alewife		OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C	OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
Inbound Braintree/Ashmont)	(Southbound to	115	0	137	0	0	6,907	0	6,907	0	2,577	0	2,577	0.00	0.60	0.00	0.22	47	0	25	0
Outbound to Alewife)	(Northbound	0	37	0	81	1,851	0	1,851	0	6,335	0	6,335	0	0.16	0.00	0.55	0.00	0	12	0	46

EXITSING BUILD UTILIZATION ANALYSIS

STEP 9 (Continued): 2021 Future+Background Project + Project-Generated Transit Trips

		MBTA ADJUSTED CAPACITY WITH 2021 MBTA RIDERSHIP + Background Project Transit Trips											
		AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour	
Red Line @ Alewife		Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Enter V/C	Exit V/C	Enter V/C	Exit V/C
Inbound Braintree/Ashmont)	(Southbound to	0	6,954	0	6,954	0	2,602	0	2,602	0.00	0.60	0.00	0.22
Outbound to Alewife)	(Northbound	1,863	0	1,863	0	6,381	0	6,381	0	0.16	0.00	0.55	0.00

RIDERSHIP LEVELS YEAR 2015 (PER MBTA DATA)

	Morning Peak Hour				Evening Peak Hour			
Mode	Pax Load Entering Station	# Pax Boarding	# Pax Alighting	Pax Load Exiting Station	Pax Load Entering Station	# Pax Boarding	# Pax Alighting	Pax Load Exiting Station
Red Line at Alewife Station								
Inbound	0	5,368	0	5,368	0	1,928	0	1,928
Outbound	1,434	0	1,434	0	4,943	0	4,943	0
MBTA Bus								
Route 62 Inbound	197	0	197	0	45	0	45	0
Route 62 Outbound	0	49	0	49	0	25	0	25
Route 67 Inbound	71	0	71	0	12	0	12	0
Route 67 Outbound	0	5	0	5	0	49	0	49
Route 74 Inbound	63	1	1	63	14	0	0	14
Route 74 Outbound	36	0	6	30	23	0	1	22
Route 76 Inbound	138	0	138	0	39	0	39	0
Route 76 Outbound	0	57	0	57	0	59	0	59
Route 78 Inbound	58	2	0	60	44	1	0	45
Route 78 Outbound	27	0	3	24	88	1	9	80
Route 79 Inbound	74	0	74	0	24	0	24	0
Route 79 Outbound	0	15	0	15	0	83	0	83
Route 84 Inbound	107	0	107	0	4	0	4	0
Route 84 Outbound	0	2	0	2	0	58	0	58
Route 350 Inbound	87	0	87	0	66	0	66	0
Route 350 Outbound	0	59	0	59	0	37	0	37
Route 351 Inbound	0	0	0	0	21	0	21	0
Route 351 Outbound	0	23	0	23	0	0	0	0

Alewife TMA Schedule

2015
ALEWIFE SHUTTLE SCHEDULE

TransAction Corporate Shuttles

Effective: November 16, 2015

Morning Schedule

Depart Alewife		**7:00**	**7:30**	**8:00**	**8:30**	**9:00**	**9:30**	**10:00**
55 Wheeler St.		*	*	*	*	*	*	*
10 Fawcett		*	*	*	*	*	*	*
10 Moulton		*	*	*	*	*	*	*
45 Moulton		*	*	*	*	*	*	*
10 Wilson		*	*	*	*	*	*	*
733 Concord		*	*	*	*	*	*	*
767C Concord/Fayerweather		*	*	*	*	*	*	*
80 Fawcett Pick up	6:45	7:03	7:33	8:03	8:33	9:03	9:33	10:03

In the morning, drivers typically stop only at 80 Fawcett and companies where passengers are requesting to disembark.
Please call 781-895-1100 if anyone is waiting for a return trip to the Alewife Station and arrangements will be made for a pick up.

Afternoon Schedule

Depart Alewife		**3:30**	**4:02**	**4:34**	**5:06**	**5:38**	**6:10**	**6:52**
80 Fawcett Drop off Only		3:40	4:12	4:44	5:16	5:48	6:20	7:02
767C Concord/Fayerweather	3:00	3:42	4:14	4:46	5:18	5:50	6:22	7:04
733 Concord	3:00	3:42	4:14	4:46	5:18	5:50	6:22	7:04
10 Wilson	3:03	3:45	4:17	4:49	5:21	5:53	6:25	7:07
45 Moulton	3:04	3:46	4:18	4:50	5:22	5:54	6:26	7:08
10 Moulton	3:05	3:47	4:19	4:51	5:23	5:55	6:27	7:09
80 Fawcett Pick up Only	3:08	3:50	4:22	4:54	5:26	5:58	6:30	7:12
10 Fawcett	3:09	3:51	4:23	4:55	5:27	5:59	6:31	7:13
55 Wheeler St	3:11	3:53	4:25	4:57	5:29	6:01	6:33	7:15
Arrive Alewife	**3:28**	**4:02**	**4:34**	**5:06**	**5:38**	**6:10**	**6:42**	**7:24**

Live Shuttle Tracker!
alewifeconnect.com

Download the Ride Systems App!

Questions regarding estimated time and vehicle location.
Please call 781-404-5000.

Shuttle will not run on the following holidays: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Thanksgiving and the day after, and Christmas Day.

AlewifeTMA

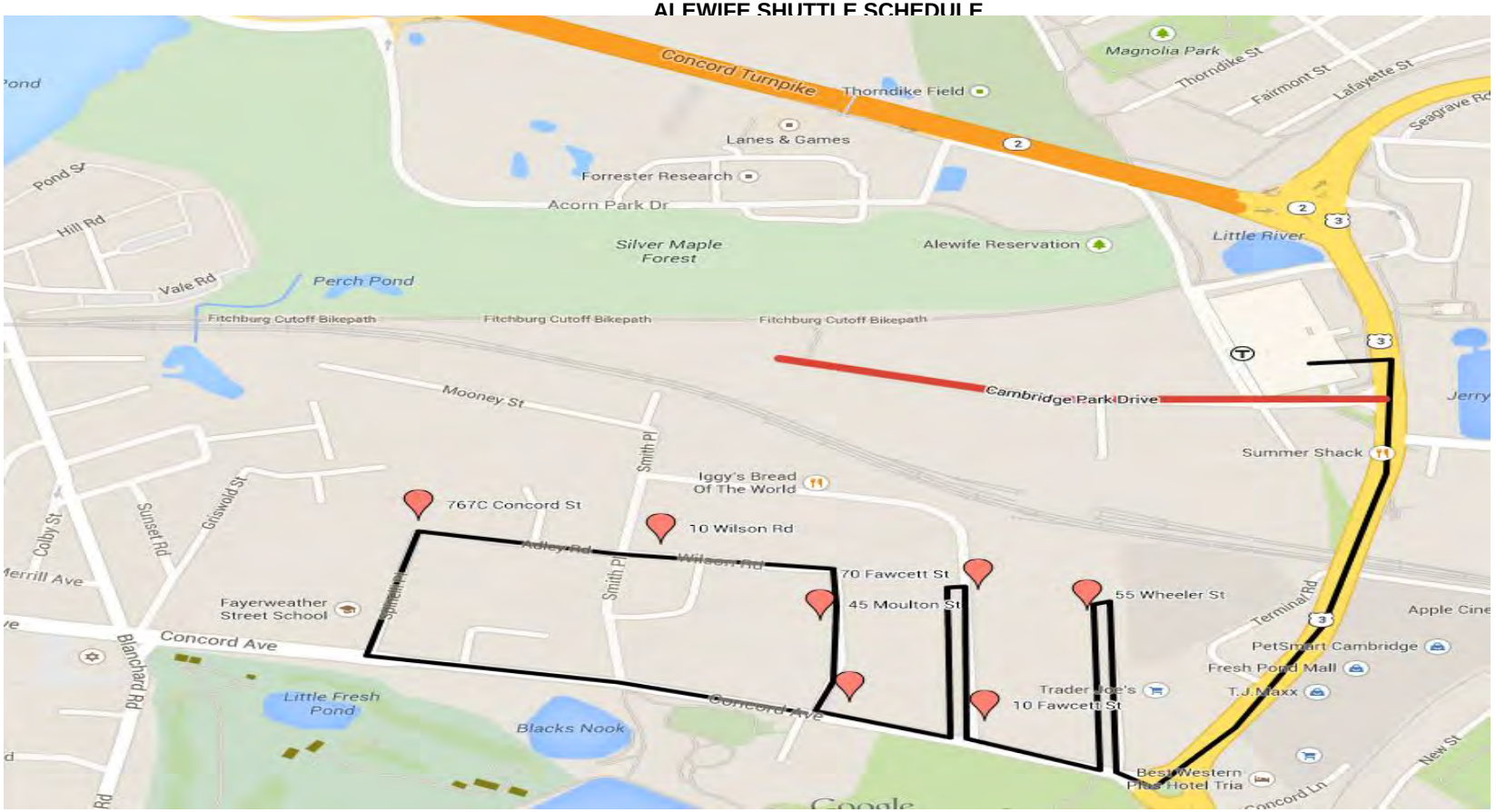
PLEASE NOTE: PLEASE BE READY 5 MINUTES BEFORE SCHEDULED TIME.

www.alewifetma.org

TransAction Corporate Shuttles
Vehicle operated by TransAction Corporate Shuttles, 5 Wheeling Avenue, Woburn, MA 01801
781-895-1100 office, 781-895-1122 fax www.tcshuttles.com and www.transactionassoc.com

2015

ALEWIFE SHUTTLE SCHEDULE



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Shuttle will not run on the following holidays: New Year's Day, President's Day, Memorial Day, July 4th, Labor Day, Thanksgiving and the day after, and Christmas Day.

PLEASE NOTE: PLEASE BE READY 5 MINUTES BEFORE SCHEDULED TIME.
ALL TIMES ARE APPROXIMATE DUE TO TRAFFIC CONDITIONS IN THE AREA

AlewifeTMA

www.alewifetma.org

TransAction Corporate Shuttles

Vehicle operated by TransAction Corporate Shuttles, 5 Wheeling Avenue, Woburn, MA 01801
781-895-1100 office, 781-895-1122 fax

Signal Warrant Analysis

MUTCD 2000 (Millennium Edition)

TRAFFIC SIGNAL WARRANT ANALYSIS (VOLUME BASED)

Intersection: Concord Avenue @ Fawcett Street

Major Street Direction: Eastbound-Westbound

Year: 2016 **Condition:** Existing

Operating speed on major roadway: 30 mph

Number of approaches: 3

Warrant 1	EIGHT-HOUR VEHICULAR VOLUME	Required approach volumes Minimum*	Adjusted Minimum**
Warrant 1A	MINIMUM VEHICULAR VOLUME (8 hours of day)		
	Major Street : 2 Lane(s) on each approach	600	600
	Minor Street : 1 Lane(s) on each approach	150	150
Warrant 1B	INTERRUPTION OF CONTINUOUS TRAFFIC (8 hours of day)		
	Major Street : 2 Lane(s) on each approach	900	900
	Minor Street : 1 Lane(s) on each approach	75	75
	80 PERCENT SATISFACTION OF WARRANT 1A **AND** WARRANT 1B	Warrant 1A	Warrant 1B
	Major Street : 2 Lane(s) on each approach	480	720
	Minor Street : 1 Lane(s) on each approach	120	60

Warrant 2 FOUR HOUR VEHICULAR VOLUME

Major Street : 2 Lane(s) on each approach — If "verify" indicated, see Figure 4C-1 or 4C-2.

Minor Street : 1 Lane(s) on each approach — 25 = accuracy of regression equations

Warrant 3 PEAK HOUR VOLUME

Major Street : 2 Lane(s) on each approach — If "verify" indicated, see Figure 4C-3 or 4C-4.

Minor Street : 1 Lane(s) on each approach — 25 = accuracy of regression equations

Hour	Entering Vol. Minor Road+	Entering Vol. on Major Road Eastbound	Entering Vol. on Major Road Westbound	Tot. Ent. Vol. On Major Rd	Meets the following volume-based warrants? 1A	1B	80%(1A&1B)	2	3
	Fawcett St	Concord Ave	Concord Ave						
6:00 - 7:00 AM	48	335	447	782	No	No	No	No	No
7:00 - 8:00 AM	121	730	683	1413	No	Yes	Yes	Yes	No
8:00 - 9:00 AM	106	880	886	1766	No	Yes	No	Yes	Verify
9:00 - 10:00 AM	127	775	704	1479	No	Yes	Yes	Yes	Verify
10:00 - 11:00 AM	123	646	667	1313	No	Yes	Yes	Yes	No
11:00 - 12:00 AM	114	692	688	1380	No	Yes	No	Yes	No
12:00 - 1:00 PM	127	723	718	1441	No	Yes	Yes	Yes	No
1:00 - 2:00 PM	111	638	686	1324	No	Yes	No	Yes	No
2:00 - 3:00 PM	112	657	727	1384	No	Yes	No	Yes	No
3:00 - 4:00 PM	114	763	714	1477	No	Yes	No	Yes	No
4:00 - 5:00 PM	104	761	648	1409	No	Yes	No	Verify	No
5:00 - 6:00 PM	101	745	639	1384	No	Yes	No	Verify	No
6:00 - 7:00 PM	81	705	628	1333	No	Yes	No	Verify	No
					No	**Yes**	**No**	**Yes**	**Verify**
				Warrants Met?		**1**		**2**	**3**
						Yes		**Yes**	**Verify**

*From the criteria described for the warrant in the MUTCD.

**If the operating speed is higher than 40mph then the volumes can be adjusted to 70%. (If no adjusted minimum, the minimum from the previous column is shown)

+If more than one approach, report the approach that has the higher volume.

NON-VOLUME-BASED WARRANTS

Warrant 4, Minimum Pedestrian Volume: No

Peak Four Hour Pedestrian Volumes: 4

(non-concurrent) 4

4

3

Warrant 5, School Crossing:

See MUTCD for details.

Warrant 6, Coordinated Signal System:

See MUTCD for details.

Warrant 7, Crash Experience: No

# of accidents "correctable by signalization" occuring in the last 12 months:

Warrant 8, Roadway Network:

See MUTCD for details.

Source: *Manual on Uniform Traffic Control Devices* (MUTCD); Millenium Edition, December 2000

last updated: 12/12/01

Pedestrian/Bicycle Rail Line Connection Feasibility Study

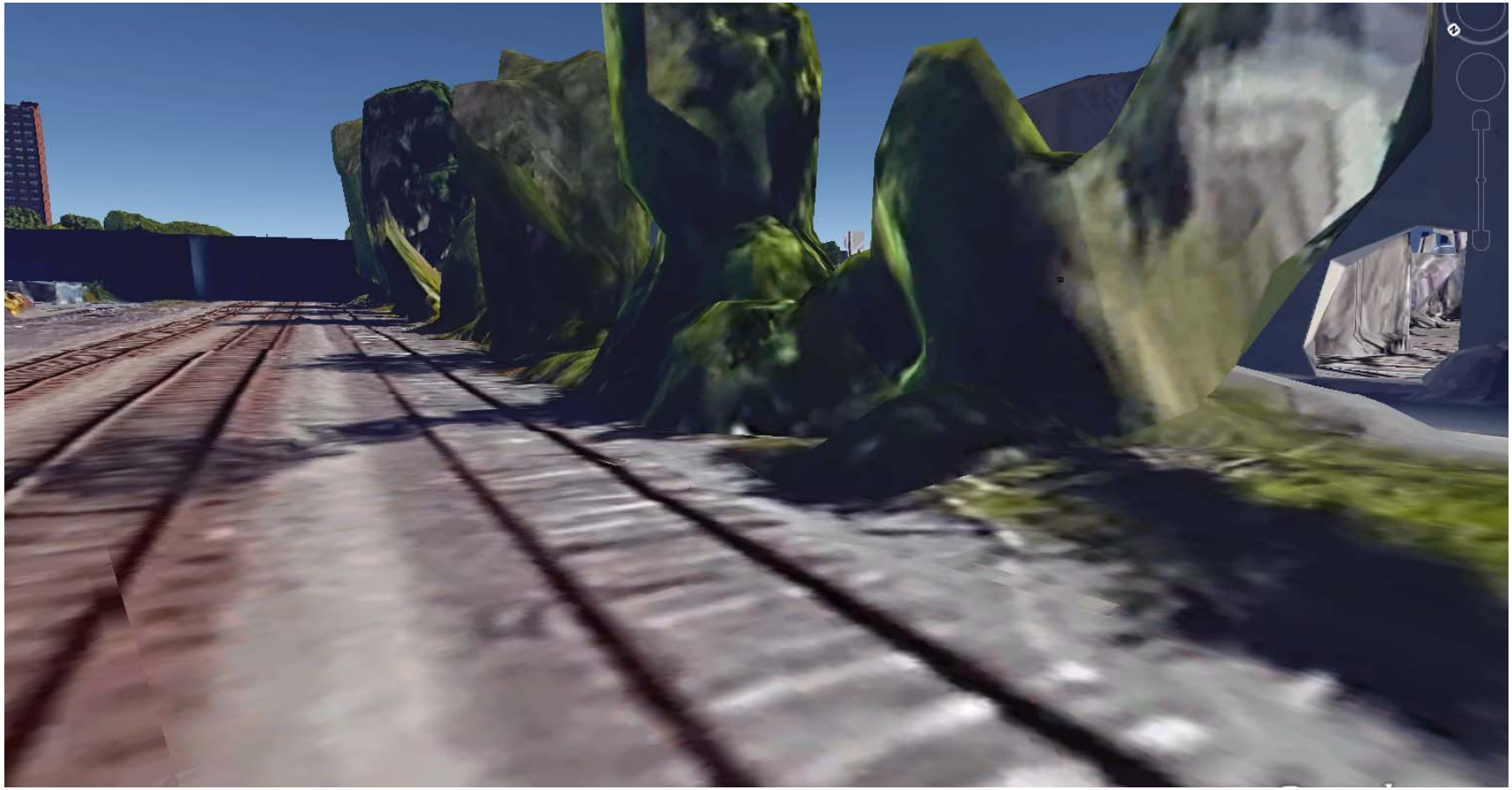
Technical Appendix

Google Imagery – Looking East

Google Imagery – Looking East

Google Imagery – Looking South

Google Imagery – Looking North



Google Imagery – Looking East, Street Level

Minimum offsets from active rail lines differ between the different rail owners and operators. A Typical min offset for an MBTA line is 25 feet.

Minimum width of a multi-use pedestrian and bicycle path is 8 feet (in constraint situations only) standard width is 10-12 feet with 14 feet recommended for paths that see a lot of pedestrian traffic.

Google Imagery – Plan View

Google Imagery – Looking Southeast, Basic Profile View

(very rough estimated based on google earth data, for information only – not appropriate for studies and/or design)