

Kendall Square Urban Renewal Project Infill Development Concept Plan

Transportation Impact Study Technical Appendix

Kendall Square Urban Renewal Project Infill Development Concept Plan Certified TIS
Transportation Analysis Update Memorandum (Special Permit #315)

Traffic Counts

- Turning Movement Counts
- Automatic Traffic Recorder Counts

Synchro Results:

- 2016 Theoretical Existing Conditions
- 2016 Build Conditions
- 2016 Updated Build Conditions
- 2021 Future Conditions
- 2021 Updated Future Conditions
- 2024 Future Conditions

SimTraffic Results:

- 2024 Future Conditions

Time of Day Parking Occupancy

- Office/ R&D Parking Occupancy
- Retail Parking Occupancy
- Residential Parking Occupancy

Transit Analysis

- MBTA Red Line Analysis
- MBTA Green Line Analysis
- MBTA Bus Analysis

Kendall Square Urban Renewal Project Infill Development Concept Plan

Transportation Impact Study
Technical Appendix

Kendall Square Urban Renewal Project Infill Development Concept Plan – 2016 Certified TIS

KSURP Infill Development Concept Plan

Cambridge, Massachusetts

PREPARED FOR

Boston Properties
800 Boylston Street, Suite 1900
Boston, MA 02119

PREPARED BY



99 High Street
Boston, MA 02110
617.728.7777

June 23, 2016

KSURP Infill Development Concept Plan

Cambridge, Massachusetts

PREPARED FOR

Boston Properties
800 Boylston Street, Suite 1900
Boston, MA 02119

PREPARED BY



99 High Street
Boston, MA 02110
617.728.7777

June 23, 2016

UNDER THE DIRECTION OF

A handwritten signature in black ink, appearing to read "Sean Manning", written over a horizontal line.

Sean Manning, P.E.
Massachusetts Registration No. 45812

Table of Contents

Table of Contents	i
List of Tables.....	iv
List of Figures.....	vi
Introduction & Project Overview	1
Project Overview	2
Summary of Impacts.....	4
Planning Board Criteria Summary	18
Transportation Impact Study	28
1 Inventory of Existing Conditions	28
1.a Roadways	28
1.b Intersections	29
1.c Parking	29
On-Street Vehicular Parking.....	29
Off-Street Vehicular Parking	29
Short-Term Bicycle Parking	30
Long-Term Bicycle Parking	30
1.d Transit Services	31
1.e Land Use.....	33
2 Data Collection	33
2.a ATR Counts	33
2.b Pedestrian and Bicycle Counts.....	35
6 th Street Connector	36
2.c Intersection Turning Movement Counts.....	37
2.d Crash Analysis	38
2.e Public Transit.....	40
2.f Parking	41
Off-Site Vehicle Parking.....	41
Long-Term Bicycle Parking	42
3 Project Traffic	43

3.a	Mode Share and Average Vehicle Occupancy (AVO)	43
3.b	Trip Generation	43
3.c	Site Access, Service and Deliveries	44
3.d	Trip Distribution	45
4	Background Traffic	45
5	Traffic Analysis	46
5.a	2016 Theoretical Existing Condition	46
5.b	2016 Build Condition.....	47
5.c	2021 Future Condition	47
6	Vehicle Capacity Analysis	47
7	Queue Analysis	67
8	Residential Street Volume Analysis	74
9	Vehicle Parking Analysis	76
9.a	Approved Zoning Parking Supply	76
9.b	Project Vehicle Parking	77
9.c	Future Vehicle Parking	78
9.d	Shared Vehicle Parking Analysis.....	78
	Model 1 – Holistic KSURP Shared Parking Strategy	79
	Model 2.a – ULI Methodology concentrating on the Proposed Project.....	82
	Model 2.b – ULI Methodology concentrating on the Total KSURP Development	83
9.e	Long-Term Parking Monitoring Program	86
	Pricing Strategy	86
10	Transit Analysis	87
10.a	Existing Transit System Capacity – STEP 1	87
10.b	Existing Transit System Ridership – STEP 2	89
10.c	Existing Transit System Utilization – STEP 3.....	90
10.d	Development of Transit Project Trips – STEP 4.....	93
10.e	Build Transit System Utilization – STEP 5.....	96
11	Pedestrian Analysis.....	98
12	Bicycle Analysis	101
12.a	Bicycle Parking	101
12.b	Bicycle Conflict Analysis	102
13	Transportation Demand Management (TDM).....	106

13.a	General TDM Measures	106
13.b	Proposed Traffic Monitoring Program	108
13.c	Proposed Kendall Square Transit Enhancement Program (KSTEP).....	108
	Proposed MBTA Bus and EZRide Shuttle Improvements	110
13.d	Proposed Pedestrian Access, Safety, and Streetscape Improvements.....	111
	Broadway Mid-Block Crossing	112
13.e	Proposed Bicycle Facility Improvements	113
Planning Board	Special Permit Criteria	115
	Criterion A – Project Vehicle Trip Generation.....	115
	Criterion B – Vehicle LOS	115
	Criterion C – Traffic on Residential Streets	116
	Criterion D – Lane Queue	118
	Criterion E – Pedestrian and Bicycle Facilities.....	121
	Criteria 1: Pedestrian Delay	121
	Criteria 2 & 3: Safe Pedestrian and Bicycle Facilities	123
	Criteria 2: Safe Pedestrian Facilities.....	123
	Criteria 3: Safe Bicycle Facilities.....	124
TIS Figures	125

List of Tables

A	Proposed Development Program	4
1.d.1	Transit Services Summary	32
2.a.1	2013 Existing Traffic Volume Summary	34
2.a.2	2013 Average Weekday Hourly Traffic Volumes Summary	35
2.b.1	2013 Bicycle Volume Summary	36
2.b.2	Sixth Street Connector Peak Hour Volumes	37
2.d.1	MassDOT Crash Analysis	39
2.e.1	Transit Services	40
2.f.1	Existing Weekday Garage Occupancy	41
2.f.2	Existing Weekday Long-Term Bicycle Parking	42
3.a.1	Project Mode Shares	43
3.b.1	Project Trip Generation by Mode	44
3.d.1	Vehicular Trip Distribution	45
6.a.1	Signalized Intersection LOS – Morning Peak Hour	48
6.a.2	Signalized Intersection LOS – Evening Peak Hour	56
6.a.3	Unsignalized Intersection LOS – Morning Peak Hour	64
6.a.4	Unsignalized Intersection LOS – Evening Peak Hour	65
7.a.1	Intersection Queue Analysis – Morning Peak Hour	67
7.a.2	Intersection Queue Analysis – Evening Peak Hour	70
8.a.1	Traffic on Residential Study Area Roadway – Morning Peak Hour	74
8.a.2	Traffic on Residential Study Area Roadway – Evening Peak Hour	75
9.a.1	Recommended Zoning Parking Supply	76
9.c.1	Future Parking Supply in the KSURP Area	77
9.d.1	Yellow Garage Future Parking	79
9.d.2	Blue Garage Future Parking	80
9.d.3	ULI Shared Parking Ratios	81
9.d.4	Weekday Peak Hour Parking Demand (ULI Methodology/Proposed Project)	83
9.d.5	Weekday Peak Hour Parking Demand (Total KSURP Development/Standard ULI Methodology)	84
10.a.1	System Peak Hour Capacity (Per MBTA Data)	87
10.a.2	Red Line Peak Hour Capacity (Comparison of MBTA Data and Field Data)	88
10.b.1	Adjusted Ridership Levels (Year 2016)	89

10.c.1	Existing Transit Service Utilization (Per MBTA Capacity & MIT Field Ridership).....	90
10.c.2	Existing Transit Service Utilization (Per MIT Field Capacity & Field Ridership).....	91
10.d.1	Project Generated Transit Trips	92
10.d.2	Transit Trip Distribution	93
10.d.3	AM Peak Hour Project Generated Trips by Line.....	94
10.d.4	PM Peak Hour Project Generated Trips by Line	94
10.e.1	Build Condition Transit Service Utilization	95
10.c.2	Build Condition Transit Service Utilization (per MIT Field Capacity & Field Ridership).....	96
11.a.1	Signalized Intersection – Pedestrian Level of Service Summary.....	97
11.a.2	Unsignalized Intersection – Pedestrian Level of Service Summary	99
12.a.1	Required Project Bicycle Parking.....	100
12.b.1	Conflicting Bicycle/Vehicle Movements at Study Intersection	101
13.e.1	Existing Broadway Mid-Block Crossing Volumes.....	112
A-1	Project Vehicle Trip Generation	114
B-1	Criterion – Vehicular Level of Service	114
B-2	Vehicular Level of Service.....	115
C-1	Criterion – Traffic on Residential Streets.....	116
C-2	Traffic on Residential Streets	116
D-1	Criterion – Vehicle Queues at Signalized Intersections.....	117
D-2	Length of Vehicular Queues at Signalized Intersections	118
E-1	Criterion – PLOS Indicators.....	121
E-2	Signalized Intersection PLOS Summary.....	121
E-3	Pedestrian and Bicycle Facilities	123

List of Figures

A.1	Site Location Map	7
A.2	Kendall Center Properties Key Map	8
B	Project Area Context	9
C	Existing Conditions – 135 Broadway/Blue Garage 145 Broadway, 145 Broadway, 250 Binney Street, and 255 Main Street.....	10
D.1	Proposed Project – 250 Binney Street Site Plan.....	11
D.2	Proposed Project – 250 Binney Street Parking Level 1.....	12
D.3	Proposed Project – 250 Binney Street Parking Typical Level Plan	13
D.4	Proposed Project – 145 Broadway Site Plan.....	14
D.5	Proposed Project – 145 Broadway Parking Typical Level Plan	15
D.6	Proposed Project – 135 Broadway/Blue Garage Site Plan	16
E	TIS Study Area.....	17
1.a.1	Existing Roadway Sketch – Broadway Between Galileo Galilei Way and Ames Street.....	125
1.a.2	Existing Roadway Sketch – Binney Street Between Galileo Galilei Way and Sixth Street.....	126
1.b.1	Study Area Intersection – O'Brien Highway at Third Street.....	127
1.b.2	Study Area Intersection – Cambridge Street at Third Street.....	128
1.b.3	Study Area Intersection – Cambridge Street at First Street.....	129
1.b.4	Study Area Intersection – Cambridge Street at O'Brien Highway.....	130
1.b.5	Study Area Intersection – O'Brien Highway at Land Boulevard.....	131
1.b.6	Study Area Intersection – Broadway at Portland Street.....	132
1.b.7	Study Area Intersection – Broadway at Hampshire Street.....	133
1.b.8	Study Area Intersection – Binney Street at Glailio Galilei Way/ Fulkerson Street	134
1.b.9	Study Area Intersection – Binney Street at Blue Garage Exit	135
1.b.10	Study Area Intersection – Binney Street at Blue Garage Entrance.....	136
1.b.11	Study Area Intersection – Binney Street at Third Street.....	137
1.b.12	Study Area Intersection – Binney Street at First Street.....	138
1.b.13	Study Area Intersection – Binney Street at Land Boulevard.....	139
1.b.14	Study Area Intersection – Broadway at Glailio Galilei Way	140
1.b.15	Study Area Intersection – Broadway at Blue Garage Entrance.....	141
1.b.16	Study Area Intersection – Broadway at Blue Garage Exit	142
1.b.17	Study Area Intersection – Broadway at Ames Street.....	143
1.b.18	Study Area Intersection – Broadway at Third Street.....	144
1.b.19	Study Area Intersection – Main Street at Broadway.....	145
1.b.20	Study Area Intersection – Main Street at Memorial Drive/Longfellow Bridge.....	146
1.b.21	Study Area Intersection – Main Street at Ames Street.....	147
1.b.22	Study Area Intersection – Main Street at Vassar Street/Galileo Galilei Way	148
1.b.23	Study Area Intersection – Memorial Drive/Route 3 at Ames Street....	149

1.c.1	On-Street Parking Regulations	150
1.c.2	Off-Street KSURP Parking	151
1.c.3	KSURP Bike Parking Supply	152
1.d.1	Public Transit Services	153
1.e.1	Land Use	154
2.b.1	Binney Street Sixth Street Connector Existing Conditions	155
2.b.2	Sixth Street Connector Volumes – Weekday Morning Peak Hour	156
2.b.3	Sixth Street Connector Volumes – Weekday Evening Peak Hour	157
2.b.4	Sixth Street Connector Volumes – Saturday Mid-day Peak Hour	158
2.c.1	2016 Existing Condition – Morning Peak Hour Traffic Volumes	159
2.c.2	2016 Existing Condition – Evening Peak Hour Traffic Volumes	160
2.c.3	2016 Existing Condition – Morning Peak Hour Pedestrian Volumes	161
2.c.4	2016 Existing Condition – Evening Peak Hour Pedestrian Volumes	162
2.c.5	2016 Existing Condition – Morning Peak Hour Bicycle Volumes	163
2.c.6	2016 Existing Condition – Evening Peak Hour Bicycle Volumes	164
3.c.1	Proposed Vehicular Site Circulation	165
3.c.2	Proposed Loading and Service Access	166
3.c.3	Proposed Pedestrian Access	167
3.d.1	Vehicle Trip Distribution	168
3.d.2	Project Generated Trips – Morning Peak Hour	169
3.d.3	Project Generated Trips – Evening Peak Hour	170
5.b.1	2016 Build Condition – Morning Peak Hour Traffic Volumes	171
5.b.2	2016 Build Condition – Evening Peak Hour Traffic Volumes	172
5.c.1	2021 Future Condition – Morning Peak Hour Traffic Volumes	173
5.c.2	2021 Future Condition – Evening Peak Hour Traffic Volumes	174
6.a.1	Morning Peak Hour Vehicular Level of Service	175
6.a.2	Evening Peak Hour Vehicular Level of Service	176
6.a.3	Morning Peak Hour Net Change in Vehicle Delay	177
6.a.4	Evening Peak Hour Net Change in Vehicle Delay	178
11.a.1	Morning Peak Hour Pedestrian Level of Service	179
11.a.2	Evening Peak Hour Pedestrian Level of Service	180
12	Bicycle Infrastructure	181
12.a.1	Bicycle Parking – 145 Broadway	182
12.a.2	Bicycle Parking – 135 Broadway/Blue Garage	183
12.a.3	Proposed Short Term Bicycle Parking	184
12.a.4	Proposed Short Term Bicycle Parking (Sixth Street Connector)	185
13.e.1	Proposed Sixth Street Connector Design	186

Introduction & Project Overview

On behalf of Boston Properties (BP), Vanasse Hangen Brustlin, Inc. (VHB) has conducted a Transportation Impact Study for the proposed Kendall Square Urban Renewal Plan (KSURP) Infill Development Concept Plan in Cambridge, Massachusetts (the Project).

The KSURP development is proposed to be constructed under two key phases, as outlined in the program summary (**Table A**). This TIS will be prepared for the entire development proposal, which includes construction of the following distinct elements:

- The construction of two residential buildings at 135 Broadway/Blue Garage (also referred to as the Cambridge Center North Garage);
- The redevelopment of 145 Broadway into an office building with ground floor retail (also referred to as Eleven Cambridge Center);
- The redevelopment of 250 Binney Street into an office and lab use building with ground floor retail (also referred to as Fourteen Cambridge Center);
- Conversion of existing mechanical space into office space within the Broad Institute building at 415 Main Street (referred to as the Broad Institute Office Conversion); and
- Renovation and repurposing of office space to innovation space within 255 Main Street (also referred to as One Cambridge Center).

The Project also includes provision for up to 809 new vehicle parking spaces, approximately 780 covered and secured bicycle parking spaces and approximately 125 additional short-term bike parking spaces located outside, as required by the City of Cambridge (the City).

The TIS responds to the scoping determination dated May 19, 2016 defined by the City's Traffic, Parking and Transportation (TP&T) Department in response to VHB's Request for Scoping dated April 19, 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 Study required under Article 14 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 herein. Supplementary data and analysis worksheets are provided for reference in

the **Appendix**. Electronic files for Automatic Traffic Recorder (ATR) counts, Manual Turning Movement Counts (TMC), and Synchro intersection operations analyses are compiled onto an accompanying CD.

Project Overview

In 2013, the Cambridge Community Development Department (CDD) published the K2 Plan to explore future development opportunities in the Kendall Square area. Part of the planning study focused on the MXD District which encompasses the Project parcels that are proposed to be developed by Boston Properties. The K2 Plan study recommended increasing the allowable zoned development square footage to approximately four million square feet.

The Project consists of approximately 1,095,200 net-new square feet of new development to the previously-permitted KSURP area increasing the maximum build-out to approximately 4.4 million gross square feet of space. Originally adopted in 1965, the KSURP was developed to reenergize and revitalize the Kendall Square area of Cambridge. The KSURP area is bounded by Main Street, the Grand Junction Railroad, Binney Street, and Third Street. Together through the effort of the City, the Cambridge Redevelopment Authority (CRA) and private developers (Boston Properties (BP) and Other Developers), the Kendall Square area has grown from an industrial district to a thriving innovative community.

The CRA submitted a Notice of Project Change (NPC) in April 2015 and a Single Environment Impact Report (SEIR) in October 2015 for review under the Massachusetts Environmental Policy Act (MEPA). The CRA received a Certificate for the SEIR on November 25, 2015. Since this filing, the Project has undergone massing and location modifications within the KSURP area in response to final December 21, 2015 zoning amendments that were approved by the City. The zoning amendment required Boston Properties to adapt the massing concepts and program to the final approved zoning. These included the following adaptations of the Project since receiving MEPA approvals in late 2015:

1. Increase in Innovation Space (from 39,000 to 105,200 GFA) by increasing the zoning exemption of a minimum 10 percent of office and biotechnology manufacturing space to a maximum zoning exemption of 20 percent. All of the Innovation Space is proposed to be accommodated by repurposing existing office space within Kendall Center. Repurposed office space will then be replaced in connection with the Project.
2. Increase in the housing program based upon a required Affordable Housing component of at least 20 percent of the total floor area, an increase of GFA based upon the 5 percent requirement for Middle Income housing and the inclusion of 3 bedroom units based upon applicable zoning requirements.

These zoning adaptations resulted in the current program, which intends to address the City's desire for specific housing types, such as middle income and 3-bedroom units as well as the creation of innovation space and massing that is more consistent with the urban design framework of the K2 Plan.

The Project will be located within Parcels 2, 3 and 4 of the KSURP area with development proposed for sites currently known as the 135 Broadway/Blue Garage (also known as Cambridge Center North Garage), 145 Broadway (also known as Eleven Cambridge Center), 250 Binney Street (also known as Fourteen Cambridge Center), the Broad Institute (75 Ames Street), and 255 Main Street (also known as One Cambridge Center) as shown in **Figures A.1 through B**. The Project Components, which are generally consistent with the K2 Plan zoning recommendations, are summarized in **Table A** below and described in greater detail within this TIS.

The Project will be supported by approximately 809 net-new vehicle parking spaces, provided in two new below-grade facilities to be located under 145 Broadway and 250 Binney Street and within the Blue Garage. The additional parking, in connection with available parking in the Blue Garage, will serve the tenants within the two new office buildings and the residents in the new residential buildings. Note that some existing parking in the Blue Garage will be permanently taken out of service in connection with the construction and reconfiguration of the garage to accommodate the residential buildings. The Project will also provide approximately 780 covered and secured bicycle parking spaces and approximately 125 short-term external bicycle parking spaces in conformance with the City's Bicycle Parking Requirements and a granted variance for short-term bicycle parking location. These new spaces will be provided within these new buildings, with some centralized long-term bicycle parking also provided within the Blue Garage.

The Proposed Project will include approximately 645,200 net-new sf of office space, 105,200 sf of innovation space, 420,000 sf (up to 560 units) of residential space and 30,000 sf of ground floor retail space as described below and illustrated in the relevant figures.

- **Figure A.1** presents a site location map
- **Figure A.2** KSURP area key map
- **Figure B** presents the proposed site and its neighborhood context
- **Figure C** presents the existing conditions for 135 Broadway/Blue Garage, 145 Broadway, 250 Binney Street, and 255 Main Street
- **Figure D.1** presents the proposed 250 Binney Street site plan
- **Figure D.2** presents the proposed 250 Binney Street parking level 1 plan
- **Figure D.3** presents the proposed 250 Binney Street parking typical plan
- **Figure D.4** presents the proposed 145 Broadway site plan
- **Figure D.5** presents the proposed 145 Broadway parking typical plan
- **Figure D.6** presents the proposed 135 Broadway/Blue Garage site plan
- **Figure E** presents the TIS study area

The Proposed Project program is summarized in **Table A** below.

TABLE A PROPOSED DEVELOPMENT PROGRAM

Project Component	Size (GFA ¹)
Phase 1.A – 145 Broadway	
Existing Eleven Cambridge Center Commercial Office (to be demolished)	(78,636)
Office	394,236
Retail ²	<u>10,000</u>
<i>NET NEW:</i>	325,600
Phase 1.B – 135 Broadway Res South	(464 Units)
Residential	<u>350,000</u>
<i>NET NEW:</i>	350,000
Phase 2.A – 250 Binney Street	
Existing Fourteen Cambridge Center Office (to be demolished)	(62,576)
Office	378,176
Retail ²	<u>20,000</u>
<i>NET NEW:</i>	335,600
Phase 2.B – 135 Broadway Res North	(96 Units)
Residential	<u>70,000</u>
<i>NET NEW:</i>	70,000
Broad Institute Office Conversion ³	14,000
Innovation Space (redevelopment of 255 Main Street) ⁴	<u>105,200</u>
<i>NET NEW:</i>	14,000
TOTAL (NET NEW)	1,095,200⁵
Office	645,200
Innovation Space	105,200
Retail	30,000
Residential	420,000
Residential Units	560
Vehicle Parking Spaces	809
Long-Term Bike Spaces	780
Short-Term Bike Spaces	125

- 1 GFA (Gross Floor Area) excluding accessory and support spaces, such as vertical transportation core and mechanical space, as defined in Article 2 of the Cambridge Zoning Ordinance.
- 2 Retail uses can include Active Ground Floor Uses, such as active public gathering space, per Article 14 of the Cambridge Zoning Ordinance.
- 3 Accounts for the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial office space at the Broad Institute's 75 Ames Street location. The phasing of the Broad Institute Office Conversion is under the control of the Broad Institute and will occur within either phase 1 or phase 2 of the Project.
- 4 Innovation space will be redeveloped through phasing with the commercial space, per zoning requirements.
- 5 Does not include Innovation Space conversion.

Summary of Impacts

MEPA approvals have required the CRA to update annually KSURP peak hour and daily traffic conditions, collect and analyze parking utilization data, and review KSURP tenant surveys. FST has been reporting on area traffic volumes and parking garage usage since the approval of

Plan Amendment No. 3 in 1993. Through the annual reporting and analysis process, many interesting and important transportation trends and observations have been documented, particularly relating to project trip generation rates and mode share.

The history of the KSURP with the MEPA process, as documented by the FST analysis, has consistently shown that actual vehicle trip generation in Kendall Square is significantly lower than accepted methodology for average daily vehicle trip (ADVT) projections. Obtaining accurate projections requires substantial downward adjustment from standard Institute of Transportation (ITE) Trip Generation Manual rates. This is due to the high proportion of alternative modes, including transit, walk and bike, by commuters, shoppers, visitors, and residents in Kendall Square. Traffic analyses submitted with KSURP Plan Amendment No. 3 and No. 8 in particular, quantify and substantiate this important conclusion.

FST summarized the traffic impact of Amendment No. 3 in a July 9, 1993 letter to the CRA. FST conducted traffic counts and consulted parking surveys conducted by Kinney Systems, as well as employee commuting surveys from a large Kendall Square employer. FST explained that it employed a two-step method for projecting trip generation, as recommended by the ITE Trip Generation Handbook. First, FST used ITE rates to estimate daily trip generation, based on land use categories. Second, FST adjusted the ITE rates to account for local conditions, including the presence of mass transit, City and State laws and regulations affecting trip generation, and the various traffic count and parking data. These data together suggested that transit, carpool, and walking transit modes would account for approximately 32 percent of all trip making in Kendall Square. After applying the adjustment, FST projected that a full build out under Amendment No. 3 would generate no more than 13,700 vehicle trips per day, approximately 29 percent less than the 19,300 vehicle trips per day analyzed in the 1977 FEIR.

As required under the MEPA approval for Plan Amendment No. 3, FST has collected data on trends in land uses, updated traffic counts, collected and analyzed parking data, and reviewed tenant surveys on an annual basis since 1994. FST summarized its findings in a June 15, 2010 letter to the CRA, in connection with proposed Amendment No. 8. The historical record formed by data collection between 1994 and 2010 provided a *“firm basis upon which to estimate future traffic impacts in the Area at full build out [as described in the 1977 FEIR and amended to a total of 3.3 million square feet]”* and to conclude that overall trip generation under Amendment No. 8 would be lower than under Amendment No. 7 and substantially lower than estimated in the 1977 FEIR. Historically, trip generation counts suggested that actual trip generation *“average[ed] 14 to 15 percent lower than projected trip generation.”*

In 2010, FST updated its projection methodology to take into account historical traffic measurements and the excellent transit services and favorable mode split in Kendall Square. Specifically, FST assumed a 43 percent adjustment downward from ITE rates, consistent with values from the 1994-2010 data. FST noted the 43 percent adjustment was actually conservative, as count data suggested that actual trip generation was more than 50 percent below unadjusted ITE rates.

Favorable mode split accounted for much of the adjustment. FST noted in particular that the 2009 tenant survey indicated that transit, walk-bike, shuttle, and carpool accounted for more than 70 percent of trip-making in Kendall Square. On that basis, FST concluded that maximum build out under Amendment No. 8 would generate approximately 13,714 vehicle trips per day, 28 to 30 percent fewer trips than estimated under the Preferred Plan in the FEIR. FST specifically noted that “[b]ecause of the excellent public transportation services, and newly installed bicycle circulation facilities, the extensive sidewalk system in the Area, and the City’s Trip Reduction Ordinance, the Area continues to generate vehicle trips at rates far lower than those contained in the ITE Trip Generation Report.”

The conclusions summarized in the FST reports were used to forecast the trips generated by proposed Project. The traffic produced by the proposed Project will increase traffic within the area, but at a rate lower than the reported ITE estimates. The analysis presented in the following sections provides a conservative approach to the trip generation methodology.

ITE unadjusted trip rates estimate that the Project will generate approximately 10,535 vehicle trips to the KSURP area. As FST has shown, this estimation is very high for the KSURP area and adjustments, making use of area-specific mode splits and vehicle occupancy rates, help to more accurately represent the actual number of vehicle trips that will be generated by the Project. Taking these factors into consideration the Project will generate an estimated 3,650 adjusted vehicle trips. Adding this expected future traffic to the 13,714 average vehicle trips per day, as projected by FST under Amendment No. 8, the estimated total number of vehicle trips per day to the KSURP area is calculated to total 17,364, which is still approximately 10 percent less the projected 19,300 vehicle trips estimated in the 1977 FEIR.

Collectively, the actual approximately 2,708 existing off-street parking spaces with the proposed 809 new off-street parking spaces falls within the maximum off-street parking supply previously approved under Plan Amendment No. 3 (3,545 spaces).

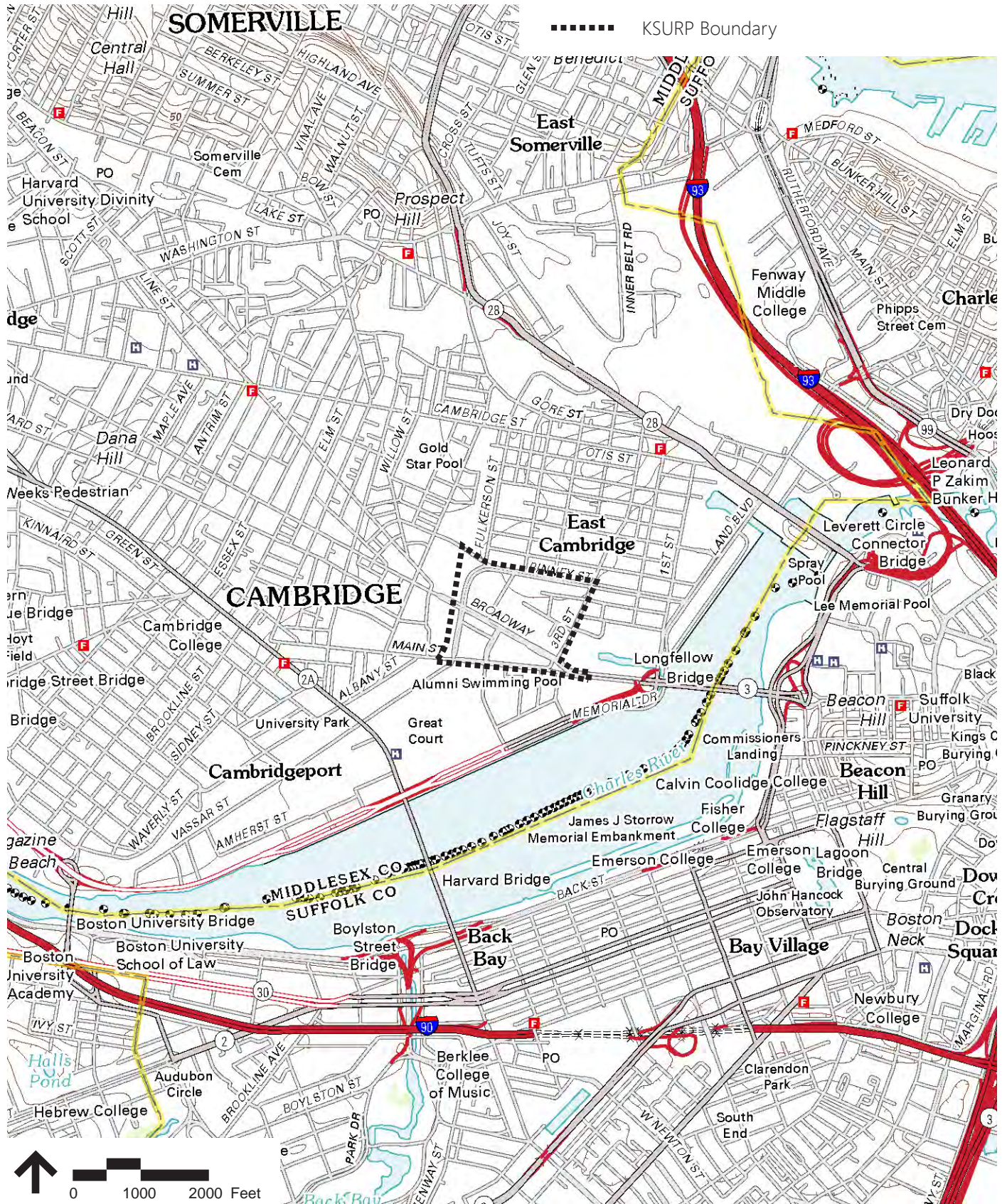


Figure A.1
Site Location Map

Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, MA

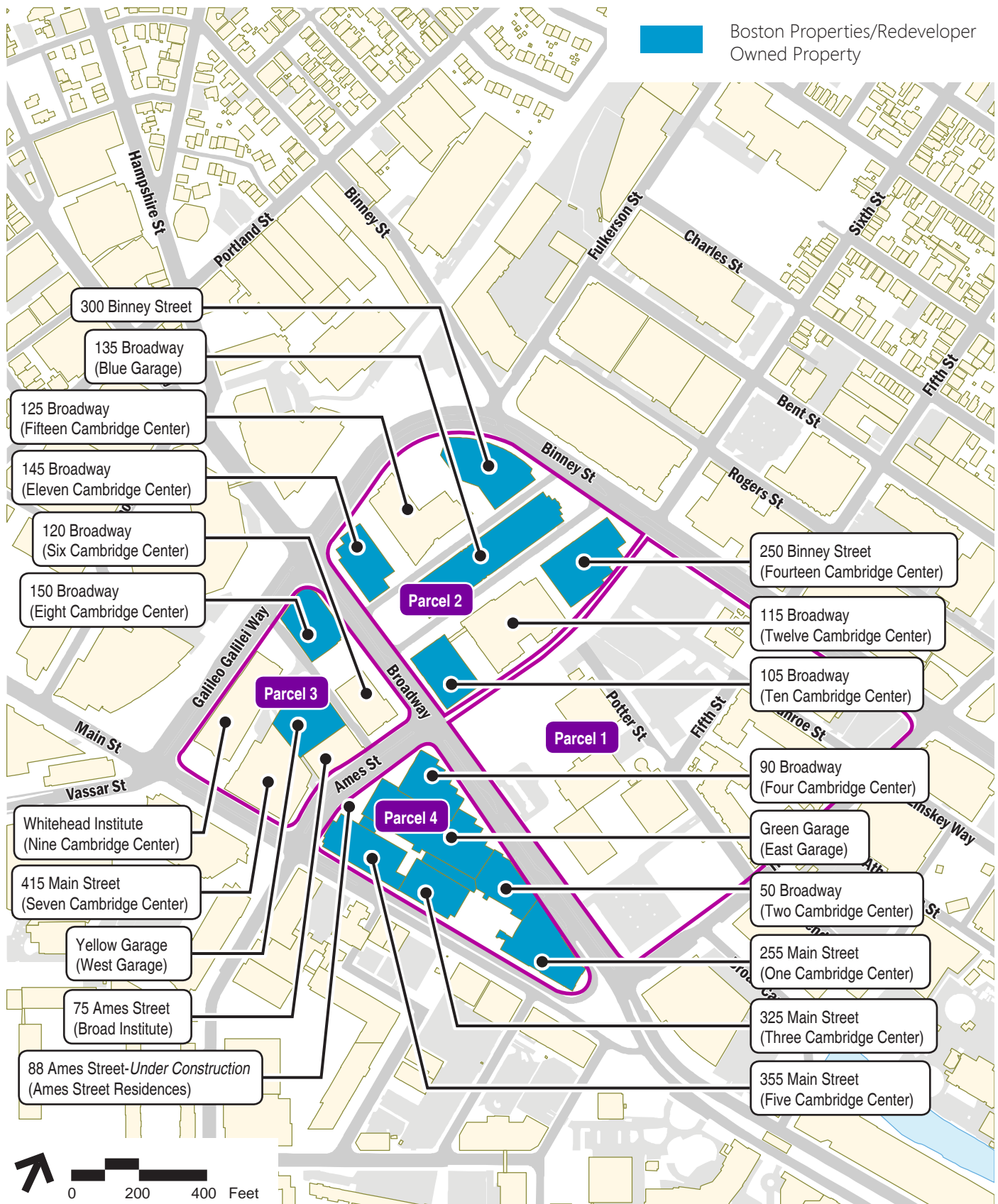
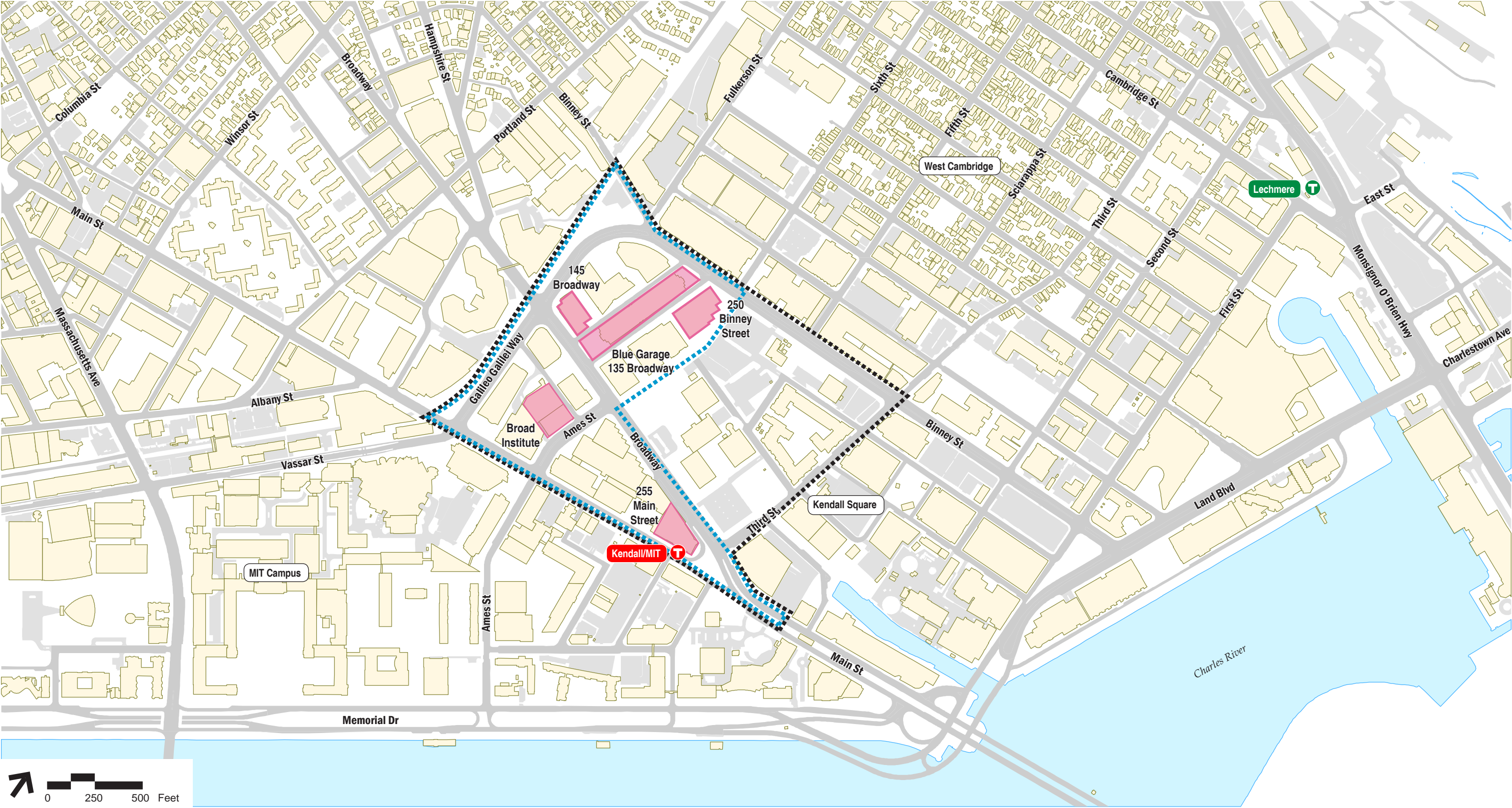


Figure A.2
Kendall Center Properties Key Map

Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, MA



- KSURP Boundary
- MXD District
- Proposed Project Component



Figure B
Project Area Context

Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, MA

Source: City of Cambridge GIS

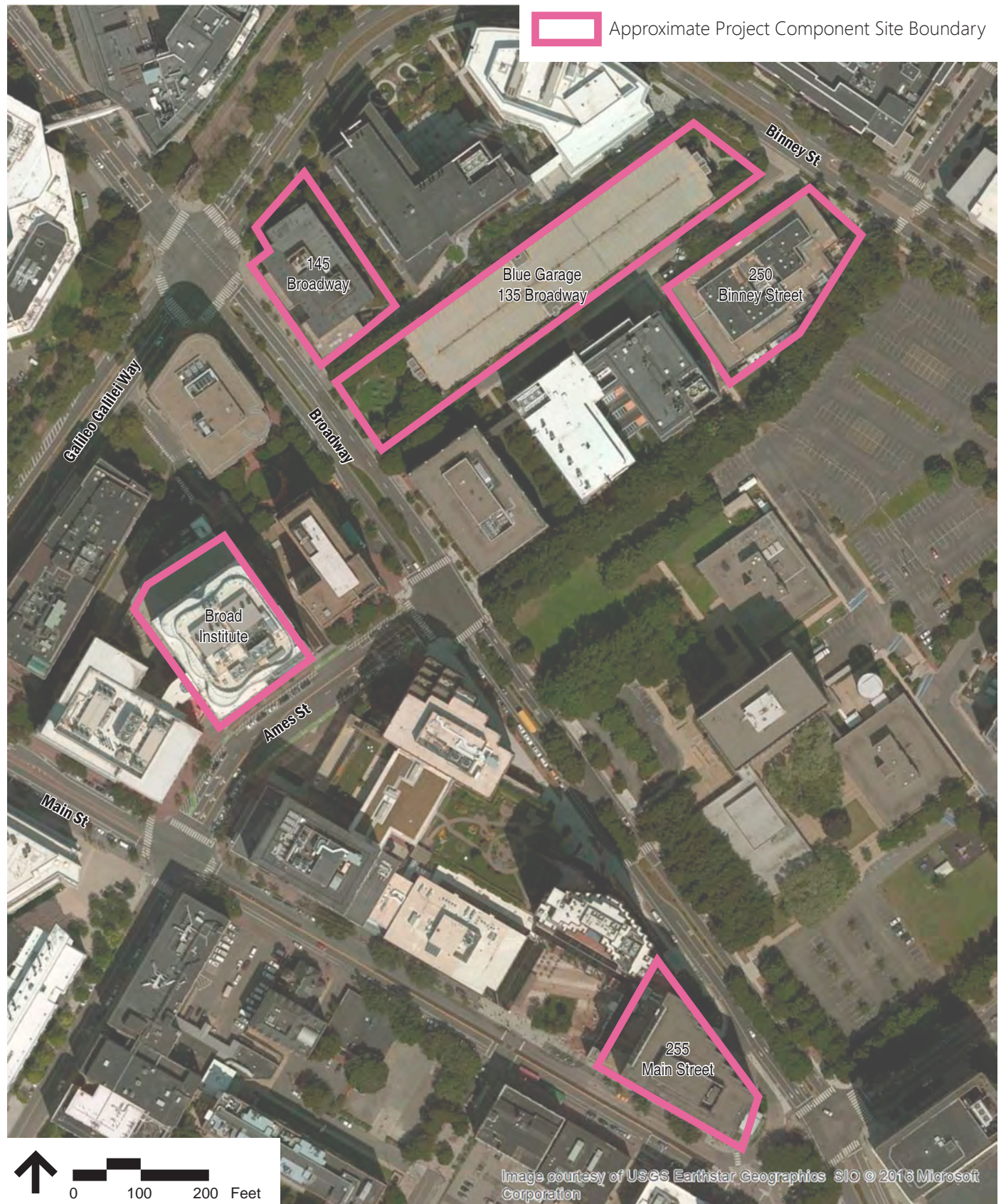
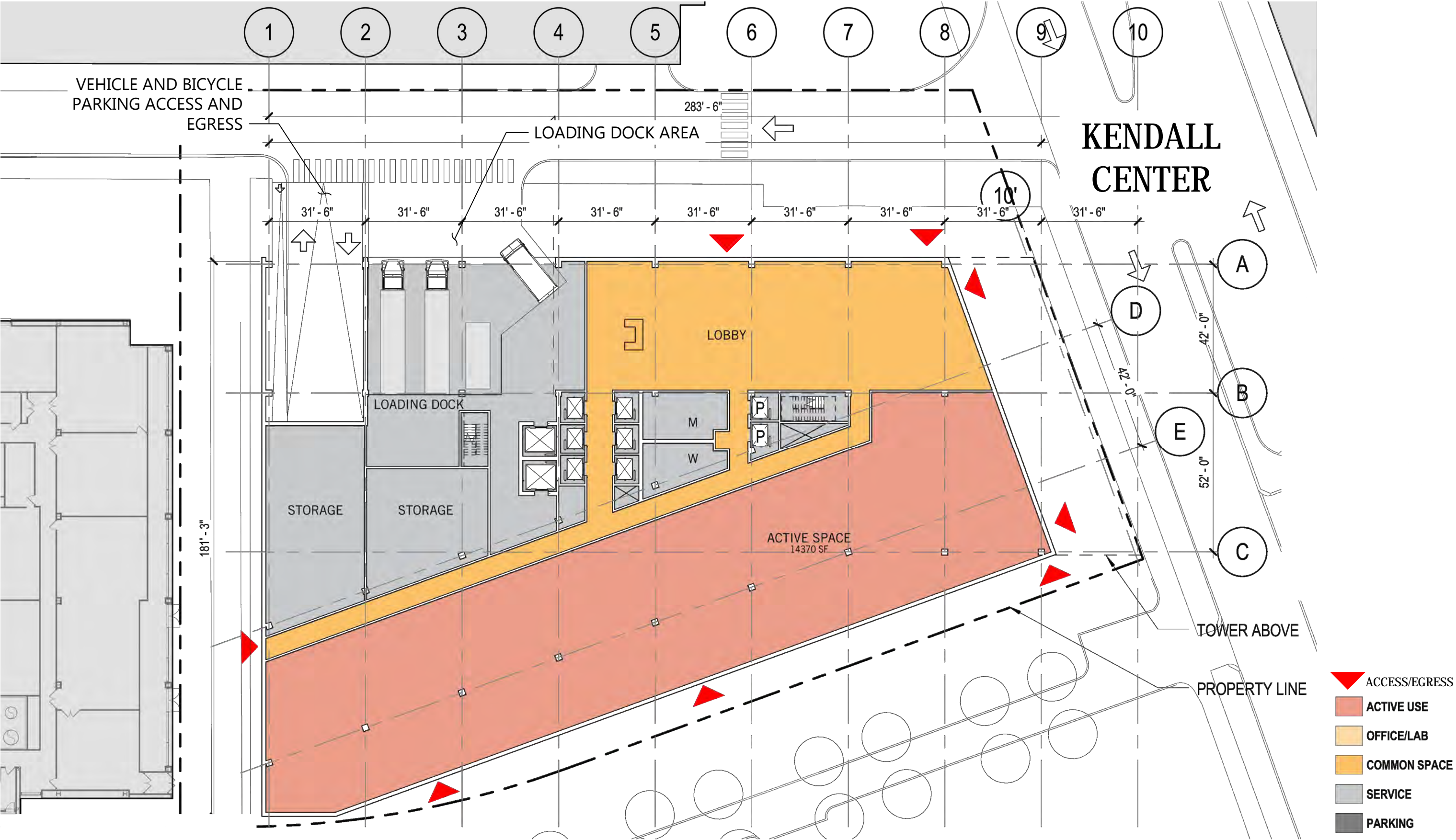


Figure C
Existing Conditions

Kendall Square Urban Renewal Project Amendment No. 10
Cambridge, MA



Source: Sasaki

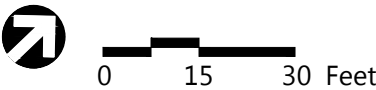
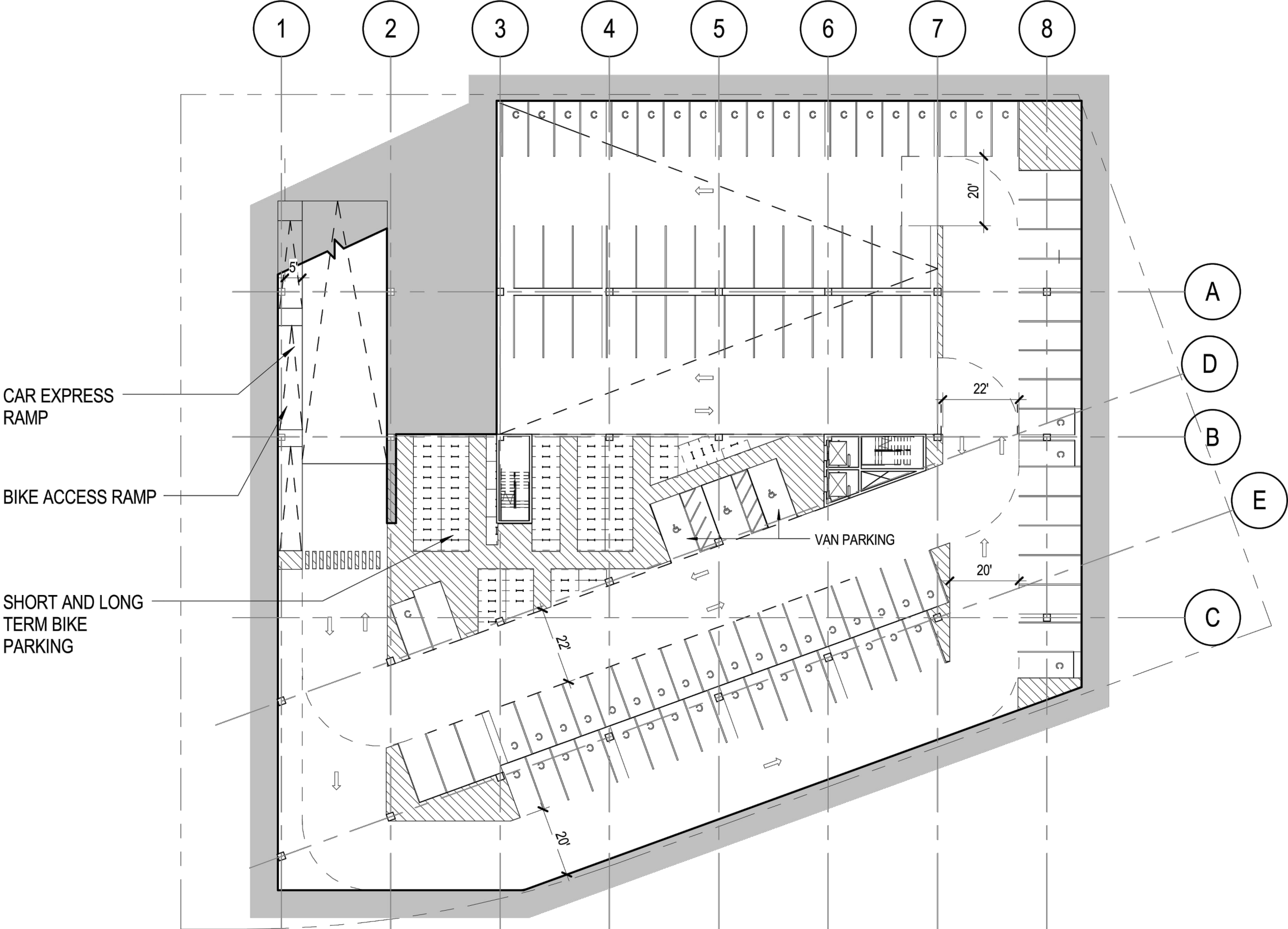


Figure D.1
Proposed 250 Binney Street Site Plan
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA



Source: Sasaki

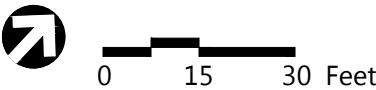
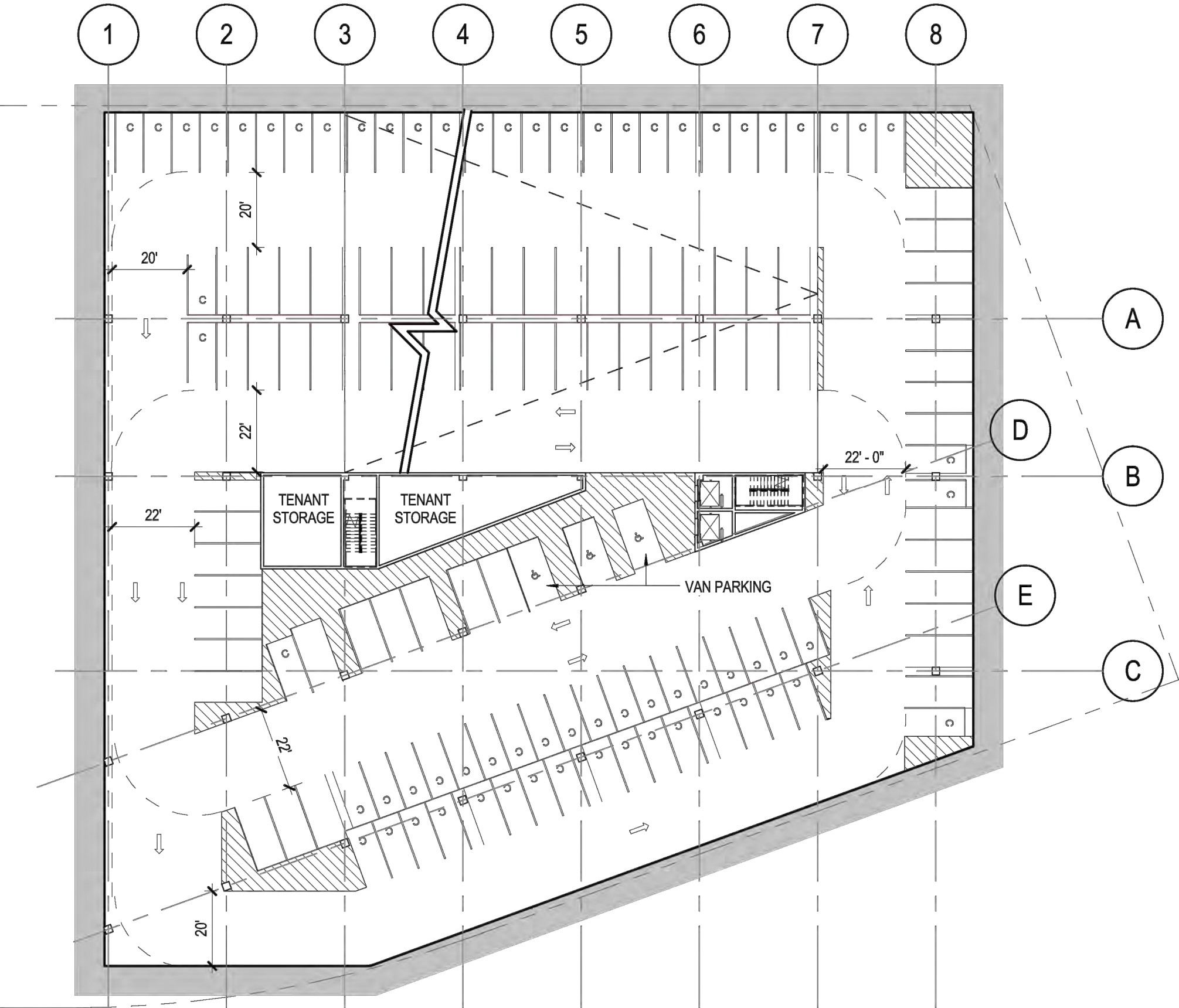


Figure D.2
Proposed 250 Binney Street Parking Garage Level 1
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA



Source: Sasaki

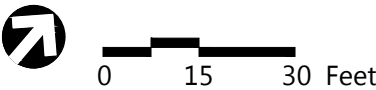
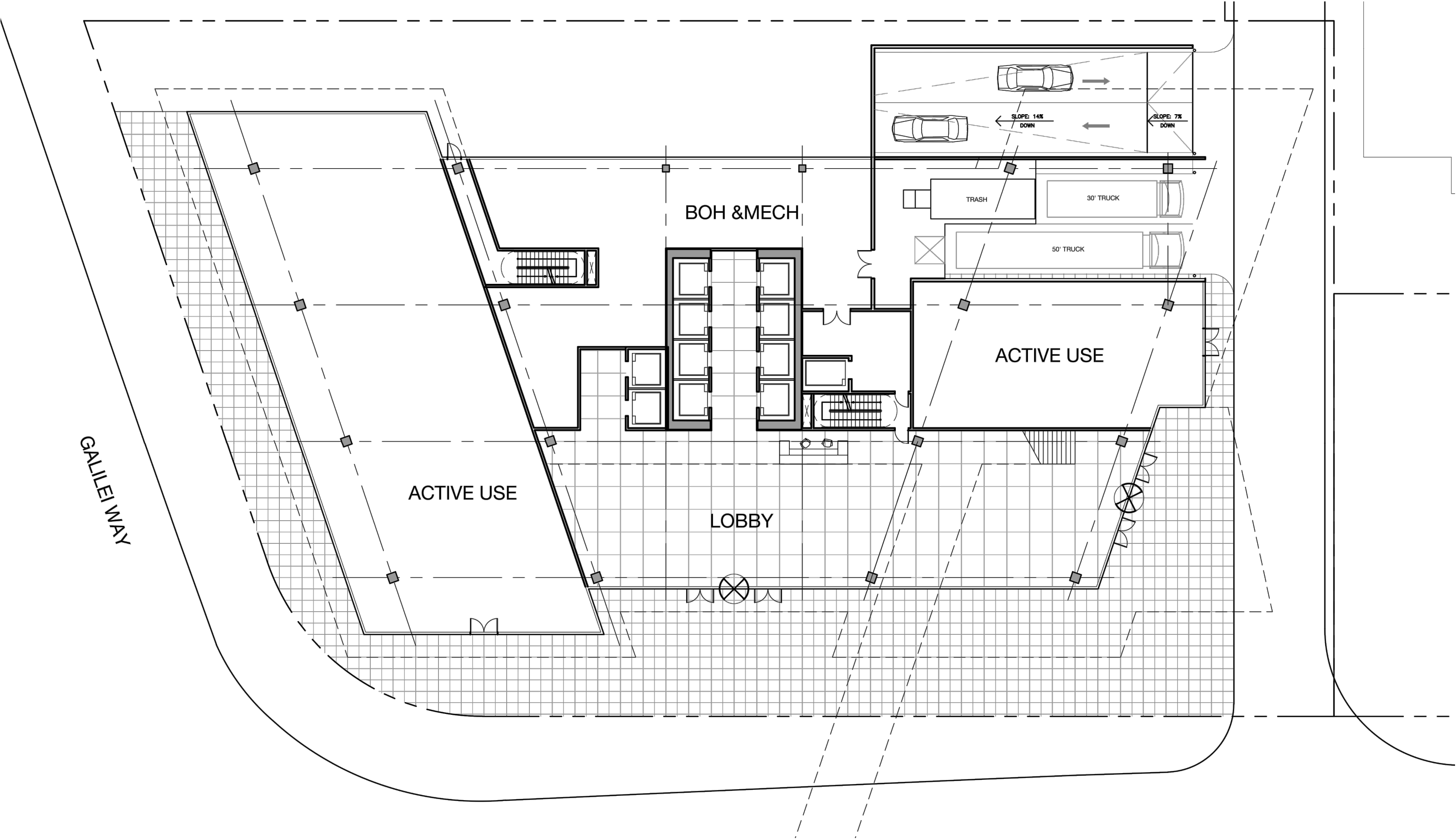


Figure D.3
Proposed 250 Binney Street Parking Garage Typical Level
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA



Source: Sasaki

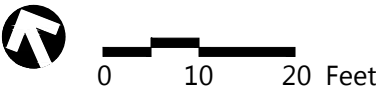
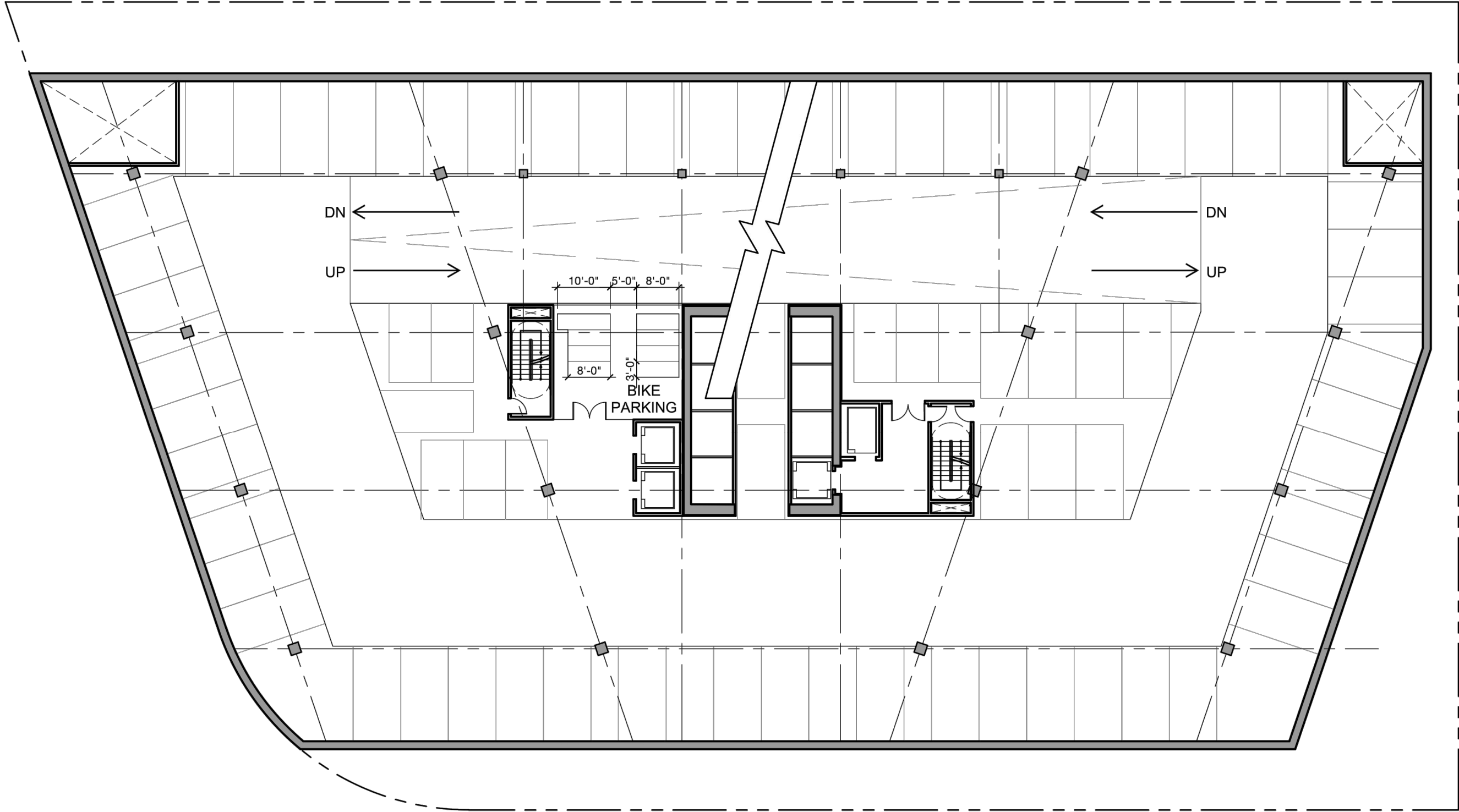


Figure D.4
Proposed 145 Broadway Site Plan
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA



Source: Sasaki

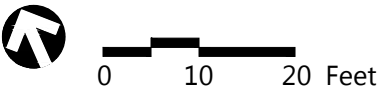


Figure D.5
Proposed 145 Broadway Garage Typical Plan
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA

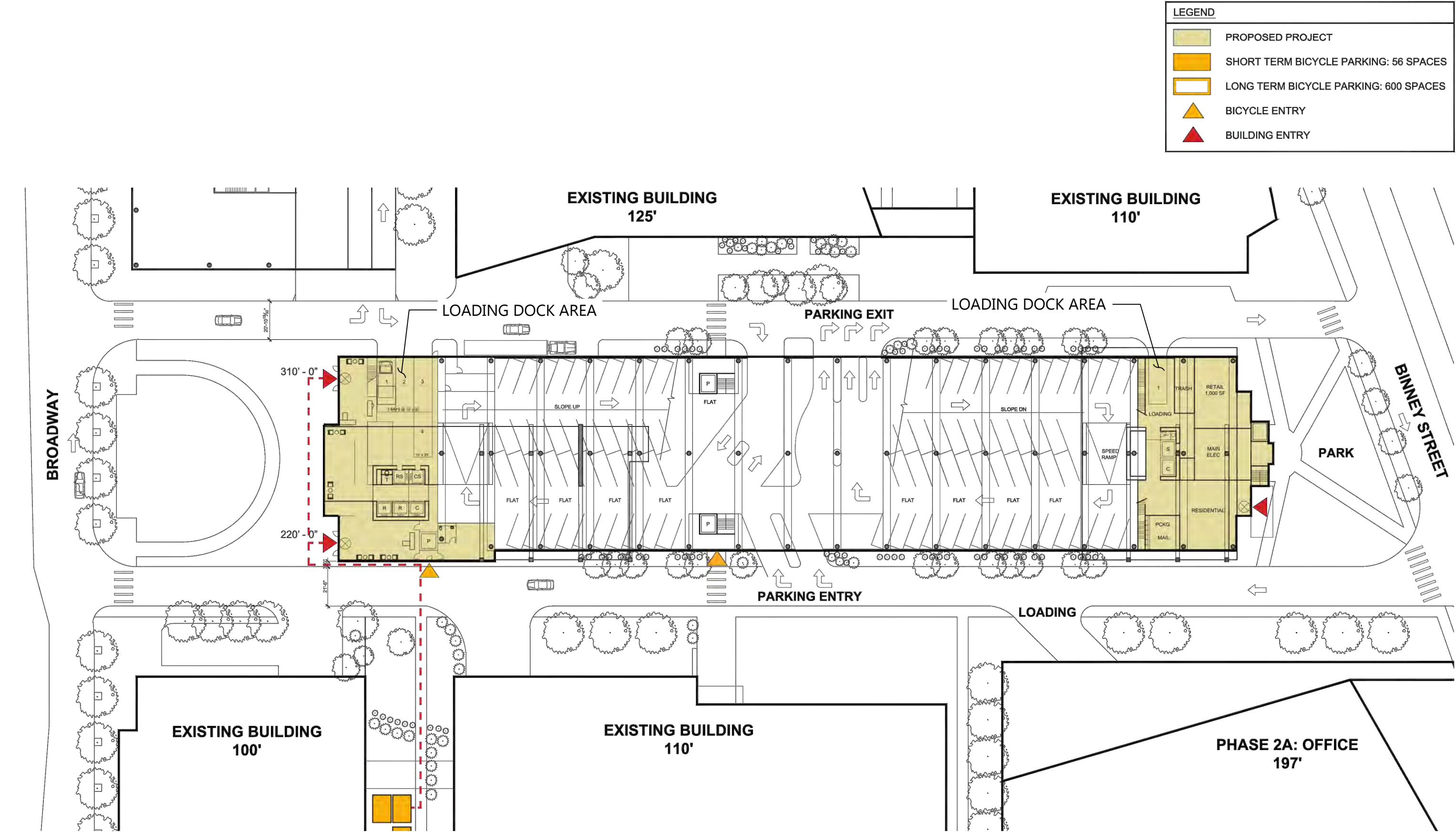


Figure D.6
Proposed 135 Broadway (Blue Garage) Site Plan
Kendall Square Urban Renewal Project Amendment No.10
Cambridge, MA

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.

PROJECT

Project Name: KSURP Infill Development Concept Plan
 Project Address: 135 Broadway, 145 Broadway, 250 Binney Street, 255 Main Street
 Cambridge, MA
 Owner/Developer Name: Boston Properties
 Contact Person: Michael Tilford
 Contact Address: 800 Boylston Street, Suite 1900
 Boston, MA 02199
 Contact Phone Number: (617) 236-3329

SIZE

ITE sq. ft. : 1,095,200 GSF
 Land Use Type: Office, Residential, Retail

PARKING

Existing Parking Spaces*: 2,708 Use: Office, Retail, Public
 New Parking Spaces**: +809 Use: Office
 Net New Parking Spaces***: 3,517 Use: Office, Residential, Retail, Public
 *Existing parking spaces in KSURP area
 **Net-new spaces constructed with the Project

TRIP GENERATION:

	Daily	AM Peak Hour	PM Peak Hour
Vehicle	3,650	390	429
Transit	4,424	482	524
Walk	1,546	143	163
Bike	1,184	125	137
Other	1,326	158	167

MODE SPLIT

	Residential	Office	Retail
Vehicle	30%	29%	29%
Transit	30%	37%	37%
Walk	25%	6%	6%
Bike	10%	9%	9%
Other	3%	14%	14%

TRANSPORTATION CONSULTANT

Company Name: VHB, Inc.
 Contact Name: Sean M. Manning, P.E., P.T.O.E.
 Contact Phone Number: (617) 728-7782

Date of Building Permit Approval: _____

Total Data Entries = 445

Total Number of Criteria Exceedances = 31

Criteria A –Project Vehicle Trip Generation

Time Period	Criteria (trips)	Build	Exceeds Criteria?
Weekday Daily	2,000	3,650	Yes
Week AM Peak Hour	240	390	Yes
Week PM Peak Hour	240	429	Yes

Criteria B – Vehicular LOS

Intersection	AM Peak Hour				PM Peak Hour			
	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion
O'Brien Highway at Third Street	F	F	1.2%	No	F	F	1.3%	No
Cambridge Street at Third Street	D	D	2.2%	No	F	F	2.4%	No
Cambridge Street at First Street	F	F	3.3%	No	F	F	2.9%	No
O'Brien Highway at Cambridge Street/ East Street	C	C	1.2%	No	B	B	1.3%	No
O'Brien Highway at Land Boulevard/ Gilmore Bridge	F	F	1.7%	No	F	F	1.9%	No
Broadway at Portland Street	D	D	2.2%	No	D	D	1.8%	No
Broadway at Hampshire Street	D	E	3.0%	Yes	D	D	3.2%	No
Binney at Galileo Galilei Way/Fulkerson Street	C	C	6.3%	No	C	C	4.1%	No
Binney Street at Third Street	C	C	7.6%	No	D	D	9.5%	Yes
Binney Street at First Street	C	C	5.1%	No	C	C	5.3%	No
Binney Street at Land Boulevard	C	C	1.8%	No	C	C	1.9%	No
Broadway at Galileo Galilei Way	F	F	6.5%	Yes	F	F	7.7%	Yes
Broadway at Ames Street	E	E	6.9%	No	E	E	4.9%	No
Broadway at Third Street	D	E	5.0%	Yes	D	D	5.3%	No

Intersection	AM Peak Hour				PM Peak Hour			
	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion
Main Street at Galileo Galilei Way/Vassar Street	C	C	6.0%	No	C	C	7.7%	No
Main Street at Ames Street	C	C	2.8%	No	C	C	1.1%	No

Criteria C – Traffic on Residential Streets

Roadway	Reviewed Segment	Amount of Residential	AM Peak Hour			PM Peak Hour		
			Existing	Project Trips	Exceeds Criteria?	Existing	Project Trips	Exceeds Criteria?
O'Brien Highway Broadway	Land Blvd to East St/Cambridge St	1/2 or more	2399	33	No	2237	36	No
	Clark St to Windsor St	1/2 or more	841	32	No	980	30	No
Hampshire Street	Medeiros Ave to Webster Ave	1/3 or less	534	13	No	689	20	No
	Webster Ave to Clark St	>1/3 but <1/2	534	13	No	689	20	No
Memorial Drive	Ames Street to Wadsworth	1/2 or more	2744	26	No	3126	11	No
Third Street	Broadway to Binney St	1/3 or less	817	25	No	859	68	No
	Binney St to Rodgers St	>1/3 but <1/2	778	33	No	898	44	No
	Rogers St to Bent St	1/3 or less	778	33	No	898	44	No
	Bent St to Charles St	>1/3 but <1/2	778	33	No	898	44	No
	Charles St to Hurley St	1/2 or more	778	33	No	898	44	Yes
	Hurley St to Spring St	1/2 or more	778	33	No	898	44	Yes
	Spring St to Thorndike St	1/3 or less	778	33	No	898	44	No
	Thorndike St to Otis St	1/2 or more	778	33	No	1239	38	No
	Otis St to Cambridge St	1/3 or less	785	33	No	898	44	No
	Cambridge St to Gore St	1/3 or less	831	26	No	1239	38	No
	Gore St to O'Brien Highway	1/2 or more	826	26	No	1260	38	No

Roadway	Reviewed Segment	Amount of Residential	AM Peak Hour			PM Peak Hour		
			Existing	Project Trips	Exceeds Criteria?	Existing	Project Trips	Exceeds Criteria?
Second Street	Binney St to Bent St	1/3 or less	126	4	No	298	7	No
	Bent St to Hurley	>1/3 but <1/2	288	4	No	350	7	No
	Hurley St to Thorndike	1/3 or less	272	4	No	290	7	No
	Thorndike St to Cambridge	>1/3 but <1/2	272	4	No	290	7	No
	Cambridge St to O'Brien Hwy	1/3 or less	272	4	No	290	7	No
Sixth Street	Binney St to Bent	>1/3 but <1/2	338	13	No	388	6	No
	Bent St to Hurley	>1/3 but <1/2	338	13	No	388	6	No
	Hurley St to Thorndike	1/2 or more	338	13	No	388	6	No
	Thorndike St to Cambridge St	>1/3 but <1/2	338	13	No	388	6	No
	Cambridge St to Gore St	1/2 or more	338	13	No	388	6	No

Criteria D – Lane Queue (for signalized intersections)

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
O'Brien Highway at Third Street	NB Left/Right	1	2	No	5	5	No
	SEB Thru/Right	~26	~27	No	~21	~22	No
	NWB Left/Thru	1	2	No	~14	~14	No
Cambridge Street at Third Street	EB Left/Thru/Right	8	8	No	~14	~14	No
	WB Left/Thru/Right	7	7	No	~16	~16	No
	NB Left/Thru/Right	3	4	No	7	8	No
	SB Left	2	2	No	0	0	No
	SB Thru/Right	15	16	No	4	4	No
Cambridge Street at First Street	EB Thru/Right	~9	~9	No	~10	~10	No
	WB Left	~9	~10	No	3	3	No
	WB Thru	~4	~5	No	3	3	No
	NB Left	1	1	No	4	4	No
	NB Right	3	3	No	~13	~13	No
Cambridge Street at O'Brien Highway	EB Left	3	3	No	1	1	No
	EB Thru	14	14	No	1	1	No
	EB Right	3	3	No	1	1	No

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
	WB Left	5	6	No	2	3	No
	WB Thru/Right	4	4	No	9	9	No
	NB Left/Thru	1	1	No	5	5	No
	NB Right	0	0	No	0	0	No
	SB Left/Thru/Right	2	2	No	2	2	No
Land Boulevard at O'Brien Highway	SEB Left	4	5	No	~16	~17	No
	SEB Thru	~15	~15	No	7	7	No
	SEB Right	0	0	No	0	0	No
	NWB Left	4	4	No	4	4	No
	NWB Thru	~11	~12	No	~11	~11	No
	NWB Right	1	1	No	4	4	No
	NEB Left	5	5	No	~17	~17	No
	NEB Thru	~9	~9	No	~24	~24	No
	NEB Right	0	0	No	4	3	No
	SWB Left/Thru/Right	~26	~27	No	~14	~15	No
Broadway at Portland Street	EB Left/Thru/Right	13	~15	No	~14	~15	No
	WB Left/Thru/Right	8	8	No	11	~16	No
	NB Left	1	1	No	2	2	No
	NB Thru/Right	7	7	No	9	9	No
	SB Left	1	1	No	1	1	No
	SB Thru/Right	2	2	No	2	2	No
Broadway at Hampshire Street	EB Left/Thru	12	13	No	12	12	No
	EB Right	3	3	No	1	1	No
	WB Left	~5	~6	No	1	1	No
	WB Thru	3	3	No	6	6	No
	WB Right	1	1	No	5	5	No
	NB Left	1	1	No	~3	~3	No
	NB Thru/Right	1	1	No	3	3	No
	SB Left	~6	~7	No	5	5	No
	SB Thru/Right	1	1	No	1	1	No
Binney Street at Galileo Galilei Way/Fulkerson Street	EB Thru	4	4	No	7	9	No
	WB Thru/Right	5	4	No	6	6	No
	SB Right	7	7	No	4	4	No
	SB Left	5	5	No	7	7	No
	SB Right	1	1	No	2	2	No
Binney Street at Third Street	EB Left	2	2	No	8	8	No
	EB Thru/Right	4	3	No	7	9	No
	WB Left	4	5	No	2	2	No

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
	WB Thru/Right	6	7	No	3	4	No
	NB Left/Thru	3	3	No	10	10	No
	NB Right	1	1	No	4	4	No
	SB Left/Thru/Right	14	15	No	9	9	No
Binney Street at First Street	EB Left	2	2	No	5	6	No
	EB Thru/Right	1	2	No	2	2	No
	WB Left/Thru/Right	13	14	No	2	2	No
	NB Left/Thru/Right	1	1	No	1	1	No
	SB Left/Thru	5	4	No	9	9	No
	SB Right	4	5	No	3	3	No
Binney Street at Land Boulevard	EB Left/Right	3	3	No	3	3	No
	NB Left	7	7	No	7	7	No
	NB Thru	3	3	No	7	7	No
	SB Thru	15	15	No	15	15	No
	SB Right	9	10	No	4	5	No
Broadway at Galileo Galilei Way	EB Left	4	5	No	3	4	No
	EB Thru	~17	~17	No	8	8	No
	EB Right	2	2	No	1	1	No
	WB Left	3	~4	No	~7	~12	No
	WB Thru/Right	6	6	No	8	8	No
	NB Left	3	2	No	4	4	No
	NB Thru/Right	5	~16	Yes	8	8	No
	SB Left	3	3	No	2	2	No
	SB Thru	11	11	No	9	9	No
	SB Right	~6	~6	No	~6	~6	No
Broadway at Ames Street	EB Thru	~20	~20	No	~17	~17	No
	EB Right	2	3	No	1	1	No
	WB Left	2	2	No	2	3	No
	WB Thru	8	10	No	9	10	No
	NB Left	2	3	No	4	5	No
	NB Right	1	0	No	3	3	No
Broadway at Third Street	EB Left	7	7	No	4	5	No
	EB Thru/Right	5	5	No	9	9	No
	WB Thru	12	~16	No	9	10	No
	WB Right	8	8	No	4	4	No
	SB Left/Thru	4	4	No	~10	~14	No
	SB Right	2	3	No	3	3	No
Main Street at Galileo Galilei	EB Left	4	6	No	5	6	No
	EB Thru/Right	6	6	No	6	6	No

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
Way/Vassar Street	WB Left	2	2	No	1	1	No
	WB Thru/Right	5	5	No	2	2	No
	NB Left/Thru/Right	6	6	No	6	6	No
	SB Left	2	2	No	2	2	No
	SB Thru	10	10	No	9	10	No
	SB Right	7	7	No	4	6	No
Main Street at Ames Street	EB Left/Thru/Right	6	6	No	10	10	No
	WB Left/Thru/Right	1	1	No	1	1	No
	NB Left/Thru/Right	3	3	No	4	4	No
	SB Left/Thru	3	3	No	2	2	No
	SB Right	4	4	No	2	2	No

Criteria E – Pedestrian Delay

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
O'Brien Highway at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	D	D	No	D	D	No
Cambridge Street at Third Street	East	B	B	No	B	B	No
	West	B	B	No	B	B	No
	North	B	B	No	B	B	No
	South	B	B	No	B	B	No
Cambridge Street at First Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	D	D	No	D	D	No
O'Brien Highway at Cambridge Street / East Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	C	C	No	C	C	No
O'Brien Highway at Land Boulevard	East	E	E	Yes	E	E	Yes
	West	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
Broadway at Portland Street	East	B	B	No	B	B	No
	West	B	B	No	B	B	No
	North	B	B	No	B	B	No
	South	B	B	No	B	B	No
	East	D	D	No	D	D	No

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
Broadway at Hampshire Street	West	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Binney Street at Galileo Galilei Way/Fulkerson Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	Northeast	D	D	No	D	D	No
	Northwest	D	D	No	D	D	No
Binney Street at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	D	D	No	D	D	No
Binney Street at First 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
Binney Street at Land Boulevard	East	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
	South	E	E	Yes	E	E	Yes
Broadway at Galileo Galilei Way	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	D	D	No	D	D	No
Broadway at Ames Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	C	C	No	C	C	No
Broadway at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Main Street at Galileo Galilei Way/ Vassar Street	East	C	C	No	C	C	No
	West	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Main Street at Ames Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	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?
Binney Street	Galileo Galilei Way and Third Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Third Street (south side)	Yes	No	Yes	No
Broadway	Galileo Galilei Way and Ames Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Ames Street (south side)	Yes	No	Yes	No
	Ames Street and Third Street (north side)	Yes	No	Yes	No
	Ames Street and Third Street (south side)	Yes	No	Yes	No
Ames Street	Broadway and Main Street (north side)	Yes	No	Yes	No
	Broadway and Main Street (south side)	Yes	No	Yes	No
Galileo Galilei Way	Main Street and Broadway (west side)	Yes	No	Yes	No
	Main Street and Broadway (east side)	Yes	No	Yes	No
	Broadway and Binney Street (west side)	Yes	No	Yes	No
	Broadway and Binney Street (east side)	Yes	No	Yes	No
Main Street	Galileo Galilei Way and Ames Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Ames Street (south side)	Yes	No	Yes	No
	Ames Street and Broadway (north side)	Yes	No	Yes	No
	Ames Street and Broadway (south side)	Yes	No	Yes	No

Transportation Impact Study

This Transportation Impact Study for the proposed KSURP Infill Development Concept Plan 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 16 signalized intersections and 7 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 Components are located within Parcels 2, 3 and 4 of the KSURP area, specifically at: 135 Broadway/Blue Garage; 145 Broadway; 250 Binney Street; 75 Ames Street (Broad Institute); and 255 Main Street. The KSURP area is generally bounded by Binney Street to the north, Third Street to the east, Main Street to the south and Galileo Galilei Way to the west. **Figure C**, previously presented, shows the existing roadway network surrounding the Project Site.

Binney Street is a four-lane divided roadway running east-west from Edwin H Land Boulevard along the Charles River Basin to the east to Galileo Galilei Way where it becomes a two-lane roadway to Cardinal Medeiros Avenue west of the Project area. Third Street runs north-south connecting Monsignor O'Brien Highway to Broadway near Kendall Square MBTA Station. Main Street is a two-lane roadway running east west from the Longfellow Bridge to Massachusetts Avenue. Galileo Galilei Way runs north-south along the west side of the Project Site, providing two-lanes in each direction between Binney Street and Main Street. Broadway runs diagonal through the KSURP area providing a major connection between Cambridge Center/Kendall Square and Harvard Square.

Existing roadway plans, shown in **Figures 1.a.1 and 1.a.2**, document Broadway between Galileo Galilei Way and Ames Street and Binney Street between Galileo Galilei Way and Sixth Street. Broadway and Binney Street are the prominent roadways to the Project site and access to many of the Project Components.

1.b Intersections

The Project study area included the following 23 study intersections which are presented in **Figure E** and illustrated in **Figures 1.b.1 through 1.b.23**.

1. O'Brien Highway @ Third Street
2. Cambridge Street @ Third Street
3. Cambridge Street @ First Street
4. Cambridge Street @ O'Brien Highway
5. O'Brien Highway @ Land Blvd
6. Broadway @ Portland Street
7. Broadway @ Hampshire Street
8. Binney Street @ Galileo Galilei Way/Fulkerson St
9. Binney Street @ Project Exit (North Garage Exit)
10. Binney Street @ Project Entrance (North Garage Entrance)
11. Binney Street @ Third Street
12. Binney Street @ First Street
13. Binney Street @ Land Blvd
14. Broadway @ Galileo Galilei Way
15. Broadway @ Project Entrance (North Garage Entrance)
16. Broadway @ Project Exit (North Garage Exit)
17. Broadway @ Ames Street
18. Broadway @ Third Street
19. Broadway/Main Street @ Memorial Drive
20. Main Street @ Galileo Galilei Way/Vassar St
21. Main Street @ Ames Street
22. Main Street @ Broadway
23. Memorial Drive/Route 3 @ Ames Street

1.c Parking

On-Street Vehicular Parking

Figure 1.c.1 presents existing on-street parking regulations within a quarter-mile (5-minute walk) of the Project Site. The majority of on-street curbside uses surrounding the study area are signed as No Parking with some areas to the south of the study area designated as metered parking.

Off-Street Vehicular Parking

Currently, the KSURP area provides an overall off-street parking supply of approximately 2,708 spaces, all of which is situated in three structured parking facilities. The Blue Garage currently occupies one of the proposed redevelopment sites of the Project at 135 Broadway. This garage is a five-story, 1,170-space parking garage that provides a combination of both monthly and transient parking. The Yellow Garage (previously known as Cambridge Center

West Garage) is located in the parcel bordered by Broadway, Ames Street, Main Street, and Galileo Galilei Way and contains 734 parking spaces. The Green Garage (previously known as Cambridge Center East Garage) is located to the east of the Yellow Garage bordered by Broadway, Ames Street, and Main Street and currently contains 804 spaces. **Figure 1.c.2** shows the location of the three major parking garages within the KSURP area.

Short-Term Bicycle Parking

There are a variety of short-term, outdoor bicycle parking racks within the study area as well as in the surrounding neighborhood. The recent streetscape projects along Broadway and Main Street have significantly contributed to the supply of short-term bike parking spaces in the area. While these projects have increased the number of spaces it has been observed that cyclists will chain their bikes to sign posts, fences, trees, meters and even lamp posts if racks are full or if these locations are more convenient to their destination.

There are also four existing Hubway Stations within the KSURP area located at:

- Binney Street / Sixth Street – 18 bicycle docks
- Ames Street / Main Street – 19 bicycle docks
- Kendall Square/MIT MBTA Red Line Station (255 Main Street) – 20 bicycle docks
- One Broadway / Kendall Square at Main Street / 3rd Street – 15 bicycle docks

There are also two additional planned Hubway Stations to be located within or near the KSURP area with the completion of two recently-approved projects. The projects and approximate locations include:

- 88 Ames Street as part of the 88 Ames Street Residences project (under construction)
- Future MIT campus park as part of the Kendall Square MIT development project

Long-Term Bicycle Parking

Within the KSURP area long-term, covered and secure bicycle parking is provided to area employees and tenants in the three area garages. The Blue Garage provides approximately 100 spaces in one secure bicycle cage on the first floor of the garage. The Yellow Garage provides four secure bicycle cages with a total of approximately 222 spaces. The Green Garage has two secure bicycle cages providing approximately 138 total spaces. Overall there is a total of approximately 460 long-term covered and secure bicycle parking spaces available within the KSURP area. In the future, the construction of the 88 Ames Street Residences will provide 296 new bicycle parking spaces in the Green Garage, increasing the long-term bicycle parking to approximately 756 spaces.

Figure 1.c.3 shows the locations of short-term bicycle racks, Hubway Stations, and long-term bicycle parking locations within the KSURP area.

1.d Transit Services

Figure 1.d.1 illustrates existing Massachusetts Bay Transportation Authority (MBTA) services and the Charles River Transportation Management Association's (CRTMA) EZRide within the study area. **Table 1.d.1** summarizes these public transportation options while detailed route information is provided in the **Appendix**.

TABLE 1.D.1 TRANSIT SERVICES SUMMARY (MAY 2016)

Transit Service	Origin/Destination	Route Connections	Peak Hour Frequency (minutes)	Nearest Stop to Project Site	Service Schedule
MBTA Subway					
Red Line	Alewife/Ashmont or Braintree	South Station Park Street Downtown Crossing	9	Kendall Square/MIT Station	Mon-Sat: 5:15 AM – 12:30 AM Sun: 6:00 AM – 12:30 AM
Green Line	Lechmere/Heath Street ("E" Branch)	North Station Government Center Park Street	6	Lechmere Station	Mon-Sat: 5:00 AM – 12:45 AM Sun: 5:35 AM – 12:45 AM
MBTA Bus Routes					
Crosstown 2 (CT2)	Sullivan Station/Ruggles Station	Kendall/MIT Station Fenway	20	Hampshire Street at Portland Street	Mon-Fri: 5:55 AM – 7:35 PM No Weekend Service
Route 64	Oak Square – University Park or Kendall/MIT	Oak Square in Brighton through Kendall Square and Central Square to University Park in Cambridge	15-25	Broadway at Galileo Galilei Way	Mon-Fri: 5:30 AM – 1:15 AM Sat: 5:20 AM – 1:15 AM Sun: 8:20 AM – 7:00 PM
Route 68	Harvard/Holyoke Gate – Kendall/MIT	Harvard/Holyoke Gate through Broadway to Kendall/MIT Station	40	Broadway at Galileo Galilei Way	Mon-Fri: 6:35 AM – 6:54 PM No Weekend Service
Route 85	Spring Hill – Kendall/MIT Station	Spring Hill in Somerville through Summer Street and Union Square to Kendall/MIT Station	20-35	Broadway at Galileo Galilei Way	Mon-Fri: 5:45 AM – 8:00 AM No Weekend Service
Privately-Operated Services					
CRTMA EZRide Shuttle	North Station – Cambridgeport /Brookline St	North Station in Boston to Cambridgeport via Kendall/MIT Station	10	Kendall Square/MIT Station or Broadway/Galileo Way	Mon-Fri: 6:20 AM – 8:00 PM No Weekend Service
CambridgeSide Galleria Shuttle	CambridgeSide Galleria – Kendall/MIT Station	CambridgeSide Galleria to Kendall/MIT with a stop at Binney and Sixth Street	20	Kendall Square/MIT Station	Mon-Sat: 9:00 AM – 8:00 PM Sun: 12:00 PM – 7:00 PM

1.e Land Use

Figure 1.e.1 illustrates land uses in the area surrounding the site. The immediate neighborhood is largely characterized by commercial land uses with a number of recent residential developments, while the surrounding area incorporates a mix of residential, institutional and open public space. BP owns most of the commercial buildings within the KSURP area as shown previously in **Figure A.2**.

2 Data Collection

2.a ATR Counts

Ongoing rehabilitation of the Longfellow Bridge has included significant construction detours, including provision of one-way traffic flow over the bridge from Cambridge to Boston only. Consequently, Automatic Traffic Recorder (ATR) counts conducted at this time would not reflect typical traffic conditions in the area. ATR counts from the Kendall Square Urban Renewal Area 2013 Traffic Count Program and Trip Generation Analysis from May 2013 are used as an alternative, as they are the most recent set of complete count information that best reflect typical peak period traffic conditions in the area. Counts for the 2014 report are also available, but due to the Longfellow Bridge construction a significant change in volumes was seen between the 2013 and previous years and the 2014 counts. This shift does not reflect the typical travel patterns or volumes seen on the study area roadways and therefore the 2013 ATR counts were used instead of the 2014 ATR counts.

All five locations counted in the study area are within close proximity to the Project area. These locations include:

- Main Street, east of Ames Street,
- Broadway, east of the Mid-Block Connector,
- Binney Street, west of Third Street,
- Third Street, north of Broadway, and
- Vassar Street, southwest of Main Street.

A traffic volume summary for the ATRs are presented in **Tables 2.a.1 and 2.a.2**. The ATRs were collected for a total of eight consecutive days between May 11, 2013 and May 18, 2013, while the summary data represents the weekday average and illustrates the daily variations of traffic demands and the directional flow of traffic over the course of an average weekday. Detailed count data sheets are induced in the **Appendix**.

TABLE 2.A.1 2013 TRAFFIC VOLUME SUMMARY (MAY 2013)

Location	Daily ^a	Morning Peak Hour			Evening Peak Hour		
		Volume ^b	K ^c	Peak Direction	Volume ^b	K ^c	Peak Direction
Main Street, <i>east of Ames Street</i>	6,768	393	5.8%	77.9% EB	513	7.6%	75.0% EB
Broadway, <i>east of the Mid-Block Connector</i>	19,913	1,457	7.3%	52.4% WB	1,430	7.2%	55.7% EB
Binney Street, <i>west of Third Street</i>	13,210	1,000	7.6%	65.3% WB	1,164	8.8%	66.4% EB
Third Street, <i>north of Broadway</i>	10,490	741	7.1%	54.1% NB	896	8.5%	61.5% SB
Vassar Street, <i>southwest of Main Street</i>	12,751	1,023	8.0%	53.6% NB	996	7.8%	53.9% NB

a vehicles per day

b vehicles per peak hour

c percentage of daily traffic that occurs during the peak hour

TABLE 2.A.2 2013 AVERAGE WEEKDAY HOURLY TRAFFIC VOLUMES SUMMARY (MAY 2013)

Start Time	Main Street, east of Ames Street		Broadway, east of the Mid-Block Connector		Binney Street, west of Third Street		Third Street, north of Broadway		Vassar Street, southwest of Main Street	
	EB	WB	EB	WB	EB	WB	NB	SB	NB	SB
12:00 AM	75	19	107	125	60	43	41	36	73	45
1:00 AM	57	9	63	74	37	30	25	26	47	28
2:00 AM	33	5	39	43	23	19	19	18	35	19
3:00 AM	22	5	32	36	23	31	13	14	25	21
4:00 AM	29	9	51	67	30	65	14	22	36	36
5:00 AM	60	15	94	348	64	284	76	77	108	127
6:00 AM	117	48	277	551	161	476	187	173	231	287
7:00 AM	243	79	471	654	279	570	294	283	413	409
8:00 AM	306	87	694	763	347	653	401	340	548	475
9:00 AM	328	89	610	714	270	343	355	317	525	480
10:00 AM	304	78	459	620	270	343	308	265	420	330
11:00 AM	293	81	445	583	334	329	276	250	366	312
12:00 PM	295	86	467	585	370	339	283	261	354	324
1:00 PM	307	88	520	540	402	327	292	269	350	309
2:00 PM	363	91	651	554	551	304	309	305	369	367
3:00 PM	389	85	658	575	731	302	346	410	414	396
4:00 PM	374	112	689	626	757	326	340	520	420	409
5:00 PM	385	128	797	633	773	391	345	551	537	459
6:00 PM	353	131	649	633	528	360	333	459	446	350
7:00 PM	238	96	496	493	335	212	239	284	314	254
8:00 PM	203	58	358	399	227	167	178	200	237	167
9:00 PM	192	49	311	355	171	142	151	159	190	175
10:00 PM	163	39	264	325	129	109	123	127	162	150
11:00 PM	125	33	193	221	103	72	87	90	116	86
Total	5,250	1,518	9,393	10,520	6,976	6,234	5,034	5,456	6,737	6,014
Total Weekday Traffic Volume	6,768		19,913		13,210		10,490		12,751	

2.b Pedestrian and Bicycle Counts

Peak hour pedestrian and bicycle turning movement counts at study area intersection were collected concurrently with vehicle turning movement counts, as discussed in the following section.

In addition, the Kendall Square Urban Renewal Area 2013 Traffic Count Program and Trip Generation Analysis also collected bicycle count data at the ATR locations listed above, during

the morning (7:30 – 9:30 AM) and evening (4:30 – 6:30 PM) weekday peak periods and Saturday mid-day peak period (11:00 AM – 1:00 PM). The 2013 count data is presented to provide consistent data between the vehicle volumes and bicycle volumes. **Table 2.b.1** summarizes the peak hour bicycle counts and the estimated daily bicycle trips through the KSURP area.

TABLE 2.B.1 2013 BICYCLE VOLUME SUMMARY (MAY 2013)

Start Time	Main Street, east of Ames Street		Broadway, east of the Mid-Block Connector		Binney Street, west of Third Street		Third Street, north of Broadway		Vassar Street, southwest of Main Street	
	EB	WB	EB	WB	EB	WB	NB	SB	NB	SB
Weekday AM Peak	124	10	291	23	32	7	30	46	72	74
Weekday PM Peak	37	56	21	199	17	22	29	29	57	100
Saturday Mid-Day Peak	18	15	43	15	14	8	15	26	28	26
Estimated Daily Total	950		2,250		250		550		1,300	

The City has also been collecting daily bicycle count data along Broadway, in front of the Marriott Hotel, since June 21, 2015. Since then a total of 429,431 bicycles have been recorded along Broadway at an average of approximately 1,463 daily bicycle riders (data collected from website on June 21, 2016). During the warmer months, Broadway carries approximately 2,000 daily riders, with typically a slightly higher eastbound number of riders than westbound. As time goes on, this daily information will be able to clearly show bicycle trends within the busy Broadway corridor and provide valuable insight to help guide the future of biking in Kendall Square.

6th Street Connector

The 6th Street Connector is a highly utilized pedestrian and bicycle corridor marking the eastern edge of the KSURP area. This path connects Binney Street at 6th Street to Broadway at Ames Street as shown in **Figure 2.b.1**. Pedestrian and bicycle volumes were collected during the morning (7:30 – 9:30 AM) and evening (4:30 – 6:30 PM) weekday peak hours on Thursday, June 2, 2016 and on Saturday, June 4, 2016 during the mid-day peak hours (11:00 AM – 1:00 PM). **Table 2.b.2** summarizes the collected peak period volumes and **Figures 2.b.2 through 2.b.4** show the directional peak hour volumes for pedestrian and bicycles.

TABLE 2.B.2 SIXTH STREET CONNECTOR PEAK HOUR VOLUMES (JUNE 2016)

Time Interval	Pedestrians					Bicycles				
	Binney Street Entrance		Broadway Entrance		In Path	Binney Street Entrance		Broadway Entrance		In Path
	In	Out	In	Out		In	Out	In	Out	
Weekday AM Peak (7:30 – 9:30 AM)	308	586	600	239	~908	55	5	5	57	~60
Weekday PM Peak (4:30 – 6:30 PM)	473	258	249	387	~722	11	43	37	13	~48
Saturday Mid-Day Peak (11:00 AM – 1:00 PM)	110	67	62	93	~172	21	9	11	19	~32

As shown in the above table and subsequent figures, the Sixth Street Connector is a highly utilized pathway during the morning and evening peak periods. Most pedestrian and bicyclists were observed to travel the entire length of the path, from Binney Street to Broadway, but it was observed that people used the through connection to access the Blue Parking Garage and other locations to the west of the path. Many of the users were students, perhaps traveling to and from the MIT campus. One interesting pattern seen in the table is that the directional volume is opposite of conventional thought, where people were traveling away from the business area of Kendall Square to the mostly residential area of East Cambridge during the morning while the reverse occurred during the evening peak. During the morning and evening peak periods it was observed that vehicles along Binney Street would yield to pedestrians and bicyclists regardless of whether the mid-block crossing signal was activated or not. The opposite was observed during the Saturday mid-day period where pedestrians would dismiss the activation of the mid-block crossing signal and just wait for a gap in traffic to cross; this was effective due to the reduced vehicle traffic on Binney Street during the weekend.

2.c Intersection Turning Movement Counts

As discussed previously, ongoing rehabilitation of the Longfellow Bridge has included significant construction detours, including provision of one-way traffic flow over the bridge from Cambridge to Boston only. As such, current turning movement counts would not reflect typical traffic conditions. Therefore, turning movement counts, including pedestrians and bicycles, conducted as part of other recent area studies, including the MIT Kendall Square TIS (May, 2013) and the Kendall Square Urban Renewal Area 2013 Traffic Count Program were utilized to support development of this TIS. As stipulated in the Scoping Letter, these counts were grown by 0.5 percent per year for three years to emulate 2016 traffic volumes. Review of these counts indicated that the peak hours for vehicular traffic in the study area are:

- Morning Peak Hour – 8:15 AM to 9:15 AM
- Evening Peak Hour – 5:00 PM to 6:00 PM

The detailed turning movement counts are provided in the **Appendix**.

The 2016 theoretical existing condition morning and evening peak hour vehicle, pedestrian, and bicycle turning movement volumes are presented in **Figures 2.c.1 through 2.c.6**, respectively.

Queue observations at the study area intersections could not be collected due to the existing condition count data being used, as discussed above.

2.d Crash Analysis

Study area crash data were obtained from MassDOT records for the most recent three-year period available, January 2011 through December 2013. 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 and the MassDOT crash rate calculation sheets are presented in the **Appendix**.

TABLE 2.D.1 MASSDOT CRASH ANALYSIS (JANUARY 2011 – DECEMBER 2013)

Location	Total Crashes (3-year period)	Crashes Involving Pedestrians	Crashes Involving Bicycles	Calculated Crash Rate	District 6 Average Crash Rate
O'Brien Highway at Third Street	17	1	0	0.44	0.76
Cambridge Street at Third Street	14	1	2	0.65	0.76
Cambridge Street at First Street	13	6	0	0.87	0.76
Cambridge Street at O'Brien Highway	14	2	1	0.42	0.76
O'Brien Highway at Land Boulevard	36	1	2	0.68	0.76
Broadway at Portland Street	14	2	3	0.70	0.76
Broadway at Hampshire Street	8	3	1	0.42	0.76
Binney Street at Fulkerson Street	3	0	0	0.16	0.76
Binney Street at Blue Garage Entrance/Exit	0	0	0	-	0.58
Binney Street at Third Street	13	0	1	0.55	0.76
Binney Street at First Street	11	1	0	0.63	0.76
Binney Street at Land Boulevard	6	1	0	0.19	0.76
Broadway at Galileo Galilei Way	23	2	1	0.80	0.76
Broadway at Blue Garage Entrance/Exit	0	0	0	-	0.58
Broadway at Ames Street	6	0	3	0.36	0.76
Broadway at Third Street	13	4	2	0.56	0.76
Broadway and Main Street at Memorial Drive Off-ramps	15	2	0	0.51	0.58
Main Street at Galileo Galilei Way/Vassar Street	19	2	7	0.87	0.76
Main Street at Ames Street	4	2	1	0.36	0.76
Main Street at Broadway	0	0	0	-	0.58
Memorial Drive/Route 3 at Ames Street	12	0	0	0.30	0.58

Source: MassDOT reported crash data

Based on the crash data from the three most recent years, 2011 – 2013, three study area intersection have no crashes reported, as shown in **Table 2.d.1** above. These intersections include:

- Binney Street at Blue Garage Entrance/Exit (unsignalized),
- Broadway at Blue Garage Entrance/Exit (unsignalized), and
- Main Street at Broadway.

Of the intersections with reported crashes, 3 exceed the MassDOT Average Crash Rate. These intersections include:

- Cambridge Street at First Street

- Broadway at Galileo Galilei Way, and
- Main Street at Galileo Galilei Way and Vassar Street,

Cambridge falls within the District 6 area of Massachusetts where the average crash rate for signalized intersections is 0.76 crashes per million entering vehicles and for unsignalized intersections 0.58 crashes per million entering vehicles. All of the intersections with calculated crash rates over the district average are signalized. There has been one fatal accident at Cambridge Street/First Street. The fatal accident at Cambridge Street/First Street was between a pedestrian and a vehicle traveling westbound and occurred approximately 60 feet east of the intersection. The accident occurred in 2012 after dark under dry weather conditions.

2.e Public Transit

Daily weekday ridership as well as operating hours and peak hour headway data is provided in **Table 2.e.1** for MBTA Subway Red and Green Lines, MBTA Bus Routes CT2, 64, 68, and 85, and the CRTMA EZRide Shuttle.

TABLE 2.E.1 TRANSIT SERVICES (JANUARY 2016)

Transit Service	Origin/Destination	Hours of Operation	Peak Hour Headways	Weekday Daily Ridership
MBTA Subway Red Line	Alewife/Ashmont or Braintree	Mon-Thurs: 5:15 AM – 12:30 AM Fri & Sat: 5:15 AM – 1:50 AM Sun: 6:00 AM – 12:30 AM	9 minutes	217,329 ^a
MBTA Subway Green "E" Line	Lechmere/Heath Street	Mon-Thurs: 5:00 AM – 12:50 AM Fri: 5:00 AM – 2:10 AM Sat: 4:50 AM – 2:10 AM Sun: 5:20 AM – 12:45 AM	6 minutes	87,420 ^a
MBTA Bus Route Crosstown 2 (CT2)	Sullivan to Ruggles Station via Kendall/MIT Station	Mon-Fri: 5:55 AM – 7:37 PM No Weekend Service	20 minutes	2,815
MBTA Bus Route 64	Oak Square – University Park, Cambridge or Kendall/MIT via North Beacon St	Mon-Fri: 6:42 AM – 9:30 AM & 4:05 PM – 6:55 PM Sat: 5:20 AM – 1:20 AM Sun: 9:30 AM – 7:00 PM	15-25 minutes	1,977
MBTA Bus Route 68	Harvard/Holyoke Gate – Kendall/MIT via Broadway	Mon-Fri: 6:35 AM – 6:51 PM No Weekend Service	40 minutes	468
MBTA Bus Route 85	Spring Hill – Kendall/MIT Station via Summer Street & Union Square	Mon-Fri: 5:45 AM – 7:53 AM No Weekend Service	40 minutes	589
CRTMA EZRide Shuttle	North Station – Cambridgeport/Brookline St	Mon-Fri: 6:20 AM – 8:00 PM No Weekend Service	10 minutes	2,000 ^b

Source: MBTA Website January 2016

MBTA Weekday Ridership from 2014 Blue Book; (a) Subway Weekday Daily Ridership = Station Entries for Entire Line; (b) CRTMA EZRide Feasibility Study March 2014

2.f Parking

Off-Site Vehicle Parking

Garage occupancy counts were obtained for the week of May 2, 2016 for the three KSURP area garages. **Table 2.f.1** provides average weekday hourly parking occupancies of each KSURP garage and a summary of the total KSURP garage occupancy for the week of May 2, 2016.

TABLE 2.F.1 EXISTING WEEKDAY GARAGE OCCUPANCY (MAY 2016)

Start Time	Blue Garage		Yellow Garage		Green Garage		Total	
	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied
Total Spaces	1,170		734		634¹		2,538²	
12:00 AM	54	5%	47	6%	54	9%	155	6%
1:00 AM	53	5%	48	7%	53	8%	154	6%
2:00 AM	53	5%	48	7%	52	8%	153	6%
3:00 AM	54	5%	50	7%	51	8%	155	6%
4:00 AM	61	5%	53	7%	52	8%	166	7%
5:00 AM	109	9%	73	10%	84	13%	266	10%
6:00 AM	251	21%	135	18%	116	18%	502	20%
7:00 AM	513	44%	248	34%	196	31%	957	38%
8:00 AM	795	68%	438	60%	304	48%	1537	61%
9:00 AM	976	83%	630	86%	468	74%	2074	82%
10:00 AM	1027	88%	731	100%	563	89%	2321	91%
11:00 AM	1035	88%	747	102%	596	94%	2378	94%
12:00 PM	1030	88%	743	101%	605	95%	2378	94%
1:00 PM	1011	86%	726	99%	585	92%	2322	91%
2:00 PM	946	81%	693	94%	539	85%	2178	86%
3:00 PM	811	69%	612	83%	488	77%	1911	75%
4:00 PM	549	47%	448	61%	394	62%	1391	55%
5:00 PM	311	27%	295	40%	263	41%	869	34%
6:00 PM	185	16%	189	26%	175	28%	549	22%
7:00 PM	112	10%	138	19%	119	19%	369	15%
8:00 PM	83	7%	101	14%	84	13%	268	11%
9:00 PM	65	6%	71	10%	62	10%	198	8%
10:00 PM	57	5%	58	8%	53	8%	168	7%
11:00 PM	54	5%	47	6%	47	7%	148	6%

Source: Garage Occupancy data provided by Boston Properties

1. Due to current garage repairs and the 88 Ames Street Residential project the number of spaces available in the garage was 634. Without construction there is typically 804 spaces available.
2. The total number of spaces available within the KSURP area without ongoing construction at the Green Garage is 2,708.

The Blue Garage has a peak parking demand between 10:00 AM and 1:00 PM with 88 percent occupancy. The Yellow Garage shows demand over the number of supplied spaces with a peak demand of 102 percent between 11:00 AM and 12:00 PM. The Yellow Garage provides valet parking to accommodate the high demand which allows for more efficient parking. The Green Garage experiences a peak occupancy of 95 percent at 12:00 PM. Within the Green Garage valet parking is provided along with approximately 75 spaces reserved for The Marriot Hotel parking. As a whole the area wide parking demand occurs between 11:00 AM and 1:00 PM with an occupancy of 94 percent. The data indicates that there is great demand for parking within the KSURP area and the reduced supply due to the construction at the Green Garage is impacting the operations of the district parking. During overnight hours the garages are underutilized with an overall parking occupancy between only five and eight percent.

Long-Term Bicycle Parking

An occupancy study was conducted for the existing long-term bicycle parking facilities located within the KSURP garages on July 14, 2015. **Table 2.f.2** provides a summary of the observed long-term bicycle parking occupancy.

TABLE 2.F.2 EXISTING WEEKDAY LONG-TERM BICYCLE PARKING (JULY, 2015)

Start Time	Blue Garage		Yellow Garage		Green Garage		Total	
	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied
Total Spaces	100		222		138		460	
7:00 AM	15	15.0%	17	7.7%	21	15.2%	53	11.5%
10:00 AM	67	67.0%	102	45.9%	90	65.2%	259	56.3%
11:30 AM	69	69.0%	105	47.3%	107	77.5%	281	61.1%
12:30 PM	67	67.0%	109	49.1%	80	58.0%	256	55.7%
2:15 PM	67	67.0%	111	50.0%	94	68.1%	272	59.1%
7:00 PM	14	14.0%	39	17.6%	48	34.8%	101	22.0%

NOTE: Yellow Garage Occupancy Counts do not include Basement Bicycle Cage which has approximately 48 bicycle spaces, approximate number of spaces does include the basement bicycle cage

In the future, the construction of the 88 Ames Street Residences will provide 296 new bicycle parking spaces in the Green Garage, increasing the long-term bicycle parking to approximately 756 spaces.

Boston Properties has continued to upgrade bicycle storage facilities within the three KSURP parking garages. Recently the facilities within the Green Garage were updated to provide new hoop-style bike storage racks allowing for two attachment points for bicycle frames.

3 Project Traffic

3.a Mode Share and Average Vehicle Occupancy (AVO)

Mode share characteristics for the Project are derived from both the 2012 City of Cambridge Kendall Square Planning Study (K2C2) Enhanced TDM Mode Shares and the Kendall Square Urban Renewal Area 2014 Traffic Count Program and Trip Generation Analysis Report from May 2014. **Table 3.a.1** presents the mode shares used.

TABLE 3.A.1 PROJECT MODE SHARES

Mode	Residential ¹	Office ²	Retail ²
Vehicle ³	32%	34%	34%
Transit	30%	37%	37%
Walk	25%	6%	6%
Bike	10%	9%	9%
Other	3%	14%	14%

Source: 1 – City of Cambridge K2 Plan Enhanced TDM Mode Shares
 2 – Kendall Square Urban Renewal Area 2014 Report Mode Shares
 3 – Vehicle mode share includes drive alone and carpool trips

National AVO rates from the 2009 National Household Travel Survey were assumed. Local AVO rates were calculated from the 2006-2010 American Community Survey to be 1.11 and 1.19 for residential and office/retail, respectively. More recent data does not provide accurate origin - destination flow data to calculate residential AVO separate from office/retail AVO.

3.b Trip Generation

Trip generation estimates were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Editions) rates for Apartment (LUC 220), Shopping Center (LUC 820), and General Office Building (LUC 710).

ITE unadjusted vehicle trips were converted to person trips by application of the national AVO of 1.13 for residential and work related trips and 1.78 for retail trips. While local AVOs were used to convert person trips back to vehicle trips once mode shares were applied.

The Project trip generation is based upon the net-new Project Program summarized previously in Table A. This includes 645,200 GFA of net-new office within 145 Broadway, 250 Binney, the Broad Institute Office Conversion and 560 residential apartment units within 135 Broadway Res. South building and Res. North building. The Innovation Space being redeveloped at 255 Main Street was not included in the trip generation calculations as this space is currently occupied by tenants and the trips generated by the space is captured in the Theoretical Existing Condition traffic volumes (the existing office space will be replaced with innovation space – which we have assumed has similar trip generating characteristics as office use). The Innovation Space is not new square footage within the KSURP development, however, the office space that will be relocated is included in the net-new trip generation calculations

supporting this TIS. The resulting Project trip generation by mode for the Proposed Project is summarized in **Table 3.b.1**.

TABLE 3.b.1 PROJECT TRIP GENERATION BY MODE

		Vehicles			Transit			Walk			Bike			Other		
		Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak	Daily	AM Peak	PM Peak
Phase 1	In	1,533	268	109	1,919	346	133	529	62	48	494	85	36	634	128	40
	Out	<u>1,533</u>	<u>77</u>	<u>265</u>	<u>1,919</u>	<u>91</u>	<u>336</u>	<u>529</u>	<u>43</u>	<u>69</u>	<u>494</u>	<u>25</u>	<u>83</u>	<u>634</u>	<u>25</u>	<u>121</u>
	Total	3,066	345	374	3,838	437	469	1,058	105	117	988	110	119	1,268	153	161
Phase 2	In	292	9	36	293	9	36	244	8	30	98	3	12	29	1	4
	Out	<u>292</u>	<u>36</u>	<u>19</u>	<u>293</u>	<u>36</u>	<u>19</u>	<u>244</u>	<u>30</u>	<u>16</u>	<u>98</u>	<u>12</u>	<u>6</u>	<u>29</u>	<u>4</u>	<u>2</u>
	Total	584	45	55	586	45	55	488	38	46	196	15	18	58	5	6
Total	In	1,825	277	145	2,212	355	169	773	70	78	592	88	48	663	129	44
	Out	<u>1,825</u>	<u>113</u>	<u>284</u>	<u>2,212</u>	<u>127</u>	<u>355</u>	<u>773</u>	<u>73</u>	<u>85</u>	<u>592</u>	<u>37</u>	<u>89</u>	<u>663</u>	<u>29</u>	<u>123</u>
	Total	3,650	390	429	4,424	482	524	1,546	143	163	1,184	125	137	1,326	158	167

Estimates based on ITE 9th Edition LUC 220–Apartment; LUC 820–Shopping Center; LUC 710–General Office Building
 Daily trip generation in “trips per day”
 Peak hour trip generation in “trips per hour”

As shown in **Table 3.b.1**, the Project is expected to generate a total of 3,650 daily vehicle trips with 390 morning peak hour trips (277 entering, 113 exiting) and 429 evening peak hour trips (145 entering, 284 exiting). The Project will generate approximately 4,424 daily transit trips, 482 trips will occur during the morning peak hour (355 entering, 127 exiting) and 524 during the evening peak hour (169 entering, 355 exiting). Walk, bike and other (telecommute/work-from-home, etc.) will generate an estimated 1,546, 1,184 and 1,326 daily trips respectively.

As discussed earlier, the estimated 3,650 new daily vehicle trips added to the KSURP area through the Project will keep the overall KSURP development traffic (17,364 daily vehicle trips) below the 1977 FEIR estimated 19,300 daily vehicle trips.

3.c Site Access, Service and Deliveries

135 Broadway will continue to provide vehicle access and egress off Broadway and Binney Street using the existing Blue Garage east and west service drives, as shown in **Figure 3.c.1**. As currently planned, implementation of these two building will result in the parking supply in the Blue Garage to decrease from 1,170 spaces to 955 spaces (a reduction of 215 parking spaces). These driveways will also provide access to loading and service in these two buildings as indicated in **Figure 3.c.2**. Pedestrian access to the North Residential Building will be provided via a main entry along Binney Street. Similarly, pedestrian access to the South Residential Tower will be provided along Broadway. Both respective entrances will be located adjacent to and integrated into adjacent mature open spaces located at each end of the Blue Garage, as shown in **Figure 3.c.3**.

The Blue Garage service drives will also serve as public access points to the new parking garages and loading docks that will service 145 Broadway and 250 Binney Street (**See Figure 3.c.1**). 145 Broadway is intended to have a prominent entrance at the corner of Broadway and Galileo Galilei Way with a significant activation opportunity along Broadway via the implementation of ground floor retail uses. 250 Binney Street is anticipated to have ground floor activation that will abut the adjacent 6th Street connector.

3.d Trip Distribution

Project generated traffic was distributed through the study area based on the local trip distribution data. Trip assignments for the vehicles traveling to and from the sites are based on the *K2 Plan Critical Sums Analysis – Trip Distribution Report* from August 2012. The Critical Sums Analysis provides office and retail distribution based on City of Cambridge PTDM data and residential distribution based on the 2000 U.S. Census Journey-to-Work survey. The K2 Plan report provides employee and residential arrival and departure distributions for particular sub-areas within the Kendall Square area. The proposed Project falls into sub-area 3, which have very similar distribution patterns. The distributions are presented in **Table 3.d.1** and **Figure 3.d.1**.

TABLE 3.D.1 VEHICULAR TRIP DISTRIBUTION

Trip Assignment	Residential	Office/Retail
Main Street (West)	21%	18%
Vassar Street	14%	5%
Ames Street (Arrival/Departure)	7%/4%	9%/5%
Wadsworth Street (Departure)	3%	4%
Broadway/Main Street (East)	14%	24%
Land Boulevard	12%	12%
First Street	5%	6%
Third Street	9%	14%
Binney Street (Arrival)	3%	3%
Broadway (Arrival/Departure)	15%/18%	9%/12%

Source: K2C2 Critical Sums Analysis – Trip Distribution Sub-Area 3 Maps

The resulting Project generated trips are shown in **Figures 3.d.2 and 3.d.3**.

4 Background Traffic

In accordance with the TP&T Scoping Letter, background traffic growth reflecting regional growth was assumed to occur at a rate of 0.5 percent per year for five years to the 2021 future year condition. In addition, trips associated with specific planned projects in the area of the Project Site have been incorporated into the 2021 future year condition analysis. These 11 specific projects include:

1. MIT Kendall Square Redevelopment project

2. Courthouse Redevelopment project
3. 300 Massachusetts Avenue project
4. 610-650 Main Street Office/R&D Development project
5. North Point project – 40% of the development will be accounted for as the whole development is not expected to be built and occupied in the next five years
6. First Street PUD
7. 249 Third Street Residential project
8. 88 Ames Street Residential project
9. 181 Massachusetts Avenue project (Novartis R&D Expansion)
10. 399 Binney Street project
11. Alexandria Center at Kendall Square project

In addition to the background traffic volume growth, the 2021 future condition also incorporates specific infrastructure changes as follows:

- **Longfellow Bridge Rehabilitation** – Roadway and bridge reconstruction.
- **NorthPoint / Monsignor O'Brien Highway (Route 28)** – Intersection geometry and timings per the Functional Design Report (FDR) submitted February 2015.
 - O'Brien Highway at Third Street
 - O'Brien Highway at First Street
 - O'Brien Highway at Cambridge Street/East Street
 - O'Brien Highway at Land Boulevard
 - Cambridge Street at First Street
- **Ames Street Two-Way Cycle Track** – Intersection geometry and timing changes.
 - Ames Street at Broadway
 - Ames Street at Main Street

5 Traffic Analysis

Traffic networks were developed, in accordance with the TIS Guidelines, for the following scenarios:

5.a 2016 Theoretical Existing Condition

The 2016 theoretical existing condition analysis is based on May 2013 vehicle, pedestrian, and bicycle counts grown to 2016 volumes at a rate of 0.5 percent per year at the study area intersections (see Section 2 –Data Collection). Projects that have been built and occupied and their respective traffic generation since the May 2013 counts are incorporated as part of the volume increase to 2016 theoretical volumes (0.5 percent for 3 years). In addition, infrastructure improvements that have been implemented since the 2013 counts have been accounted for in the roadway network. These projects include:

- **Binney Street/ACKS Project** – Intersection geometry and timing changes based on the Build Mitigated Condition.

- Binney Street at Galileo Galilei Way/Fulkerson Street
- Binney Street at Third Street
- Binney Street at First Street
- Binney Street at Land Boulevard
- **City of Cambridge Main Street Reconstruction** – Roadway reconstruction, intersection geometry and phasing/timing changes based on the May 2014 Contract Drawings.
 - Main Street to Third Street roadway connector
- **Broadway Reconstruction** – Roadway reconstruction, intersection geometry changes based on May 2011 100% Design Submission Plans.
 - Road diet between Third Street and Ames Street
- **Ames Street Two-Way** – For the May 2013 counts, the Ames Street approach at Memorial Drive was one-way southbound, currently and in future proposed plans Ames Street is two-way through the entire corridor. To account for this traffic pattern changes volumes were shifted based on comparative counts conducted as part of the 88 Ames Street Residential project.

5.b 2016 Build Condition

The 2016 build condition assumes full occupancy of the Project. Project generated trips are added to the 2016 theoretical existing conditions volumes to create the 2016 build networks. 2016 build condition traffic volumes are presented in **Figures 5.b.1 and 5.b.2** for the morning and evening peak hours, respectively.

5.c 2021 Future Condition

The 2021 future condition includes the future background growth and infrastructure changes (see Section 4.b – Background Growth 2021 Future Growth) added to the 2016 build condition traffic volumes, which includes the Project generated trips. 2021 future condition traffic volumes are presented in **Figures 5.c.1 and 5.c.2** for the morning and evening peak hours, respectively.

6 Vehicle Capacity Analysis

Synchro 8 software was used to determine the vehicle level of service (VLOS) for the 23 study intersections. Synchro software has the capability of performing LOS analysis based on the 2000 and 2009 Highway Capacity Manual. Given the analysis limitations of the 2009 Highway Capacity Manual on signalized intersections, the LOS results are based on the 2000 Highway Capacity Manual.

Results for the 2016 Theoretical Existing, 2016 Build, and 2021 Future Conditions are shown in **Tables 6.a.1 and 6.a.2** for the morning and evening peak hours, respectively. **Figures 6.a.1 and 6.a.2** show the overall intersection LOS operations under all three analyzed conditions for

the morning and evening peak hours, while **Figures 6.a.3 and 6.a.4** show the incremental net change in vehicle delay at the study area intersections.

TABLE 6.A.1 SIGNALIZED INTERSECTION LOS – MORNING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
O'Brien Highway at Third Street	Third Street NB Left	-	-	-	-	-	-	-	0.36	35.4	D	-
	Third Street NB Thru/Right	-	-	-	-	-	-	-	0.08	32.4	C	-
	Third Street NB Left/Right	0.17	19.3	B	0.18	22.3	C	+17.0	-	-	-	-
	Third Street SB Left/Thru/Right	-	-	-	-	-	-	-	0.00	51.1	D	-
	O'Brien Highway SEB Left/Thru	-	-	-	-	-	-	-	1.08	70.2	E	-
	O'Brien Highway SEB Right	-	-	-	-	-	-	-	0.72	11.8	B	-
	O'Brien Highway SEB Thru/Right	1.51	262.9	F	1.58	293.3	F	+30.4	-	-	-	-
	O'Brien Highway NWB Left/Thru	0.35	7.9	A	0.38	9.3	A	+1.4	-	-	-	-
	O'Brien Highway NWB Thru/Right	-	-	-	-	-	-	-	0.33	31.1	C	-
	OVERALL	0.72	208.6	F	0.75	232.7	F	+24.1	1.03	49.3	D	-183.4
O'Brien Highway at First Street	First Street NB Left	-	-	-	-	-	-	-	0.30	25.4	C	-
	First Street NB Thru	-	-	-	-	-	-	-	0.19	22.9	C	-
	First Street SB Thru/Right	-	-	-	-	-	-	-	0.41	45.2	D	-
	O'Brien Highway SEB Thru/Right	-	-	-	-	-	-	-	0.95	21.2	C	-
	O'Brien Highway NWB Left	-	-	-	-	-	-	-	1.06	77.4	E	-
	O'Brien Highway NWB Thru/Right	-	-	-	-	-	-	-	0.23	5.2	A	-
	Overall	-	-	-	-	-	-	-	0.84	33.6	C	-
	Cambridge Street	0.80	39.9	D	0.80	39.9	D	0.0	1.58	303.3	F	+263.4

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Cambridge Street at Third Street	EB Left/Thru/Right											
	Cambridge Street WB Left/Thru/Right	0.78	49.8	D	0.81	51.2	D	+1.4	2.09	534.5	F	+483.3
	Third Street NB Left/Thru/Right	0.41	19.2	B	0.46	20.1	C	+0.9	1.04	77.5	E	+57.4
	Third Street SB Left	0.13	33.4	C	0.13	34.2	C	+0.8	0.15	15.7	B	-18.5
	Third Street SB Thru/Right	0.86	47.2	D	0.89	49.3	D	+2.1	1.05	74.1	E	+24.8
	OVERALL	0.84	41.7	D	0.85	42.8	D	+1.1	1.51	242.3	F	+199.5
Cambridge Street at First Street	Cambridge Street EB Thru/Right	1.06	95.8	F	1.08	101.2	F	+5.4	0.51	37.3	D	-63.9
	Cambridge Street WB Left	1.29	182.6	F	1.36	212.7	F	+30.1	-	-	-	-
	Cambridge Street WB Thru	1.07	102.5	F	1.09	107.6	F	+5.1	-	-	-	-
	First Street NB Left	0.23	37.2	D	0.23	37.2	D	0.0	-	-	-	-
	First Street NB Thru	-	-	-	-	-	-	-	0.16	24.2	C	-
	First Street NB Right	0.40	27.2	C	0.43	27.8	C	0.6	0.51	31.2	C	+3.4
	First Street SB Thru/Right	-	-	-	-	-	-	-	0.57	8.0	A	-
	OVERALL	0.70	113.4	F	0.73	125.7	F	+12.3	0.55	17.3	B	
Cambridge Street at O'Brien Highway	O'Brien Highway EB Left	0.38	23.0	C	0.38	23.4	C	+0.4	-	-	-	-
	O'Brien Highway EB Thru	0.99	36.5	D	0.99	36.9	D	+0.4	0.68	2.9	A	-34.0
	O'Brien Highway EB Right	0.24	20.4	C	0.24	20.8	C	+0.4	-	-	-	-
	O'Brien Highway WB Left	0.58	30.8	C	0.59	31.1	C	+0.3	-	-	-	-

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	O'Brien Highway WB Thru/Right	0.35	23.6	C	0.35	23.6	C	0.0	0.66	18.6	B	-5.0
	Cambridge Street NB Left/Thru	0.17	11.1	B	0.17	11.9	B	+0.8	0.12	29.5	C	+17.6
	Cambridge Street NB Right	0.23	1.7	A	0.24	1.7	A	0.0	0.68	39.5	D	+37.8
	East Street SB Right	-	-	-	-	-	-	-	0.07	0.1	A	-
	East Street SB Left/Thru/Right	0.21	25.5	C	0.21	25.5	C	0.0	-	-	-	-
	OVERALL	0.69	28.7	C	0.69	28.8	C	+0.1	0.72	13.1	B	-15.7
Land Boulevard at O'Brien Highway	O'Brien Highway SEB Left	0.45	49.3	D	0.47	49.8	D	+0.5	0.89	86.2	F	+36.4
	O'Brien Highway SEB Thru	1.18	144.6	F	1.19	148.3	F	+3.7	1.03	79.8	E	-68.5
	O'Brien Highway SEB Right	0.38	0.8	A	0.38	0.8	A	0.0	0.40	0.8	A	0.0
	O'Brien Highway NWB Left	0.44	48.6	D	0.48	46.8	D	-1.8	1.68	377.4	F	+330.6
	O'Brien Highway NWB Thru	1.07	109.8	F	1.09	117.3	F	7.5	0.92	61.7	E	-55.6
	O'Brien Highway NWB Right	0.24	16.0	B	0.24	16.1	B	+0.1	0.37	13.5	B	-2.6
	Land Boulevard NE Left	0.96	116.6	F	0.96	113.7	F	-2.9	0.87	85.6	F	-28.1
	Land Boulevard NEB Thru	1.24	188.4	F	1.25	193.3	F	+4.9	1.09	126.0	F	-67.3
	Land Boulevard NEB Right	0.16	52.9	D	0.16	51.2	D	-1.7	0.35	55.8	E	+4.6
	Charlestown Ave SWB Left	-	-	-	-	-	-	-	0.69	39.1	D	-
	Charlestown Ave SWB Left/Thru/Right	1.20	139.8	F	1.23	152.7	F	+12.9	1.41	232.6	F	+79.9

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	OVERALL	1.18	106.0	F	1.20	111.1	F	+5.1	1.30	119.3	F	+8.2
Broadway at Portland Street	Broadway EB Left/Thru/Right	0.98	54.6	D	1.01	63.9	E	+9.3	1.17	118.7	F	+54.8
	Broadway WB Left/Thru/Right	0.63	38.4	D	0.65	39.2	D	+0.8	0.77	28.4	C	-10.8
	Portland Street NB Left	0.17	21.2	C	0.17	21.2	C	0.0	0.18	21.4	C	+0.2
	Portland Street NB Thru/Right	0.68	31.4	C	0.68	31.4	C	0.0	0.69	32.0	C	+0.6
	Portland Street SB Left	0.37	12.4	B	0.37	12.4	B	0.0	0.39	12.7	B	+0.3
	Portland Street SB Thru/Right	0.51	12.1	B	0.51	12.1	B	0.0	0.52	12.3	B	+0.2
	OVERALL	0.85	36.7	D	0.87	40.5	D	+3.8	0.97	60.7	E	+20.2
Broadway at Hampshire Street	Broadway EB Left/Thru	0.93	44.9	D	0.98	52.3	D	+7.4	1.15	104.2	F	+51.9
	Broadway EB Right	0.43	24.4	C	0.43	24.4	C	0.0	0.44	24.0	C	-0.4
	Broadway WB Left	1.31	178.5	F	1.49	255.6	F	+77.1	2.68	778.9	F	+523.3
	Broadway WB Thru	0.57	9.4	A	0.59	9.6	A	+0.2	0.69	10.0	B	+0.4
	Broadway WB Right	0.34	3.2	A	0.35	3.3	A	+0.1	0.42	3.5	A	+0.2
	Technology Square NB Left	0.06	31.0	C	0.06	31.0	C	0.0	0.06	31.0	C	0.0
	Technology Square NB Thru/Right	0.12	30.5	C	0.12	30.5	C	0.0	0.12	30.5	C	0.0
	Hampshire Street SB Left	1.01	63.1	E	1.03	68.8	E	+5.7	1.31	182.5	F	+113.7
	Hampshire Street SB Thru/Right	0.21	22.1	C	0.21	22.1	C	0.0	0.21	23.5	C	+1.4
	OVERALL	0.92	45.9	D	1.00	55.6	E	+9.7	1.64	132.4	F	+76.8

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Binney Street at Galileo Galilei Way/Fulkerson Street	Galileo Galilei Way EB Thru	0.27	9.6	A	0.32	8.2	A	-1.4	0.44	14.8	B	+6.6
	Binney Street WB Thru/Right	0.68	23.9	C	0.68	21.4	C	-2.5	0.94	23.5	C	+2.1
	Fulkerson Street SB Right	0.98	81.1	F	0.98	81.1	F	0.0	1.19	149.3	F	+68.2
	Binney Street SB Left	0.62	40.0	D	0.64	40.8	D	0.8	0.70	44.2	D	+3.4
	Binney Street SB Right	0.10	28.5	C	0.10	28.5	C	0.0	0.12	28.9	C	+0.4
	OVERALL	0.75	34.2	C	0.76	31.6	C	-2.5	0.95	45.8	D	+14.2
Binney Street at Third Street	Binney Street EB Left	0.74	40.8	D	0.69	42.2	D	+1.4	0.79	50.4	D	+8.2
	Binney Street EB Thru/Right	0.43	37.3	D	0.53	23.3	C	-14.0	0.84	48.0	D	+24.7
	Binney Street WB Left	0.86	64.2	E	0.87	67.1	E	2.9	1.16	147.3	F	+80.2
	Binney Street WB Thru/Right	0.63	30.5	C	0.78	38.0	D	7.5	1.02	71.9	E	+33.9
	Third Street NB Left/Thru	0.54	12.1	B	0.53	11.8	B	-0.3	0.83	41.3	D	+29.5
	Third Street NB Right	0.16	7.5	A	0.16	7.3	A	-0.2	0.25	17.7	B	+10.4
	Third Street SB Left/Thru/Right	0.95	29.8	C	0.98	33.2	C	3.4	1.27	141.2	F	+108.0
	OVERALL	0.86	32.2	C	0.91	33.6	C	+1.4	1.19	88.1	F	+54.5
Binney Street at First Street	Binney Street EB Left	0.45	9.7	A	0.50	12.1	B	+2.4	1.38	218.9	F	+206.8
	Binney Street EB Thru/Right	0.13	4.1	A	0.14	4.7	A	+0.6	0.17	5.7	A	+1.0
	Binney Street WB Left/Thru/Right	0.52	18.5	B	0.55	19.9	B	+1.4	0.87	37.8	D	+17.9
	First Street	0.07	42.8	D	0.06	41.3	D	-1.5	0.26	41.2	D	-0.1

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	NB Left/Thru/Right											
	First Street SB Left/Thru	0.62	51.6	D	0.57	48.1	D	-3.5	1.10	131.3	F	+83.2
	First Street SB Right	0.80	73.2	E	0.85	78.2	E	+5.0	1.27	204.8	F	+126.6
	OVERALL	0.60	23.2	C	0.64	24.7	C	+1.5	1.42	81.0	F	+56.3
Binney Street at Land Boulevard	Binney Street EB Left/Right	0.30	40.8	D	0.32	40.6	D	-0.2	0.41	45.2	D	+4.6
	Land Boulevard NB Left	0.59	40.2	D	0.59	40.2	D	0.0	0.99	73.6	E	+33.4
	Land Boulevard NB Thru	0.22	6.2	A	0.22	6.2	A	0.0	0.24	6.3	A	+0.1
	Land Boulevard SB Thru	0.81	39.2	D	0.81	39.2	D	0.0	0.92	51.2	D	+12
	Land Boulevard SB Right	0.65	36.4	D	0.71	39.3	D	+2.9	0.87	50.5	D	+11.2
	OVERALL	0.62	30.4	C	0.62	30.9	C	+0.5	0.82	45.6	D	+14.7
Broadway at Galileo Galilei Way	Broadway EB Left	0.69	53.6	D	0.83	59.2	E	+5.6	1.14	136.4	F	+77.2
	Broadway EB Thru	1.29	179.9	F	1.29	178.8	F	-1.1	1.47	267.9	F	+89.1
	Broadway EB Right	0.48	37.5	D	0.48	37.3	D	-0.2	0.64	51.0	D	+13.7
	Broadway WB Left	0.79	68.9	E	1.23	192.6	F	+123.7	1.25	204.0	F	+11.4
	Broadway WB Thru/Right	0.78	60.6	E	0.82	59.6	E	-1.0	0.94	45.1	D	-14.5
	Galileo Galilei Way NB Left	0.86	86.4	F	0.84	72.3	E	-14.1	0.89	68.9	E	-3.4
	Galileo Galilei Way NB Thru/Right	0.55	29.4	C	0.71	29.3	C	-0.1	0.80	32.0	C	+2.7
	Galileo Galilei Way SB Left	0.73	55.1	E	0.73	55.1	E	0.0	0.76	53.5	D	-1.6

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	Galileo Galilei Way SB Thru	0.87	34.6	C	0.87	34.6	C	0.0	1.17	103.4	F	+68.8
	Galileo Galilei Way SB Right	1.16	135.8	F	1.16	135.8	F	0.0	1.39	217.4	F	+81.6
	OVERALL	1.17	82.1	F	1.17	85.2	F	+3.1	1.42	122.6	F	+37.4
Broadway at Ames Street	Broadway EB Thru	1.24	129.5	F	1.24	129.7	F	+0.2	1.39	219.0	F	+89.3
	Broadway EB Right	0.26	56.9	E	0.26	59.9	E	+3.0	0.42	16.2	B	-43.7
	Broadway WB Left	0.33	10.1	B	0.35	9.3	A	-0.8	0.72	44.8	D	+35.5
	Broadway WB Thru	0.76	39.9	D	0.88	43.6	D	+3.7	1.01	43.8	D	+0.2
	Ames Street NB Left	0.26	36.7	D	0.35	40.0	D	+3.3	0.45	45.0	D	+5.0
	Ames Street NB Right	0.15	24.0	C	0.15	24.4	C	+0.4	0.36	32.1	C	+7.7
	OVERALL	0.71	77.8	E	0.73	76.7	E	-1.1	0.93	104.7	F	+28.0
Broadway at Third Street	Broadway EB Left	0.81	36.2	D	0.81	36.2	D	0.0	1.12	98.1	F	+61.9
	Broadway EB Thru/Right	0.49	33.0	C	0.49	33.2	C	+0.2	0.52	12.2	B	-21.0
	Broadway WB Thru	0.95	55.8	E	1.07	87.6	F	+31.8	1.39	216.0	F	+128.4
	Broadway WB Right	0.94	65.8	E	0.94	65.8	E	0.0	1.16	129.4	F	+63.6
	Third Street SB Left/Thru	0.49	27.3	C	0.55	28.3	C	+1.0	0.90	57.7	E	+29.4
	Third Street SB Right	0.40	25.5	C	0.41	26.6	C	+1.1	0.53	38.5	D	+11.9
	OVERALL	0.91	44.9	D	0.96	55.0	E	+10.1	1.25	114.6	F	+59.6
	Main Street EB Left	0.66	29.8	C	0.83	42.9	D	+13.1	1.10	104.5	F	+61.6

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Main Street at Galileo Galilei Way/Vassar Street	Main Street EB Thru/Right	0.55	22.7	C	0.55	22.7	C	0.0	0.78	31.5	C	+8.8
	Main Street WB Left	0.21	32.8	C	0.21	32.9	C	+0.1	0.36	13.5	B	-19.4
	Main Street WB Thru/Right	0.42	37.3	D	0.42	37.4	D	+0.1	0.53	14.6	B	-22.8
	Vassar Street NB Left/Thru/Right	0.70	28.5	C	0.73	29.9	C	+1.4	0.93	48.0	D	+18.1
	Galileo Galilei Way SB Left	0.27	34.1	C	0.28	33.0	C	-1.1	0.51	35.5	D	+2.5
	Galileo Galilei Way SB Thru	0.65	40.3	D	0.69	39.9	D	-0.4	0.76	39.9	D	0.0
	Galileo Galilei Way SB Right	0.63	41.4	D	0.69	41.7	D	+0.3	0.99	55.9	E	+14.2
	OVERALL	0.68	32.6	C	0.78	34.8	C	+2.2	1.05	47.6	D	+12.8
Main Street at Ames Street	Main Street EB Left/Thru/Right	0.59	14.7	B	0.59	14.4	B	-0.3	1.67	292.3	F	+277.9
	Main Street WB Left/Thru/Right	0.25	5.3	A	0.25	5.7	A	+0.4	2.65	457.8	F	+452.1
	Ames Street NB Left/Thru/Right	0.32	27.4	C	0.39	28.2	C	+0.8	0.51	29.9	C	+1.7
	Ames Street SB Left/Thru	0.38	29.8	C	0.38	29.9	C	+0.1	0.82	33.7	C	+3.8
	Ames Street SB Right	0.69	44.9	D	0.69	44.9	D	0.0	0.77	30.6	C	-14.3
	OVERALL	0.62	21.9	C	0.62	22.2	C	+0.2	1.28	203.2	F	+181.0

V/C Ratio – Volume to Capacity Ratio

Delay – Average delay expressed in seconds per vehicle

VLOS – Vehicular level of service

TABLE 6.A.2 SIGNALIZED INTERSECTION LOS – EVENING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
O'Brien Highway at Third Street	Third Street NB Left	-	-	-	-	-	-	-	1.26	171.1	F	-
	Third Street NB Thru/Right	-	-	-	-	-	-	-	0.97	72.1	E	-
	Third Street NB Left/Right	0.53	12.5	B	0.55	12.5	B	0.0	-	-	-	-
	Third Street SB Left/Thru/Right	-	-	-	-	-	-	-	0.01	46.2	D	-
	O'Brien Highway SEB Left/Thru	-	-	-	-	-	-	-	0.79	22.0	C	-
	O'Brien Highway SEB Right	-	-	-	-	-	-	-	0.47	7.8	A	-
	O'Brien Highway SEB Thru/Right	2.51	723.6	F	2.93	911.8	F	+188.2	-	-	-	-
	O'Brien Highway NWB Left/Thru	1.52	269.8	F	1.52	269.8	F	0.0	-	-	-	-
	O'Brien Highway NWB Thru/Right	-	-	-	-	-	-	-	0.92	23.0	C	-
	OVERALL	0.93	402.8	F	1.02	481.8	F	+79.0	1.01	45.4	D	-436.4
O'Brien Highway at First Street	First Street NB Left	-	-	-	-	-	-	-	0.28	10.5	B	-
	First Street NB Thru	-	-	-	-	-	-	-	0.15	8.3	A	-
	First Street SB Thru/Right	-	-	-	-	-	-	-	0.31	36.1	D	-
	O'Brien Highway SEB Thru/Right	-	-	-	-	-	-	-	0.72	51.8	D	-
	O'Brien Highway NWB Left	-	-	-	-	-	-	-	0.69	51.6	D	-
	O'Brien Highway NWB Thru/Right	-	-	-	-	-	-	-	0.78	32.3	C	-
	Overall	-	-	-	-	-	-	-	0.58	39.8	D	-
	Cambridge Street	1.30	186.5	F	1.30	186.5	F	0.0	1.80	402.4	F	+215.9

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Cambridge Street at Third Street	EB Left/Thru/Right											
	Cambridge Street WB Left/Thru/Right	1.35	218.3	F	1.37	223.3	F	+5.0	1.68	349.9	F	+126.6
	Third Street NB Left/Thru/Right	0.86	17.6	B	0.91	21.0	C	+3.4	1.59	280.2	F	+259.2
	Third Street SB Left	0.17	0.1	A	0.18	0.1	A	0.0	0.23	16.8	B	+16.7
	Third Street SB Thru/Right	0.56	6.0	A	0.60	6.4	A	+0.4	0.60	21.5	C	+15.1
	OVERALL	1.06	102.7	F	1.10	103.4	F	+0.7	1.68	272.2	F	+168.8
Cambridge Street at First Street	Cambridge Street EB Thru/Right	1.10	108.9	F	1.13	119.6	F	+10.7	0.52	34.3	C	-85.3
	Cambridge Street WB Left	0.73	40.4	D	0.76	42.8	D	+2.4	-	-	-	-
	Cambridge Street WB Thru	0.73	40.2	D	0.74	40.8	D	+0.6	-	-	-	-
	First Street NB Left	0.76	59.2	E	0.76	59.2	E	0.0	-	-	-	-
	First Street NB Thru	-	-	-	-	-	-	-	0.29	24.8	C	-
	First Street NB Right	1.19	137.2	F	1.23	155.2	F	+18.0	1.50	267.6	F	+112.4
	First Street SB Thru/Right	-	-	-	-	-	-	-	0.29	11.0	B	-
	OVERALL	0.84	94.3	F	0.86	104.0	F	+9.7	0.87	115.6	F	+11.6
Cambridge Street at O'Brien Highway	O'Brien Highway EB Left	1.02	45.3	D	1.02	45.2	D	-0.1	-	-	-	-
	O'Brien Highway EB Thru	0.55	2.8	A	0.55	2.8	A	0.0	0.53	18.4	B	+15.6
	O'Brien Highway EB Right	0.19	0.8	A	0.19	0.8	A	0.0	-	-	-	-
	O'Brien Highway WB Left	0.24	25.8	C	0.26	26.0	C	+0.2	-	-	-	-

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	O'Brien Highway WB Thru/Right	0.76	31.7	C	0.76	31.7	C	0.0	0.79	27.2	C	-4.5
	Cambridge Street NB Left/Thru	0.94	39.8	D	0.94	40.0	D	+0.2	0.35	3.2	A	-36.8
	Cambridge Street NB Right	0.40	1.2	A	0.42	1.2	A	0.0	0.96	7.3	A	+6.1
	East Street SB Right	-	-	-	-	-	-	-	0.15	0.2	A	-
	East Street SB Left/Thru/Right	0.28	26.6	C	0.28	26.6	C	0.0	-	-	-	-
	OVERALL	0.91	17.7	B	0.91	17.6	B	-0.1	0.96	16.7	B	-0.9
Land Boulevard at O'Brien Highway	O'Brien Highway SEB Left	1.29	201.6	F	1.33	219.0	F	+17.4	1.97	497.2	F	+278.2
	O'Brien Highway SEB Thru	0.67	48.3	D	0.68	48.7	D	+0.4	0.74	48.9	D	+0.2
	O'Brien Highway SEB Right	0.20	0.3	A	0.20	0.3	A	0.0	0.22	0.3	A	0.0
	O'Brien Highway NWB Left	0.41	44.7	D	0.42	45.0	D	+0.3	0.89	72.0	E	+27.0
	O'Brien Highway NWB Thru	1.06	103.6	F	1.07	107.0	F	+3.4	0.95	67.6	E	-39.4
	O'Brien Highway NWB Right	0.67	36.5	D	0.67	36.5	D	0.0	0.64	26.6	C	-9.9
	Land Boulevard NEB Left	1.22	162.7	F	1.22	163.2	F	+0.5	1.42	255.8	F	+92.6
	Land Boulevard NEB Thru	1.43	242.5	F	1.45	254.0	F	+11.5	1.99	498.7	F	+244.7
	Land Boulevard NEB Right	0.38	39.7	D	0.39	39.8	D	+0.1	0.53	28.5	C	-11.3
	Charlestown Ave SWB Left	-	-	-	-	-	-	-	0.56	43.2	D	-
	Charlestown Ave SWB Left/Thru/Right	1.16	137.0	F	1.19	148.9	F	+11.9	1.02	86.1	F	-62.8

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	OVERALL	1.26	125.2	F	1.28	131.5	F	+6.3	1.46	206.3	F	+74.8
Broadway at Portland Street	Broadway EB Left/Thru/Right	1.06	83.2	F	1.10	96.2	F	+13.0	1.30	178.7	F	+82.5
	Broadway WB Left/Thru/Right	0.97	59.1	E	1.01	68.1	E	+9.0	1.29	167.4	F	+99.3
	Portland Street NB Left	0.25	19.3	B	0.25	19.3	B	0.0	0.26	19.5	B	+0.2
	Portland Street NB Thru/Right	0.68	27.2	C	0.68	27.2	C	0.0	0.70	27.8	C	+0.6
	Portland Street SB Left	0.07	6.9	A	0.07	6.9	A	0.0	0.07	7.0	A	+0.1
	Portland Street SB Thru/Right	0.46	8.8	A	0.46	8.8	A	0.0	0.48	9.0	A	+0.2
	OVERALL	0.87	48.4	D	0.89	55.0	D	+6.6	1.00	111.3	F	+56.3
Broadway at Hampshire Street	Broadway EB Left/Thru	0.89	36.9	D	0.91	34.2	C	-2.7	1.35	190.6	F	+156.4
	Broadway EB Right	0.03	19.7	B	0.03	19.7	B	0.0	0.03	19.7	B	0.0
	Broadway WB Left	0.21	24.3	C	0.22	25.0	C	+0.7	0.27	23.6	C	-1.4
	Broadway WB Thru	0.74	27.8	C	0.78	29.2	C	+1.4	1.04	27.2	C	-2.0
	Broadway WB Right	0.50	22.7	C	0.52	24.0	C	+1.3	0.72	27.2	C	+3.2
	Technology Square NB Left	1.18	200.6	F	1.18	200.6	F	0.0	1.21	210.8	F	+10.2
	Technology Square NB Thru/Right	0.38	34.5	C	0.38	34.5	C	0.0	0.39	34.8	C	+0.3
	Hampshire Street SB Left	0.89	41.0	D	0.91	43.0	D	+2.0	1.05	72.9	E	+29.9
	Hampshire Street SB Thru/Right	0.11	21.8	C	0.11	21.8	C	0.0	0.11	21.8	C	0.0
	OVERALL	0.96	39.2	D	0.98	39.1	D	-0.1	1.23	86.7	F	+47.6

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Binney Street at Galileo Galilei Way/Fulkerson Street	Galileo Galilei Way EB Thru	0.35	15.0	B	0.39	15.6	B	+0.6	0.53	18.1	B	+2.5
	Binney Street WB Thru/Right	0.50	37.0	D	0.50	37.2	D	+0.2	0.96	51.4	D	+14.2
	Fulkerson Street SB Right	0.65	42.2	D	0.65	42.2	D	0.0	0.70	44.9	D	+2.7
	Binney Street SB Left	0.88	58.9	E	0.90	61.4	E	+2.5	1.02	87.0	F	25.6
	Binney Street SB Right	0.27	30.4	C	0.27	30.4	C	0.0	0.44	34.1	C	+3.7
	OVERALL	0.65	32.9	C	0.66	33.0	C	+0.1	0.90	41.7	D	+8.7
Binney Street at Third Street	Binney Street EB Left	0.84	47.0	D	0.88	52.6	D	+5.6	1.08	95.1	F	+42.5
	Binney Street EB Thru/Right	0.56	33.7	C	0.69	35.8	D	+2.1	1.01	69.3	E	+33.5
	Binney Street WB Left	0.59	45.0	D	0.59	45.2	D	+0.2	0.84	63.1	E	+17.9
	Binney Street WB Thru/Right	0.40	30.3	C	0.47	32.5	C	+2.3	1.16	127.2	F	+94.7
	Third Street NB Left/Thru	0.95	60.8	E	0.96	61.1	E	+0.3	1.09	100.3	F	+29.5
	Third Street NB Right	0.49	26.2	C	0.50	25.9	C	-0.3	0.60	27.4	C	+1.5
	Third Street SB Left/Thru/Right	0.87	66.6	E	0.90	69.1	E	+2.5	1.10	90.8	F	+21.7
	OVERALL	0.82	45.1	D	0.88	46.7	D	+1.6	1.11	88.8	F	+42.1
Binney Street at First Street	Binney Street EB Left	0.69	19.1	B	0.74	22.5	C	+3.4	1.09	95.5	F	+73.0
	Binney Street EB Thru/Right	0.15	6.2	A	0.17	6.3	A	+0.1	0.25	8.8	A	+2.5
	Binney Street WB Left/Thru/Right	0.35	5.5	A	0.36	6.1	A	+0.6	0.46	7.1	A	+1.0
	First Street	0.08	37.6	D	0.08	37.6	D	0.0	0.54	39.7	D	+2.1

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	NB Left/Thru/Right											
	First Street SB Left/Thru	0.83	60.0	E	0.83	60.0	E	0.0	0.89	62.1	E	+2.1
	First Street SB Right	0.37	41.1	D	0.41	41.6	D	+0.5	0.96	86.6	F	+45.0
	OVERALL	0.76	21.0	C	0.80	21.5	C	+0.5	1.10	42.5	D	+21.0
Binney Street at Land Boulevard	Binney Street EB Left/Right	0.29	28.1	C	0.33	28.5	C	+0.4	0.49	28.7	C	+0.2
	Land Boulevard NB Left	0.66	46.8	D	0.66	46.8	D	0.0	0.82	54.5	D	+7.7
	Land Boulevard NB Thru	0.41	11.8	B	0.41	11.8	B	0.0	0.45	12.3	B	+0.5
	Land Boulevard SB Thru	0.80	43.7	D	0.80	43.8	D	+0.1	0.88	40.3	D	-3.5
	Land Boulevard SB Right	0.31	31.4	C	0.35	32.4	C	+1.0	0.40	31.4	C	-1.0
	OVERALL	0.56	29.2	C	0.60	29.3	C	+0.1	0.74	29.9	C	+0.6
Broadway at Galileo Galilei Way	Broadway EB Left	0.82	53.1	D	0.91	65.0	E	+11.9	1.12	101.5	F	+36.5
	Broadway EB Thru	1.07	69.6	E	1.07	68.8	E	-0.8	1.14	92.9	F	+24.1
	Broadway EB Right	0.27	20.3	C	0.27	20.5	C	+0.2	0.31	20.9	C	+0.5
	Broadway WB Left	1.65	356.9	F	2.66	802.6	F	+445.7	2.73	842.5	F	+39.9
	Broadway WB Thru/Right	0.91	61.6	E	0.97	70.7	E	+9.1	1.36	193.0	F	+122.3
	Galileo Galilei Way NB Left	0.81	70.8	E	0.83	70.7	E	-0.1	0.84	59.5	E	-11.2
	Galileo Galilei Way NB Thru/Right	0.73	28.3	C	0.78	30.1	C	+1.8	1.01	49.2	D	+19.1
	Galileo Galilei Way SB Left	0.82	69.8	E	0.82	69.9	E	+0.1	0.82	55.3	E	-14.6

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
	Galileo Galilei Way SB Thru	0.74	39.5	D	0.74	39.5	D	0.0	1.09	92.4	F	+52.9
	Galileo Galilei Way SB Right	1.36	246.1	F	1.36	246.1	F	0.0	2.21	601.9	F	+355.8
	OVERALL	1.07	83.4	F	1.15	139.9	F	+56.5	1.40	200.8	F	+60.9
Broadway at Ames Street	Broadway EB Thru	1.15	105.8	F	1.15	105.9	F	+0.1	1.27	176.0	F	+70.1
	Broadway EB Right	0.15	17.6	B	0.15	17.4	B	-0.2	0.20	25.0	C	+7.6
	Broadway WB Left	0.23	37.8	D	0.24	37.7	D	-0.1	0.37	26.9	C	-10.8
	Broadway WB Thru	0.67	22.6	C	0.73	23.7	C	+1.1	0.96	53.8	D	+30.1
	Ames Street NB Left	0.56	31.3	C	0.64	34.3	C	+3.0	1.07	97.9	F	+63.6
	Ames Street NB Right	0.35	62.9	E	0.40	61.7	E	-1.2	0.75	47.8	D	-13.9
	OVERALL	0.77	63.8	E	0.80	62.9	E	-0.9	1.06	97.3	F	+34.4
Broadway at Third Street	Broadway EB Left	0.81	36.2	D	0.84	39.1	D	+2.9	1.16	131.3	F	+92.2
	Broadway EB Thru/Right	0.70	28.1	C	0.71	27.8	C	-0.3	0.74	16.3	B	-11.5
	Broadway WB Thru	0.76	35.6	D	0.81	39.0	D	+3.4	0.96	57.3	E	+18.3
	Broadway WB Right	0.41	28.2	C	0.41	28.2	C	0.0	0.51	30.4	C	+2.2
	Third Street SB Left/Thru	1.01	72.0	E	1.14	116.0	F	+44.0	1.39	218.6	F	+102.6
	Third Street SB Right	0.45	32.2	C	0.47	34.6	C	+2.4	0.90	70.0	E	+35.4
	OVERALL	0.86	40.4	D	0.94	52.6	D	+12.2	1.15	92.6	F	+40.0
	Main Street EB Left	0.69	28.4	C	0.76	33.1	C	+4.7	1.21	144.5	F	+111.4

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Main Street at Galileo Galilei Way/Vassar Street	Main Street EB Thru/Right	0.53	19.9	B	0.53	19.9	B	0.0	0.63	22.3	C	+2.4
	Main Street WB Left	0.22	18.8	B	0.22	18.8	B	0.0	0.40	28.7	C	+9.9
	Main Street WB Thru/Right	0.26	17.1	B	0.26	17.1	B	0.0	0.50	29.2	C	+12.1
	Vassar Street NB Left/Thru/Right	0.70	30.2	C	0.75	32.4	C	+2.2	1.00	62.6	E	+30.2
	Galileo Galilei Way SB Left	0.09	31.6	C	0.27	30.1	C	-1.5	0.37	33.0	C	+2.9
	Galileo Galilei Way SB Thru	0.62	37.6	D	0.69	37.1	D	-0.5	0.88	42.6	D	+5.5
	Galileo Galilei Way SB Right	0.52	35.9	D	0.70	37.4	D	+1.5	0.88	43.8	D	+6.4
	OVERALL	0.69	28.3	C	0.76	30.0	C	+1.7	1.12	56.5	E	+26.5
Main Street at Ames Street	Main Street EB Left/Thru/Right	0.70	24.2	C	0.70	23.9	C	-0.3	1.50	243.0	F	+219.1
	Main Street WB Left/Thru/Right	0.22	7.3	A	0.22	7.3	A	0.0	0.77	46.3	D	+39.0
	Ames Street NB Left/Thru/Right	0.40	25.4	C	0.42	25.8	C	+0.4	0.91	46.3	D	+20.5
	Ames Street SB Left/Thru	0.37	22.8	C	0.38	22.3	C	-0.5	0.65	31.0	C	+8.7
	Ames Street SB Right	0.35	23.1	C	0.35	22.7	C	-0.4	0.43	24.0	C	+1.3
	OVERALL	0.58	22.3	C	0.59	22.3	C	0.0	0.90	112.6	F	+90.3

V/C Ratio – Volume to Capacity Ratio

Delay – Average delay expressed in seconds per vehicle

VLOS – Vehicular level of service

TABLE 6.A.3 UNSIGNALIZED INTERSECTION LOS – MORNING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Binney Street at Project Exit (North Garage Exit)	Project Exit Northbound	0.00	9.1	A	0.06	9.4	A	+0.3	0.06	9.3	A	-0.1
Binney Street at Project Entrance (North Garage Entrance)	Binney Street WB Left	0.09	8.6	A	0.19	9.5	A	+0.9	0.22	10.4	B	+0.9
Broadway at Project Entrance (North Garage Entrance)	Broadway WB Thru/Right	0.12	0.0	A	0.15	0.0	A	0.0	0.16	0.0	A	0.0
Broadway at Project Exit (North Garage Exit)	Project Exit Southbound	0.09	13.6	B	0.25	16.2	C	+2.6	0.27	17.1	C	+0.9
Broadway/Main Street at Memorial Drive	Memorial Drive Southbound	0.34	22.7	C	0.36	24.2	C	+1.5	0.68	47.2	E	+23.0
Main Street at Broadway	Main Street Eastbound	0.41	15.5	C	0.42	15.8	C	+0.3	0.56	19.3	C	+3.5
Memorial Drive/Route 3 at Ames Street	Ames Street Southbound	0.58	51.3	F	0.58	51.3	F	0.0	0.91	115.8	F	+64.5

V/C Ratio – Volume to Capacity Ratio

Delay – Average delay expressed in seconds per vehicle

VLOS – Vehicular level of service

TABLE 6.A.4 UNSIGNALIZED INTERSECTION LOS – EVENING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Condition			2016 Build Condition			Difference In Delay	2021 Future Condition			Difference In Delay
		V/C Ratio	Delay	VLOS	V/C Ratio	Delay	VLOS		V/C Ratio	Delay	VLOS	
Binney Street at Project Exit (North Garage Exit)	Project Exit Northbound	0.15	10.0	B	0.33	11.4	B	+1.4	0.32	11.1	B	-0.3
Binney Street at Project Entrance (North Garage Entrance)	Binney Street WB Left	0.01	9.3	A	0.07	10.6	B	+1.3	0.09	12.0	B	+1.4
Broadway at Project Entrance (North Garage Entrance)	Broadway WB Thru/Right	0.15	0.0	A	0.19	0.0	A	0.0	0.24	0.0	A	0.0
Broadway at Project Exit (North Garage Exit)	Project Exit Southbound	0.33	16.9	C	0.65	27.2	D	+10.3	0.78	41.6	E	+14.4
Broadway/Main Street at Memorial Drive	Memorial Drive Southbound	0.43	28.5	D	0.44	29.5	D	+1.0	0.82	65.1	F	+35.6
Main Street at Broadway	Main Street Eastbound	0.76	30.7	D	0.80	35.6	E	+4.9	1.15	118.8	F	+83.2
Memorial Drive/Route 3 at Ames Street	Ames Street Southbound	1.15	176.6	F	1.15	176.6	F	0.0	2.79	904.6	F	+728.0

V/C Ratio – Volume to Capacity Ratio

Delay – Average delay expressed in seconds per vehicle

VLOS – Vehicular level of service

As indicated in the above LOS analysis summary, the Project has a limited impact of the existing intersection operations within the study area. Most of the study area intersections, during both the morning and evening peak hours, have no increase or a slight increase (less than 10 seconds, in delay. The following are intersections in which the Project trips have a greater impact to the study area intersections.

Broadway at Hampshire Street – Morning Peak Hour – During the morning peak hour the overall intersection operations change from a LOS D to a LOS E with the addition of Project generated trips. The intersection delay increases by 9.7 seconds. This is due to the increase in Broadway eastbound traffic which therefore reduces gaps in traffic for westbound left turning vehicles and increases the westbound left delay by over 70 seconds.

Broadway at Third Street – Morning Peak Hour – The Broadway at Third Street intersection increases by 10.1 seconds due to the addition of Project trips, causing the overall intersection operations to decrease from a LOS D under existing conditions to a LOS E under build conditions. The Project is estimated to add approximately 63 Broadway westbound trips and 20 Third Street southbound left trips. These two movements cause the overall intersection operations to decrease in LOS, but with only a 10.1 second delay increase.

O'Brien Highway at Third Street – Evening Peak Hour – The intersection operates at a LOS F under existing conditions and increases by 79.0 seconds with the addition of Project trips. While the intersection will operate slightly worse under build conditions, the improvements under the future O'Brien Highway/NorthPoint intersection geometry and timing improvements the overall intersection operations improves to a LOS D.

Broadway at Galileo Galilei Way – Evening Peak Hour – The Broadway at Galileo Galilei Way intersection operates at a LOS F under existing conditions and continues to operate at a LOS F under build conditions under both morning and evening peak hours. During the evening peak hour the overall intersection increases in delay by 56.5 seconds.

Broadway at Project Driveway Southbound Exit – Evening Peak Hour – The Project driveway southbound exit onto Broadway increase in delay by 10.3 seconds due to Project generated trips and decreases from an LOS C to a LOS D during the evening peak hour.

7 Queue Analysis

Queue analysis was performed in conjunction with the LOS analysis. **Tables 7.a.1 and 7.a.2** present the results for the modeled average queues in number of vehicles for each scenario for the morning and evening peak hour, respectively. Actual queue observations at the study area intersections could not be collected due to the existing condition count data (May, 2013) being used.

TABLE 7.A.1 INTERSECTION QUEUE ANALYSIS – MORNING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
O'Brien Highway at Third Street	Third Street NB Left	-	-	3
	Third Street NB Thru/Right	-	-	0
	Third Street NB Left/Right	1	2	-
	Third Street SB Left/Thru/Right	-	-	0
	O'Brien Highway SEB Left/Thru	-	-	~35
	O'Brien Highway SEB Right	-	-	10
	O'Brien Highway SEB Thru/Right	~26	~27	~28
	O'Brien Highway NWB Left/Thru	1	2	-
	O'Brien Highway NWB Thru/Right	-	-	7
O'Brien Highway at First Street	First Street NB Left	-	-	2
	First Street NB Thru	-	-	1
	First Street SB Thru/Right	-	-	3
	O'Brien Highway SEB Thru/Right	-	-	20
	O'Brien Highway NWB Left	-	-	~12
	O'Brien Highway NWB Thru/Right	-	-	1
Cambridge Street at Third Street	Cambridge Street EB Left/Thru/Right	8	8	~21
	Cambridge Street WB Left/Thru/Right	7	7	~19
	Third Street NB Left/Thru/Right	3	4	~8
	Third Street SB Left	2	2	1
	Third Street SB Thru/Right	15	16	~19
Cambridge Street at First Street	Cambridge Street EB Thru/Right	~9	~9	~9
	Cambridge Street WB Left	~9	~10	~9
	Cambridge Street WB Thru	~4	~5	~4
	First Street NB Left	1	1	-
	First Street NB Thru	-	-	2
	First Street NB Right	3	3	5
	First Street SB Thru/Right	-	-	3
Cambridge Street at O'Brien Highway	O'Brien Highway EB Left	3	3	-
	O'Brien Highway EB Thru	14	14	2
	O'Brien Highway EB Right	3	3	-
	O'Brien Highway WB Left	5	6	-
	O'Brien Highway WB Thru/Right	4	4	12
	Cambridge Street NB Left/Thru	1	1	2
	Cambridge Street NB Right	0	0	7
	East Street SB Right	-	-	0
	East Street SB Left/Thru/Right	2	2	-
	O'Brien Highway SEB Left	4	5	6

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
Land Boulevard at O'Brien Highway	O'Brien Highway SEB Thru	~15	~15	~14
	O'Brien Highway SEB Right	0	0	0
	O'Brien Highway NWB Left	4	4	~15
	O'Brien Highway NWB Thru	~11	~12	11
	O'Brien Highway NWB Right	1	1	2
	Land Boulevard NE Left	5	5	7
	Land Boulevard NEB Thru	~9	~9	~9
	Land Boulevard NEB Right	0	0	3
	Charlestown Ave SWB Left	-	-	10
	Charlestown Ave SWB Left/Thru/Right	~26	~27	~31
Broadway at Portland Street	Broadway EB Left/Thru/Right	13	~15	~20
	Broadway WB Left/Thru/Right	8	8	7
	Portland Street NB Left	1	1	1
	Portland Street NB Thru/Right	7	7	8
	Portland Street SB Left	1	1	1
	Portland Street SB Thru/Right	2	2	2
Broadway at Hampshire Street	Broadway EB Left/Thru	12	13	~18
	Broadway EB Right	3	3	4
	Broadway WB Left	~5	~6	~7
	Broadway WB Thru	3	3	3
	Broadway WB Right	1	1	1
	Technology Square NB Left	1	1	1
	Technology Square NB Thru/Right	1	1	1
	Hampshire Street SB Left	~6	~7	~11
	Hampshire Street SB Thru/Right	1	1	1
Binney Street at Galileo Galilei Way/Fulkerson Street	Galileo Galilei Way EB Thru	4	4	7
	Binney Street WB Thru/Right	5	4	10
	Fulkerson Street SB Right	7	7	~10
	Binney Street SB Left	5	5	5
	Binney Street SB Right	1	1	1
Binney Street at Third Street	Binney Street EB Left	2	2	2
	Binney Street EB Thru/Right	4	3	7
	Binney Street WB Left	4	5	~7
	Binney Street WB Thru/Right	6	7	~10
	Third Street NB Left/Thru	3	3	5
	Third Street NB Right	1	1	2
	Third Street SB Left/Thru/Right	14	15	~23
Binney Street at First Street	Binney Street EB Left	2	2	~11
	Binney Street EB Thru/Right	1	2	2

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
	Binney Street WB Left/Thru/Right	13	14	22
	First Street NB Left/Thru/Right	1	1	2
	First Street SB Left/Thru	5	4	~12
	First Street SB Right	4	5	~10
Binney Street at Land Boulevard	Binney Street EB Left/Right	3	3	4
	Land Boulevard NB Left	7	7	13
	Land Boulevard NB Thru	3	3	3
	Land Boulevard SB Thru	15	15	19
	Land Boulevard SB Right	9	10	15
Broadway at Galileo Galilei Way	Broadway EB Left	4	5	~8
	Broadway EB Thru	~17	~17	~21
	Broadway EB Right	2	2	4
	Broadway WB Left	3	~4	~4
	Broadway WB Thru/Right	6	6	7
	Galileo Galilei Way NB Left	3	2	3
	Galileo Galilei Way NB Thru/Right	5	~16	7
	Galileo Galilei Way SB Left	3	3	3
	Galileo Galilei Way SB Thru	11	11	~19
	Galileo Galilei Way SB Right	~6	~6	~8
Broadway at Ames Street	Broadway EB Thru	~20	~20	~23
	Broadway EB Right	2	3	2
	Broadway WB Left	2	2	7
	Broadway WB Thru	8	10	~14
	Ames Street NB Left	2	3	3
	Ames Street NB Right	1	0	3
Broadway at Third Street	Broadway EB Left	7	7	~9
	Broadway EB Thru/Right	5	5	6
	Broadway WB Thru	12	~16	~25
	Broadway WB Right	8	8	~16
	Third Street SB Left/Thru	4	4	8
	Third Street SB Right	2	3	3
Main Street at Galileo Galilei Way/ Vassar Street	Main Street EB Left	4	6	~10
	Main Street EB Thru/Right	6	6	10
	Main Street WB Left	2	2	2
	Main Street WB Thru/Right	5	5	6
	Vassar Street NB Left/Thru/Right	6	6	8
	Galileo Galilei Way SB Left	2	2	3
	Galileo Galilei Way SB Thru	10	10	11
	Galileo Galilei Way SB Right	7	7	10
	Main Street EB Left/Thru/Right	6	6	~19

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
Main Street at Ames Street	Main Street WB Left/Thru/Right	1	1	~6
	Ames Street NB Left/Thru/Right	3	3	4
	Ames Street SB Left/Thru	3	3	6
	Ames Street SB Right	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.

TABLE 7.A.2 INTERSECTION QUEUE ANALYSIS – EVENING PEAK HOUR

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
O'Brien Highway at Third Street	Third Street NB Left	-	-	~17
	Third Street NB Thru/Right	-	-	11
	Third Street NB Left/Right	5	5	-
	Third Street SB Left/Thru/Right	-	-	0
	O'Brien Highway SEB Left/Thru	-	-	14
	O'Brien Highway SEB Right	-	-	5
	O'Brien Highway SEB Thru/Right	~21	~22	-
	O'Brien Highway NWB Left/Thru	~14	~14	-
	O'Brien Highway NWB Thru/Right	-	-	6
O'Brien Highway at First Street	First Street NB Left	-	-	3
	First Street NB Thru	-	-	1
	First Street SB Thru/Right	-	-	3
	O'Brien Highway SEB Thru/Right	-	-	8
	O'Brien Highway NWB Left	-	-	~12
	O'Brien Highway NWB Thru/Right	-	-	12
Cambridge Street at Third Street	Cambridge Street EB Left/Thru/Right	~14	~14	~20
	Cambridge Street WB Left/Thru/Right	~16	~16	~20
	Third Street NB Left/Thru/Right	7	8	~28
	Third Street SB Left	0	0	1
	Third Street SB Thru/Right	4	4	8
Cambridge Street at First Street	Cambridge Street EB Thru/Right	~10	~10	5
	Cambridge Street WB Left	3	3	-
	Cambridge Street WB Thru	3	3	-
	First Street NB Left	4	4	-
	First Street NB Thru	-	-	4
	First Street NB Right	~13	~14	~26
	First Street SB Thru/Right	-	-	1
Cambridge Street at O'Brien Highway	O'Brien Highway EB Left	1	1	-
	O'Brien Highway EB Thru	1	1	8
	O'Brien Highway EB Right	1	1	-

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
	O'Brien Highway WB Left	2	3	-
	O'Brien Highway WB Thru/Right	9	9	14
	Cambridge Street NB Left/Thru	5	5	1
	Cambridge Street NB Right	0	0	2
	East Street SB Right	2	2	0
	East Street SB Left/Thru/Right	2	2	-
Land Boulevard at O'Brien Highway	O'Brien Highway SEB Left	~16	~17	~27
	O'Brien Highway SEB Thru	7	7	8
	O'Brien Highway SEB Right	0	0	0
	O'Brien Highway NWB Left	4	4	8
	O'Brien Highway NWB Thru	~11	~11	11
	O'Brien Highway NWB Right	4	4	5
	Land Boulevard NE Left	~17	~17	~20
	Land Boulevard NEB Thru	~24	~24	~34
	Land Boulevard NEB Right	4	3	8
	Charlestown Ave SWB Left	-	-	6
	Charlestown Ave SWB Left/Thru/Right	~14	~15	~12
Broadway at Portland Street	Broadway EB Left/Thru/Right	~14	~15	~18
	Broadway WB Left/Thru/Right	11	~16	~19
	Portland Street NB Left	2	2	2
	Portland Street NB Thru/Right	9	9	9
	Portland Street SB Left	1	1	1
	Portland Street SB Thru/Right	2	2	2
Broadway at Hampshire Street	Broadway EB Left/Thru	12	12	~17
	Broadway EB Right	1	1	1
	Broadway WB Left	1	1	1
	Broadway WB Thru	6	6	~11
	Broadway WB Right	5	5	8
	Technology Square NB Left	~3	~3	~3
	Technology Square NB Thru/Right	3	3	3
	Hampshire Street SB Left	5	5	~8
	Hampshire Street SB Thru/Right	1	1	1
Binney Street at Galileo Galilei Way/Fulkerson Street	Galileo Galilei Way EB Thru	7	9	13
	Binney Street WB Thru/Right	6	6	11
	Fulkerson Street SB Right	4	4	4
	Binney Street SB Left	7	7	~9
	Binney Street SB Right	2	2	3
Binney Street at Third Street	Binney Street EB Left	8	8	~12
	Binney Street EB Thru/Right	7	9	~12

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
	Binney Street WB Left	2	2	4
	Binney Street WB Thru/Right	3	4	~10
	Third Street NB Left/Thru	10	10	~13
	Third Street NB Right	4	4	4
	Third Street SB Left/Thru/Right	9	9	~10
Binney Street at First Street	Binney Street EB Left	5	6	~15
	Binney Street EB Thru/Right	2	2	3
	Binney Street WB Left/Thru/Right	2	2	3
	First Street NB Left/Thru/Right	1	1	6
	First Street SB Left/Thru	9	9	12
	First Street SB Right	3	3	8
Binney Street at Land Boulevard	Binney Street EB Left/Right	3	3	5
	Land Boulevard NB Left	7	7	9
	Land Boulevard NB Thru	7	7	8
	Land Boulevard SB Thru	15	15	13
	Land Boulevard SB Right	4	5	4
Broadway at Galileo Galilei Way	Broadway EB Left	3	4	~6
	Broadway EB Thru	8	8	~12
	Broadway EB Right	1	1	2
	Broadway WB Left	~7	~12	~13
	Broadway WB Thru/Right	8	8	~13
	Galileo Galilei Way NB Left	4	4	4
	Galileo Galilei Way NB Thru/Right	8	8	~13
	Galileo Galilei Way SB Left	2	2	2
	Galileo Galilei Way SB Thru	9	9	~15
	Galileo Galilei Way SB Right	~6	~6	~11
Broadway at Ames Street	Broadway EB Thru	~17	~17	~20
	Broadway EB Right	1	1	1
	Broadway WB Left	2	3	3
	Broadway WB Thru	9	10	11
	Ames Street NB Left	4	5	~8
	Ames Street NB Right	3	3	3
Broadway at Third Street	Broadway EB Left	4	5	~10
	Broadway EB Thru/Right	9	9	4
	Broadway WB Thru	9	10	12
	Broadway WB Right	4	4	4
	Third Street SB Left/Thru	~10	~14	~20
	Third Street SB Right	3	3	6
	Main Street EB Left	5	6	~12
	Main Street EB Thru/Right	6	6	8

Intersection	Approach	2016 Theoretical Existing Modeled	2016 Build	2021 Future
Main Street at Galileo Galilei Way/ Vassar Street	Main Street WB Left	1	1	3
	Main Street WB Thru/Right	2	2	9
	Vassar Street NB Left/Thru/Right	6	6	8
	Galileo Galilei Way SB Left	2	2	2
	Galileo Galilei Way SB Thru	9	10	13
	Galileo Galilei Way SB Right	4	6	7
Main Street at Ames Street	Main Street EB Left/Thru/Right	10	10	~17
	Main Street WB Left/Thru/Right	1	1	3
	Ames Street NB Left/Thru/Right	4	4	8
	Ames Street SB Left/Thru	2	2	3
	Ames Street SB Right	2	2	2

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.

The queue analysis results presented in the above tables correlates to the LOS analyses conducted of 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 was 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 the roadway segments in the study area, 18 segments were identified as street segments with more than 1/3 residential frontage, as determined by the existing first floor use.

Roadways within the study area that will on experience an increase in traffic as a result of the Project or do not have more than 1/3 residential street frontage were not included in the analysis.

In addition, Sixth Street and Second Street were included in the Residential Street Volume Analysis. Through discussions with TP&T these streets were seen as possible entrance routes to the Project site and while related intersections were not included, segments along these streets were included in the Residential Street Volume Analysis to document the estimated impact on these roadways segments.

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

Roadway	Segment	Amount of Residential	2016 Existing	2016 Build	Increase	Percent Increase	2021 Future	Increase	Percent Increase
O'Brien Highway	Land Blvd to Leighton St	1/2 or more	2429	2462	33	1.4%	2834	372	15.1%
	Leighton St to East St/Cambridge St	1/2 or more	2399	2432	33	1.4%	2798	366	15.0%
Broadway	Clark St to Dickinson St	1/2 or more	841	873	32	3.8%	1005	132	15.1%
	Dickinson St to Windsor St	1/2 or more	841	873	32	3.8%	1005	132	15.1%
Hampshire Street	Cardinal Medeiros Ave to Webster St	none	534	547	13	2.4%	667	120	21.9%
	Webster St to Clark St	1/3 or 1/2	534	547	13	2.4%	667	120	21.9%
Memorial Drive	Ames Street to Wadsworth	1/2 or more	2744	2770	26	0.9%	3295	525	19.0%
Third Street	Broadway to Binney St	1/3 or less	817	842	25	3.1%	1141	299	35.5%
	Binney St to Rodgers St	>1/3 but <1/2	770	803	33	4.3%	1013	210	26.2%
	Rodgers St to Bent St	none	778	811	33	4.2%	1101	290	35.8%
	Bent St to Charles St	1/3 to 1/2	778	811	33	4.2%	1101	290	35.8%
	Charles to Hurley St	1/2 or more	778	811	33	4.2%	1101	290	35.8%
	Hurley St to Spring St	1/2 or more	778	811	33	4.2%	1101	290	35.8%
	Spring St to Thorndike St	none	778	811	33	4.2%	1101	290	35.8%
	Thorndike St to Otis St	1/2 or more	778	811	33	4.2%	1101	290	35.8%
	Otis St to Cambridge St	1/3 or less	785	818	33	4.2%	1188	370	45.2%
	Cambridge St to Gore St	1/3 or less	831	857	26	3.1%	1065	208	24.3%
	Gore St to O'Brien Hwy	1/2 or more	826	852	26	3.1%	897	45	5.3%
Second Street ¹	Binney St to Rodgers St	none	126	130	4	3.2%	NA	NA	NA
	Rodgers St to Bent St	none	258	262	4	1.6%			
	Bent St to Charles St	1/3 or less	288	292	4	1.4%			
	Charles St to Hurley St	1/2 or more	272	276	4	1.5%			
	Hurley St to Spring Street	1/3 to 1/2	272	276	4	1.5%			
	Spring St to Thorndike St	none	272	276	4	1.5%			
	Thorndike St to Otis St	1/3 to 1/2	272	276	4	1.5%			
	Otis St to Cambridge St	1/3 to 1/2	272	276	4	1.5%			
	Cambridge St to Gore St	1/3 to 1/2	272	276	4	1.5%			
Sixth Street ²	Gore St to O'Brien Hwy	none	272	276	4	1.5%	NA	NA	NA
	Binney St to Rodgers St	1/3 or 1/2	338	351	13	3.8%			
	Rodgers St to Bent St	none	338	351	13	3.8%			
	Bent St to Charles St	1/3 or less	338	351	13	3.8%			
	Charles to Hurley St	1/2 or more	338	351	13	3.8%			
	Hurley St to Spring St	1/2 or more	338	351	13	3.8%			
	Spring St to Thorndike St	1/2 or more	338	351	13	3.8%			
	Thorndike St to Otis St	1/3 or less	338	351	13	3.8%			
	Otis St to Cambridge St	1/2 or more	338	351	13	3.8%			
	Cambridge St to Gore St	1/2 or more	338	351	13	3.8%			

Notes: 1 – Second Street Volumes based on the First Street PUD 2014 Existing Conditions volumes

2 – Sixth Street volumes from 2014 ATR proportioned to peak hour volume

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

Roadway	Segment	Amount of Residential	2016 Existing	2016 Build	Increase	Percent Increase	2021 Future	Increase	Percent Increase
O'Brien Highway	Land Blvd to Leighton St	1/2 or more	2105	2141	36	1.7%	2514	373	17.4%
	Leighton St to East St/Cambridge St	1/2 or more	2237	2273	36	1.6%	2608	335	14.7%
Broadway	Clark St to Dickinson St	1/2 or more	980	1010	30	3.1%	1186	176	17.4%
	Dickinson St to Windsor St	1/2 or more	980	1010	30	3.1%	1186	176	17.4%
Hampshire Street	Cardinal Medeiros Ave to Webster St	none	689	709	20	2.9%	880	171	24.1%
	Webster St to Clark St	1/3 or 1/2	689	709	20	2.9%	880	171	24.1%
Memorial Drive	Ames Street to Wadsworth	1/2 or more	3126	3137	11	0.4%	3472	335	10.7%
Third Street	Broadway to Binney St	1/3 or less	859	927	68	7.9%	1193	266	28.7%
	Binney St to Rodgers St	>1/3 but <1/2	898	942	44	4.9%	1145	203	21.5%
	Rodgers St to Bent St	none	898	942	44	4.9%	1183	241	25.6%
	Bent St to Charles St	1/3 to 1/2	898	942	44	4.9%	1183	241	25.6%
	Charles to Hurley St	1/2 or more	898	942	44	4.9%	1183	241	25.6%
	Hurley St to Spring St	1/2 or more	898	942	44	4.9%	1183	241	25.6%
	Spring St to Thorndike St	none	898	942	44	4.9%	1183	241	25.6%
	Thorndike St to Otis St	1/2 or more	898	942	44	4.9%	1183	241	25.6%
	Otis St to Cambridge St	1/3 or less	898	942	44	4.9%	1220	278	29.5%
	Cambridge St to Gore St	1/3 or less	1239	1277	38	3.1%	1414	137	10.7%
	Gore St to O'Brien Hwy	1/2 or more	1260	1298	38	3.0%	1404	106	8.2%
Second Street ¹	Binney St to Rodgers St	none	298	305	7	2.3%	NA	NA	NA
	Rodgers St to Bent St	none	335	342	7	2.1%			
	Bent St to Charles St	1/3 or less	350	357	7	2.0%			
	Charles St to Hurley St	1/2 or more	312	319	7	2.2%			
	Hurley St to Spring Street	1/3 to 1/2	290	297	7	2.4%			
	Spring St to Thorndike St	none	290	297	7	2.4%			
	Thorndike St to Otis St	1/3 to 1/2	290	297	7	2.4%			
	Otis St to Cambridge St	1/3 to 1/2	290	297	7	2.4%			
	Cambridge St to Gore St	1/3 to 1/2	290	297	7	2.4%			
Sixth Street ²	Gore St to O'Brien Hwy	none	290	297	7	2.4%	NA	NA	NA
	Binney St to Rodgers St	1/3 or 1/2	388	394	6	1.5%			
	Rodgers St to Bent St	none	388	394	6	1.5%			
	Bent St to Charles St	1/3 or less	388	394	6	1.5%			
	Charles to Hurley St	1/2 or more	388	394	6	1.5%			
	Hurley St to Spring St	1/2 or more	388	394	6	1.5%			
	Spring St to Thorndike St	1/2 or more	388	394	6	1.5%			
	Thorndike St to Otis St	1/3 or less	388	394	6	1.5%			
	Otis St to Cambridge St	1/2 or more	388	394	6	1.5%			
	Cambridge St to Gore St	1/2 or more	388	394	6	1.5%			

Notes: 1 – Second Street Volumes based on the First Street PUD 2014 Existing Conditions volumes

2 – Sixth Street volumes from 2014 ATR proportioned to peak hour volume

9 Vehicle Parking Analysis

9.a Approved Zoning Parking Supply

The K2 Final Report provides zoning recommendations associated with vehicular parking within the Kendall Square area. In addition, these parking requirements for the Project were amended under the December 2015 Article 14 amendment to reflect a minimum residential parking ratio of 0.4 spaces per unit. The parking recommendations provide a maximum

parking ratio for office use of 0.9 spaces per 1,000 sf. For residential use within the area a minimum ratio of 0.4 spaces per dwelling unit and a maximum of 0.75 spaces per dwelling unit are recommended. Based on the zoning recommendations, the Project could provide between 223 spaces (minimum) and 988 spaces (maximum). **Table 9.a.1** provides a breakdown of each Project component and the parking supply recommendations associated with each land use based on the K2 zoning recommendations.

TABLE 9.A.1 RECOMMENDED ZONING PARKING SUPPLY

Project Component/Garage	Size (Net-New)	Zoning Parking Rates	Minimum Parking Required
145 Broadway Office Building	315,600 GFA	0.9 spaces per 1,000 sf (max)	284 spaces (max)
Res South Broadway (135 Broadway/Blue Garage)	464 units	0.4 spaces per dwelling unit (min) 0.75 spaces per dwelling unit (max)	185 spaces (min) 348 spaces (max)
325 Main Street Office Building	315,600 GFA	0.9 spaces per 1,000 sf (max)	284 spaces (max)
Res North Broadway (135 Broadway/Blue Garage)	96 units	0.4 spaces per dwelling unit (min) 0.75 spaces per dwelling unit (max)	38 spaces (min) 72 spaces (max)
Total	-	-	223 spaces (min) 988 spaces (max)

9.b Project Vehicle Parking

The Project will add up to an additional 809 structured parking spaces to the KSURP area. As currently planned, the two proposed residential buildings will include the elimination of approximately 215 parking spaces within the Blue Garage, to support the construction of those facilities, including adequate lobbies and cores that can intercept the ground plane while maintaining existing adjacent open space. The net elimination of the 215 parking spaces consists of eliminating 276 existing parking spaces and adding a parking tier of approximately 61 spaces. The 145 Broadway building will include up to 374 below grade parking spaces and the 250 Binney building will include up to 650 below grade parking spaces. In total, the Project provides up to 809 new parking spaces to support planned changes in building program.

The parking being added by the Project, up to 809 spaces, will trigger the Parking and Transportation Demand Management (PTDM) ordinance. Boston Properties will work with TP&T and the PTDM Planning Officer to discuss and formulate the PTDM plan. The KSURP area already conducts a yearly transportation monitoring program, discussed in Section 13.b Proposed Traffic Monitoring Program. It should be discussed if the addition of the PTDM program to this existing Monitoring Program is possible and sufficient for all requirements.

9.c Future Vehicle Parking

With the addition of the new Project vehicle parking there will be approximately 3,517 vehicle parking spaces within the KSURP area. **Table 9.c.1** summarizes the future parking supply in the area.

TABLE 9.c.1 FUTURE PARKING SUPPLY IN THE KSURP AREA

Project Component/Garage	Existing Parking	Proposed New Parking for Project	Future Parking
135 Broadway Residences/Blue Garage	1,170	(-215)	955
Yellow Garage	734	0	734
Green Garage	804	0	804
145 Broadway Office Building	0	374	374
250 Binney Street Office Building	0	650	650
Total	2,708	809	3,517

The CRA is obligated to collect tenant/employee travel mode data within the KSURP Area and summarize the results as part of the Kendall Square Urban Renewal Area Annual Traffic Update report. These surveys are distributed by BP to area firms and businesses and for the most recent year available, 2014, only 29 percent of respondents indicated that their primary mode was driving alone while 5 percent indicated they carpooled with two or more people. This data supports the low parking ratio for office and R&D components of the Project.

There is little information on residential car-ownership within the KSURP Area, as there are currently no residential buildings, but it is estimated, based on the American Community Survey (ACS) 5-year estimate (2009-2013) for the area, census tracts 3523 and 3524, approximately 40 percent of residents do not have access to a vehicle while less than 17 percent have access to more than two vehicles. It is expected that due to the residential locations of the Project, the vehicle ownership will be slightly lower than what the ACS data shows. The low car-ownership percentage estimated for the residential components provides the ability to provide additional parking for other users in the area.

9.d Shared Vehicle Parking Analysis

A shared parking analysis was conducted to understand the Project's ability to share new parking spaces and possibly reduce the overall number of spaces built. In addition, the analysis was expanded to include the entire KSURP development to understand the shared parking ability this area has. As indicated above KSURP currently supplies 2,708 parking spaces in three garages and with the construction of the Project, 809 vehicle spaces will be added to the area. This brings the number of total parking spaces for all of KSURP to approximately 3,517 spaces. This new total supply is below the original maximum approved 4,300 vehicle parking spaces under the 1977 FEIR and the revised 3,545 spaces under Amendment No. 3.

The shared parking analysis was conducted using two different methodologies for two different shared parking scenarios. The first methodology follows a similar methodology to the one presented in the KSURP SEIR and updates the existing parking demand with current May 2016 data and following a holistic KSURP parking strategy. While the second methodology follows the standard practices suggested by the Urban Land Institutes Shared Parking report, second edition (2015, latest available report), as requested in the Scoping Letter. The two scenarios include a concentration on a shared parking demand based just on the new proposed Project, while the second scenario encompasses the entire KSURP development.

Model 1 – Holistic KSURP Shared Parking Strategy

The most recent parking data from May 2016 were used to understand the parking patterns of each of the KSURP garages. Existing parking occupancies from the May 2016 data were previously presented in **Table 2.f.1**. The monthly average activity reports for monthly and transient parkers was used to determine average existing occupancy and parking arrival and departure distributions. The average daily in and out distributions were calculated for both monthly card holder and transient parkers. These distributions were then applied to the daily vehicle trips generated by each Project Component and adjusted to match the estimated morning and evening peak generated trips, presented previously in **Table 3.b.1**.

As previously discussed, the Project generated trips were assigned to specific garages based on geographical location and the trips removed due to the demolition of the existing Eleven Cambridge Center and Fourteen Cambridge Center were both from the Blue Garage. The following parking assignments were assumed for this analysis:

- All new residents at the 135 Broadway/Blue Garage North and South buildings will park within the Blue Garage.
- Existing 145 Broadway and 250 Binney Street office staff and visitors park in the Blue Garage. Due to the demolition of these buildings, the existing users will be removed from the current garage occupancy at the Blue Garage.
- The new 145 Broadway office building will provide staff and visitors with 374 new spaces in a below grade parking structure under the building. In addition, some tenants in other Kendall Center Buildings may be relocated to this garage to support accommodating residents in the Blue Garage.
- The new 250 Binney Street office building will provide staff and visitors with 650 new parking spaces in a below grade parking structure under the building. In addition, some tenants in other Kendall Center Buildings may be relocated to this garage to support accommodating residents in the Blue Garage.
- Broad Institute Office Conversion users will park in the Yellow Garage, no new parking is provided.
- All new retail components will park in various garages based on availability, no new parking is provided for retail uses.

Based on the daily distribution patterns and parking assignments, **Table 9.d.1** and **Table 9.d.2** provides the future parking demand at each KSURP parking facility.

TABLE 9.D.1 YELLOW GARAGE FUTURE PARKING

Start Time	Existing Occupancy	Broad Institute Future Demand		Total Future Occupancy	Future Occupancy (%)
		In	Out		
Total Spaces	734			734	734
12:00 AM	47	0	0	47	6%
1:00 AM	48	0	0	48	7%
2:00 AM	48	0	0	47	6%
3:00 AM	50	0	0	49	7%
4:00 AM	53	0	0	52	7%
5:00 AM	73	1	0	74	10%
6:00 AM	135	4	0	140	19%
7:00 AM	248	6	0	260	35%
8:00 AM	438	11	2	459	63%
9:00 AM	630	9	1	660	90%
10:00 AM	731	5	0	766	104%
11:00 AM	747	2	0	784	107%
12:00 PM	743	1	0	781	106%
1:00 PM	726	1	0	766	104%
2:00 PM	693	0	1	732	100%
3:00 PM	612	0	4	646	88%
4:00 PM	448	2	7	477	65%
5:00 PM	295	5	25	303	41%
6:00 PM	189	1	5	194	26%
7:00 PM	138	0	2	139	19%
8:00 PM	101	0	1	102	14%
9:00 PM	71	0	0	72	10%
10:00 PM	58	0	0	59	8%
11:00 PM	47	0	0	48	7%

The Yellow Garage is currently operating slightly over capacity due to the efficiency of valet parking offered at this garage. In the future with the small increase of additional trips from the Broad Institute expansion, the garage will see a slight increase of approximately 6 percent during the peak parking demand hours from 11:00 AM to 1:00 PM. In order to maintain a healthy operational capacity, the number of transient users will have to be closely monitored, as they account for over 200 daily transactions. With the monitoring and management of transient users, the Yellow Garage will be able to handle the slight increase in monthly parkers due to the Broad Institute Expansion Project component. However, there appears to be no

quantifiable opportunity to accommodate additional demand beyond this to the Yellow Garage.

TABLE 9.D.2 BLUE GARAGE FUTURE PARKING

Start Time	Existing Occupancy	Existing 145 Broadway and 250 Binney Trips to be Removed		New Blue Garage Residential Component Demand		Total Future Occupancy	Future Occupancy (%)
		In	Out	In	Out		
Total Spaces	1170			-215		955	955
12:00 AM	54	0	0	2	0	476	50%
1:00 AM	53	0	0	2	1	477	50%
2:00 AM	53	0	0	1	1	477	50%
3:00 AM	54	1	0	1	3	476	50%
4:00 AM	61	2	0	2	7	476	50%
5:00 AM	109	15	1	4	42	470	49%
6:00 AM	251	43	1	6	63	514	54%
7:00 AM	513	80	3	10	71	639	67%
8:00 AM	795	87	2	19	74	781	82%
9:00 AM	976	55	1	6	72	843	88%
10:00 AM	1027	17	3	5	69	816	85%
11:00 AM	1035	7	6	10	35	798	84%
12:00 PM	1030	6	7	13	10	798	84%
1:00 PM	1011	5	9	16	10	787	82%
2:00 PM	946	4	18	30	7	760	80%
3:00 PM	811	2	39	63	19	706	74%
4:00 PM	549	2	80	69	23	569	60%
5:00 PM	311	1	78	74	40	441	46%
6:00 PM	185	3	41	72	32	394	41%
7:00 PM	112	2	25	62	14	391	41%
8:00 PM	83	1	9	51	5	416	44%
9:00 PM	65	1	6	38	2	439	46%
10:00 PM	57	0	3	32	1	465	49%
11:00 PM	54	1	2	15	2	476	50%

Notes: It is assumed that the starting occupancy of the new residential component is 420 vehicles, 0.75 vehicle for every unit of the building, per maximum parking zoning requirements. This is a conservative assumption as a parking ratio of only 0.4 spaces per dwelling unit will be maintained.

With the removal of the existing two office buildings assumed to exclusively park in the Blue Garage and the addition of the residential parking demand, on top of the net-removal of approximately 215 spaces due to construction of the residential towers, the Blue Garage will see a slight decrease in parking demand. This is due to the reverse demand requirements between office uses and residential uses. The office users being removed require parking during the day, while residents, new demand from the residential component, require the

majority of parking during the evening and overnight hours. This demand shift accounts for the reduction in estimated demand at the Blue Garage.

Additionally the new office components replacing the existing buildings at 145 Broadway and 250 Binney Street will supply parking to their buildings in new underground parking structures. These garages will provide all parking associated with each building while excess capacity, particularly in the 250 Binney Street garage, will be supplied to monthly card holders assigned to each garage based on availability and lease agreements. This additional supply allows for the Blue Garage to provide needed capacity in the area as the Yellow Garage is at full capacity and the Green Garage will be in higher demand than currently, when the 88 Ames Street Residential project opens in 2018 and the number of parking spaces available for non-residential use is reduced.

Retail patrons driving to the Project will be accommodated at the three KSURP garages. As indicated above, there will be capacity at the Blue Garage to accommodate these retail patrons. During the evening hours, when retail trips and parking are in their highest demand, the Blue Garage is only half full (48 percent or lower between 5:00 and 10:00 PM) and will easily provide enough parking for retail users.

Model 2.a – ULI Methodology concentrating on the Proposed Project

The current standard practices suggested in the ULI Shared Parking report use specific parking demand rates (a ratio of number of parking spaces needed over a standard measure (e.g. per unit, per 1,000 square feet, etc.)) needed to support a similar stand-alone use. **Table 9.d.3** shows the base parking rates documented in the Shared Parking report by land use for employee/residents and visitors. These rates are associated with weekday peak period conditions, as parking demand in the area will be highest during the weekday due to a high amount of office and R & D.

TABLE 9.D.3 ULI SHARED PARKING RATIOS

Land Use	Employees	Residents	Visitors	Units
Office (> 500,000 sf)	2.6	-	0.02	Per 1,000 GFA
Retail	0.7	-	2.9	Per 1,000 GSA
Residential (Shared) ¹	-	0.5	0.15	Per unit
Residential (Reserved) ²		1.0	0.15	Per unit

Based on the standard ULI methodology these base factors are adjusted using three factors: 1) mode split (percent drive), 2) non-captive parking demand reductions, and 3) temporal variations (hourly and seasonal).

Mode Split (Percent Drive) represents the percentage of users drive to the site. As for residences the portion is the percentage that leave their car during the day (if 40 percent drive to work, then 60 percent, the value used for the drive factor, leave their car at the site). The

mode splits used for this analysis are based off of the mode shares previously presented (See Section 3.a – Mode Share and AVO).

Non-Captive Factors represent the decrease in parking demand due to users visiting multiple uses on-site during a single visit and therefore only one parking space is needed for multiple trips to various land uses. These factors are based on percentages provided in the ULI Shared Parking report and are provided in the **Appendix**.

Temporal Variations are parking demand variations that happen throughout the day and the year. The ULI Shared Parking report provides hourly and seasonal adjustments used for this analysis and are provided in the **Appendix**.

It was determined based on the size and land use mix that the peak parking demand was determined to be at 2:00 PM in December. **Table 9.d.4** provides the adjustment factors used for each land use and the calculated shared parking demand for the proposed Project based on the standard ULI Shared Parking methodology.

Based on the ULI methodology, the peak parking demand for the proposed Project is 864 spaces. As currently planned, the Project proposes the implementation of 809 net new parking spaces, an amount 6 percent lower than what the ULI Shared Parking analysis indicates.

Model 2.b – ULI Methodology concentrating on the Total KSURP Development

Table 9.d.5 provides the adjusted shared parking demand of the entire KSURP approved plan development, inclusive of the new proposed Project. The ULI methodology suggests the peak parking demand for the entire planned KUSRP development would be 3,568 spaces. However, the KSURP development will have 3,517 total parking spaces when completed, or 4 percent lower, than what the ULI Shared Parking analysis indicates.

TABLE 9.D.4 WEEKDAY PEAK HOUR PARKING DEMAND (ULI METHODOLOGY/PROPOSED PROJECT)

Land Use – User Group	Size (KSF or Units)	ULI Parking Ratio	Unadjusted Demand	Mode Split	Unshared Demand	Non-Captive Factor	Monthly Adjustment (Dec)	Peak Hour Adjustment (2 PM)	Shared Parking Demand
Office - Employee	645.2 KSF	2.6	1,678	34%	571	98%	100%	100%	560
Office - Visitor	645.2 KSF	0.2	129	50% ²	65	100%	100%	100%	65
Retail - Employee	30 KSF	0.7	21	34%	7	100%	100%	100%	7
Retail - Visitor	30 KSF	2.9	87	34%	30	50% ⁵	100%	95%	14
Residential (Shared)	448 units ¹	0.5	224	68% ³	152	100%	100%	70%	106
Residential (Reserved)	112 units ¹	1.0	112	100% ⁴	112	100%	100%	100%	112
Total Parking Space Demand			2,251		937				864

1 – Based on zoning requirements at least 20% of the residential units (560) have to be owned. Owned units are assumed to have one reserved space per unit while rental units are assumed to participate in shared parking

2 – Assume half of office visitor's drive and half use other means of transportation

3 – Residential mode split is 32% therefore 68% leave their vehicle in a parking space

4 – Assume reserved spaces are not available

5 – Assumes most of the retail supports the office/residential and parking is already captured in these uses

TABLE 9.D.5 WEEKDAY PEAK HOUR PARKING DEMAND (TOTAL KSURP DEVELOPMENT/STANDARD ULI METHODOLOGY)

Land Use – User Group	Size (KSF or Units)	ULI Parking Ratio	Unadjusted Demand	Mode Split	Unshared Demand	Non-Captive Factor	Monthly Adjustment (May)	Peak Hour Adjustment (2 PM)	Shared Parking Demand
Office/R&D - Employee	3137.3 KSF	2.6	8,157	34%	2,773	98%	100%	100%	2718
Office/R&D - Visitor	3137.3 KSF	0.2	627	50% ¹	314	100%	100%	100%	314
Retail - Employee	120 KSF	0.7	84	34%	29	100%	100%	100%	29
Retail - Visitor	120 KSF	2.9	348	34%	118	50%	100%	95%	56
Residential (Shared)	686 units	0.5	343	68% ²	233	100%	100%	70%	163
Residential (Reserved)	154 units	1.0	154	100% ³	154	100%	100%	100%	154
Business Hotel – Employee	190.0 KSF	0.25	48	34%	16	100%	100%	100%	16
Business Hotel - Visitor	190.0 KSF	1.0	190	50% ¹	95	100%	67%	60%	38
Hotel - Employee	330.0 KSF	0.25	83	34%	28	100%	100%	100%	28
Hotel – Visitor	330.0 KSF	0.9	297	50% ¹	149	100%	50%	70%	52
Total Parking Space Demand			10,331		3,909				3,568

Note: The Residential Unit count within the whole KSURP development is 840 units which includes 560 from the Proposed Project and 280 units currently being built at 88 Ames Street.

1 – Assume half of office and hotel visitor's drive and half use other means of transportation

2 – Residential mode split is 32% therefore 68% leave their vehicle in a parking space

3 – Assume reserved spaces are not available

4 – Assumes most of the retail supports the office/residential and parking is already captured in these uses

9.e Long-Term Parking Monitoring Program

All KSURP parking facilities are monitored daily to ensure monthly cardholders are parking in the appropriate garages and transient parkers are dispersed efficiently among the three garages. Tenants of the area are provided a limited number of parking permits, as outlined in each individual lease, and are charged the full monthly cardholder price. Other employees or visitors without monthly permits are subject to the daily rates, up to \$40.00 per day.

New tenants of the Project will negotiate the number of parking permits and the specified amount will be within the individual lease. All new monthly parking permits will be charged the full monthly rate. This will encourage more employees to take alternative modes of transportation and reduce the number of monthly parkers parking in the area on a regular basis.

Residential parkers will be provided the opportunity to buy a monthly parking permit at full price. This will encourage a low auto-ownership rate and could further reduce the demand for parking in the area.

A portion of the existing parking demand is from transient users. It is assumed that these users are comprised of employees who do not buy a monthly pass, visitors to area businesses and retail customers. These specific users would therefore be classified as infrequent users of the garage. Under future conditions it is estimated that the parking demand for these users will slightly increase. It will be important to monitor the influx of transient users to the area garages and limit the number of spaces available to these transient parkers. There are many other commuting and parking options within the area including on-street parking and other parking garages in which lots that transient parkers, and retail patrons in particular can utilize. By limiting the number of transient parking available, the garages can operate at an appropriate capacity.

Pricing Strategy

Currently the KSURP garages have a time-sensitive pricing strategy that discourages driving and parking in the area. A monthly cardholder pays up to \$400.00 per month for a space within the KSURP garages and a transient parker pays up to \$40.00 per day. It should be noted that the three garages have some of the highest parking rates in the immediate area with other garages having all-day parking for \$23.00 to \$30.00.

Due to the increasing parking demand within the area, Boston Properties and other stakeholders are in discussions about implementing new pricing strategies to further discourage vehicle trips to the area. It is the intent of the draft MOU, documented in the KSURP SEIR filed on October 15, 2015 and certified on November 25, 2015, to continue to include a proactive parking strategy to discourage vehicle trips to the area as well as help offset other mitigation costs outlined in the MOU. Additional TDM measures to reduce single

occupancy vehicle trips to the area are discussed in Section 13 – Transportation Demand Management.

10 Transit Analysis

As requested by the City of Cambridge and in accordance with TIS Guidelines, a transit analysis has been conducted to support the Project. The analysis took an in-depth look at existing Red Line operations and assessed the impacts of project-generated transit trips to the Red Line, as specifically requested in the Scoping Determination.

The following sections summarize existing transit service availability in the study area and provide an assessment of transit utilization and capacity for transit lines that are expected to be used by the proposed Project, specifically the Red Line accessed at Kendall/MIT Station, MBTA Bus Lines 64, 68, 85 and CT2 and the CRTMA's EZRide Shuttle.

This analysis follows the Red Line analysis conducted in July 2015 as part of the MIT Kendall Square TIS, as instructed in the City's Scoping Letter, and includes the following 5 steps:

1. Quantify the existing transit system capacity
2. Quantify the existing transit system ridership
3. Report on existing transit system utilization
4. Develop and assign project-generated transit trips to the existing transit system
5. Report on project impacts to the transit system utilization

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 both the Existing Condition (year 2016) and Build Condition (Existing + Project trips).

10.a Existing Transit System Capacity – STEP 1

The capacity of a transit line depends 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 5:00 PM to 6:00 PM respectively.

Train and bus frequencies were compiled from latest published MBTA schedules¹ and MBTA Bus Ridecheck data from Fall 2014, and 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 or bus) are based on MBTA's Service Delivery Policy² and



¹ MBTA schedules, January 2016

² MBTA Service Delivery Policy, approved by the Board of Directors in June 2010

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 CRTMA3 has reported a standard functional capacity of 40 passengers per shuttle bus.

Similar to the MIT Kendall Square (MIT KS) transit analysis, the average Red Line on-time performance was adjusted based on the 2015 MBTA Scorecard (included on page 33 of the 2015 MBTA Annual Report, published in December 2015). The reported annual average on-time performance of the Red Line was at 84.8% for year 2015 (a reduction in performance from 86% reported in 2014), based on the passenger wait time metric. This number captures the percentage of passengers who wait on the platform no longer than the scheduled time between trains. For the purposes of this study, the on-time performance adjustment of 84.8% 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 and EZRide service capacity was not adjusted for on-time performance.

Table 10.a.1 below shows resulting system capacities for the Red Line, Bus Lines and EZ Ride Shuttle per MBTA 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					
Inbound	13	0.848	167	6	11,046
Outbound	13	0.848	167	6	11,046
MBTA Bus					
64 Inbound	2.5	n/a	54	n/a	135
64 Outbound	3	n/a	54	n/a	162
68 Inbound	2	n/a	54	n/a	108
68 Outbound	2	n/a	54	n/a	108
85 Inbound	2	n/a	54	n/a	108
85 Outbound	2	n/a	54	n/a	108
CT2 Inbound	3	n/a	54	n/a	162
CT2 Outbound	3	n/a	54	n/a	162
EZRide Shuttle					
Inbound	7	n/a	40	n/a	267
Outbound	7	n/a	40	n/a	267

Notes:

(a) Number of vehicles per hour, per MBTA published schedules (Red Line) and MBTA Ridecheck Fall 2014 (Buses)

(b) On Time Performance Factor from 2015 MBTA Annual Report



³ CRTMA EZRide Feasibility Study, March 2015

- (c) Number of policy level capacity per MBTA Blue Book 14th Edition (Red Line and Buses) and EZ Ride Feasibility Study (March 2015)
- (d) Calculated Capacity = #of Trains x OTP factor x # pax per vehicles x # cars – shown as number of passengers per peak hour

In addition to adjusting the MBTA Red Line capacity for on-time performance (OTP), this study also reviewed the MIT KS TIS Red Line Field Data from May 2015, which shows actual observed capacity numbers. A comparison of OTP adjusted capacity from **Table 10.a.1** above and field observed capacity per MIT KS TIS document, is presented in **Table 10.a.2** below.

All further utilization analyses will report results based on both the MBTA capacity and the MIT KS TIS field observed capacity.

TABLE 10.A.2 RED LINE PEAK HOUR CAPACITY (COMPARISON OF MBTA DATA AND FIELD DATA)

Mode	Frequency (# of vehicles / Peak Hour) ^(a)	Peak Hour Capacity (# Passengers / Peak Hour) ^(b)
Red Line (MBTA)		
Inbound AM&PM	13	11,046
Outbound AM&PM	13	11,046
Red Line (Field Observations)		
Inbound AM	14	14,028
Outbound AM	14	14,028
Inbound PM	12	12,024
Outbound PM	10	10,020

Notes:

- (a) MBTA frequency from schedule assuming 9 min headway for two lines = 4.5min headway at Kendall (60/4.5=13 trains) – number of vehi
- (b) Field observed frequency in May 2015 for MIT KS TIS

10.b Existing Transit System Ridership – STEP 2

The MBTA Ridership data from Fall 2014 was used to obtain peak hour passenger loads for bus routes that are expected to be utilized by the future Project employees and residents. A growth factor of 2 percent per year⁴ was applied to the data to adjust the ridership levels from year 2014 to year 2016.

Red line ridership for this analysis was based on field observations, collected as part of the MIT KS TIS study in May 2015. MBTA ridership data was not utilized in this analysis. A growth factor



⁴ MIT Kendal Square TIS, July 2015

of 4% per year⁴ was applied to the field data to adjust the ridership levels from year 2015 to year 2016.

The resulting adjusted ridership numbers, as used for analyzing the utilization of services, are presented in **Table 10.b.1**, below.

TABLE 10.B.1 ADJUSTED RIDERSHIP LEVELS (YEAR 2016)

Mode	AM Peak Hour				PM Peak Hour			
	Pax Load		# Pax Boarding	# Pax Alighting	Pax Load	Pax Load		Pax Load
	Entering Station	Exiting Station			Entering Station	# Pax Boarding	# Pax Alighting	Exiting Station
Red Line (a)								
Inbound	13,832	717	996	11,752	5,096	902	1,392	7,072
Outbound	6,968	104	1,561	3,640	11,128	1,346	371	12,272
MBTA Bus (b)								
64 Inbound	35	0	0	35	9	1	0	10
64 Outbound	0	11	0	11	0	52	0	52
68 Inbound	19	0	0	19	4	0	0	4
68 Outbound	0	8	0	8	0	16	0	16
85 Inbound	93	1	19	75	6	0	2	4
85 Outbound	0	4	0	4	0	31	0	31
CT2 Inbound	110	3	7	106	41	11	1	51
CT2 Outbound	86	1	30	57	140	9	10	139
EZ Ride Shuttle (c)								
Inbound	107	17	51	73	54	32	20	67
Outbound	85	19	37	67	14	19	11	21

Notes:

- (a) MIT KS TIS Red Line field observations and estimates May 12&13, 2015 & pedestrian counts at station entrances, May 5th, 2015 with a 4% adjustment per year for 1 years of growth; growth rate developed as part of the MIT document from BlueBook published annual ridership data for Red Line specifically (years 2007 to 2014)
- (b) MBTA 2014 bus ridership data was used with 2% adjustment per year for 2 years of growth; growth rate developed as part of the MIT document from BlueBook published annual ridership data for all MBTA Bus services (years 2007 to 2014)
- (c) CRTMA EZ Ride ridership data from September 2014 (monthly boarding sheets and March 2015 Feasibility Study review of approximate bus loads) grown by 2% per year for 2 years

10.c Existing Transit System Utilization – STEP 3

By combining system capacity developed in Step 1 and system ridership from Step 2, we obtain system utilization rates.

Table 10.c.1 presents existing utilization levels in terms of V/C (Volume to capacity) ratios using MBTA data and **Table 10.c.2** presents resulting utilization when calculated from MIT KS TIS Field Data.

TABLE 10.c.1 EXISTING TRANSIT SERVICE UTILIZATION (PER MBTA CAPACITY & MIT FIELD RIDERSHIP)

Route and Direction	(a) Capacity Policy	(b) AM Peak Hour Ridership	(b) PM Peak Hour Ridership	(c) AM Peak Hour V/C	(c) PM Peak Hour V/C
Red Line					
Inbound Entering Kendall	11,046	13,832	5,096	1.25	0.46
Inbound Exiting Kendall	11,046	11,752	7,072	1.06	0.64
Outbound Entering Kendall	11,046	6,968	11,128	0.63	1.01
Outbound Exiting Kendall	11,046	3,640	12,272	0.33	1.11
Bus Routes					
64 Inbound Entering	135	35	9	0.26	0.07
64 Inbound Exiting	135	35	10	0.26	0.08
64 Outbound Entering	162	0	0	0.00	0.00
64 Outbound Exiting	162	11	52	0.07	0.32
68 Inbound Entering	108	19	4	0.17	0.04
68 Inbound Exiting	108	19	4	0.17	0.04
68 Outbound Entering	108	0	0	0.00	0.00
68 Outbound Exiting	108	8	16	0.08	0.14
85 Inbound Entering	108	93	6	0.86	0.06
85 Inbound Exiting	108	75	4	0.69	0.04
85 Outbound Entering	108	0	0	0.00	0.00
85 Outbound Exiting	108	4	31	0.04	0.29
CT2 Inbound Entering	162	110	41	0.68	0.25
CT2 Inbound Exiting	162	106	51	0.65	0.31
CT2 Outbound Entering	162	86	140	0.53	0.87
CT2 Outbound Exiting	162	57	139	0.35	0.86
EZRide Shuttle					
Inbound Entering	267	107	54	0.40	0.20
Inbound Exiting	267	73	67	0.27	0.25
Outbound Entering	267	85	14	0.32	0.05
Outbound Exiting	267	67	21	0.25	0.08

Notes:

- (a) Capacity from step 1, Table 10.a.1
- (b) Peak hour ridership from step 2, Table 10.b.1
- (c) Calculated V/C = ridership / capacity

As presented in **Table 10.c.1**, the existing Bus Routes are operating within MBTA policy capacity with V/C ratios below 1.0.

The existing Red Line utilization however, appears to be slightly above system capacity in the morning inbound direction and evening outbound direction. A V/C ratio over 1.0 does not necessarily translate to passengers not able to board a train, instead the ratio indicates the number of passengers riding above MBTA's policy for a safe and comfortable ride.

Based on presented V/C ratios, the EZ Ride shuttle appears to be operating within capacity as well. It should be noted that EZ Ride utilization at Kendall Square might not represent actually demand near that stop, as many EZ Ride passengers currently walk to a further stop from their origin/destination in order to avoid driving in the "Kendall Loop" and therefore have a shorter overall trip⁵.

A similar utilization analysis using MIT KS TIS observed field data capacity levels, results in the following V/C ratios.

TABLE 10.C.2 EXISTING TRANSIT SERVICE UTILIZATION (PER MIT FIELD CAPACITY & FIELD RIDERSHIP)

Route and Direction	AM Peak Hour Observed Capacity (a)	PM Peak Hour Observed Capacity (b)	AM Peak Hour Observed Ridership	PM Peak Hour Observed Ridership	AM Peak Hour V/C	PM Peak Hour V/C
Red Line						
Inbound Entering Kendall	14,028	12,024	13,832	5,096	0.99	0.42
Inbound Exiting Kendall	14,028	12,024	11,752	7,072	0.84	0.59
Outbound Entering Kendall	14,028	10,020	6,968	11,128	0.50	1.11
Outbound Exiting Kendall	14,028	10,020	3,640	12,272	0.26	1.22

Notes:

- (a) VHB observed 14 trains serving the Inbound and Outbound platforms during the AM Peak Hour on May 12&13, 2015
- (b) VHB observed 12 trains serving the Inbound platform and 10 trains serving the Outbound platform during the PM Peak Hour on May 12&13, 2015. Signal delays and disabled trains were observed on both platforms during the PM peak hour.

Most Red Line services indicate operational levels within MBTA Policy capacity, except for Outbound PM Peak Hour trains which come is slightly above MBTA policy capacity⁶. A V/C ratio of 1.11 for outbound trains entering the station translates to approximately 113 passengers per train (or 19 passengers per car) currently riding above MBTA Policy Capacity, during the PM Peak Hour. A V/C ratio of 1.22 for outbound trains leaving the station translates to approximately 224 passengers per train (or 37 passengers per car) currently riding above policy capacity, during the PM Peak Hour.

As noted in the MIT KS TIS study, the field observation notes indicated service delays due to signal problems and disabled trains in the PM Peak Hour, which could have caused the overcapacity loads on the trains.



⁵ EZ Ride Feasibility Study (March 2015) – Passenger Survey responses.

⁶ Capacity benchmark used for all comparisons is MBTA's Service Delivery Policy (Red Line at 167 pass / car)

10.d Development of Transit Project Trips – STEP 4

As discussed previously in **Section 3.a** of this study, the transit mode share for the Project is 30% for Residential land uses and 37% for retail and offices land uses, therefore the Project is expected to generate 482 new transit trips (355 entering, 127 exiting) during the morning peak hour and 524 new transit trips (469 entering, 55 exiting) during the evening peak hour as shown in **Table 10.d.1**.

TABLE 10.D.1 PROJECT-GENERATED TRANSIT TRIPS

Use	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Phase 1	346	91	437	133	336	469
<u>Phase 2</u>	<u>9</u>	<u>36</u>	<u>45</u>	<u>36</u>	<u>19</u>	<u>55</u>
Total	355	127	482	169	355	524

Project transit trip distribution was established by compiling CTPP7 data for the study area. The assignment to transit routes was done based on current ridership levels on each line near the Project Site, similar to the MIT KS TIS method. It is expected that new employees and residents in the area will follow similar trends. The studied data suggests that approximately 75 percent of retail/office employees who use transit will use the Red Line, and 25 percent will use buses (including EZ Ride) to commute to work. The data also suggests that that 61 percent of residents who use transit will ride the Red Line home and 39 percent will utilize the available bus services.

A detailed transit distribution by line, direction and peak hour is presented in **Table 10.d.2**.



⁷ AASHTO Census Transportation Planning Products, 2006-2010

TABLE 10.D.2 TRANSIT TRIP DISTRIBUTION

Route and Direction	AM Peak Hour		PM Peak Hour	
	% OUT	%IN	% OUT	%IN
Red Line				
Inbound	87.3%	39.0%	40.1%	78.9%
Outbound	12.7%	61.0%	59.9%	21.1%
	100%	100%	100%	100%
Bus Routes				
64 Inbound	0	0	0.6%	0
64 Outbound	17.7%	0	30.3%	0
68 Inbound	0.0%	0	0.0%	0
68 Outbound	12.9%	0.0%	9.1%	0.0%
85 Inbound	1.6%	12.9%	0.0%	4.7%
85 Outbound	6.5%	0.0%	18.2%	0.0%
CT2 Inbound	4.8%	5.0%	6.7%	2.3%
CT2 Outbound	1.6%	20.9%	5.5%	23.3%
EZRide Shuttle				
Inbound	25.8%	35.3%	18.8%	44.2%
Outbound	29.0%	25.9%	10.9%	25.6%
	100%	100%	100%	100%

Source: MBTA existing station ridership levels

Transit distribution is then applied to the Project generated transit trips presented previously in **Table 3.b.1** in order to determine the Project-generated transit trips by line or route, as presented in **Tables 10.d.3 and 10.d.4** below.

TABLE 10.D.3 AM PEAK HOUR PROJECT-GENERATED TRIPS BY LINE

Route and Direction	Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total
Red Line			
Inbound	73	102	175
Outbound	11	160	171
Bus Routes			
64 Inbound	0	0	0
64 Outbound	8	0	8
68 Inbound	0	0	0
68 Outbound	6	0	6
85 Inbound	1	12	13
85 Outbound	3	0	3
CT2 Inbound	2	5	7
CT2 Outbound	1	19	20
EZRide Shuttle			
Inbound	11	33	44
Outbound	12	24	36
Total	127	355	482

TABLE 10.D.4 PM PEAK HOUR PROJECT-GENERATED TRIPS BY LINE

Route and Direction	Trips OUT (Boardings)	Trips IN (Alightings)	Trips Total
Red Line			
Inbound	104	91	195
Outbound	155	24	179
Bus Routes			
64 Inbound	1	0	1
64 Outbound	29	0	29
68 Inbound	0	0	0
68 Outbound	9	0	9
85 Inbound	0	2	2
85 Outbound	17	0	17
CT2 Inbound	7	1	8
CT2 Outbound	5	13	18
EZRide Shuttle			
Inbound	18	24	42
Outbound	10	14	24
Total	355	169	524

10.e 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.e.1**.

TABLE 10.E.1 BUILD CONDITION TRANSIT SERVICE UTILIZATION
(PER MBTA CAPACITY & MIT FIELD RIDERSHIP)

Route and Direction	Capacity Policy (from Step 1)	AM Peak Hour Ridership (Steps 2+3)	PM Peak Hour Ridership (Steps 2+3)	AM Peak Hour V/C (a)	PM Peak Hour V/C (a)
Red Line					
Inbound Entering Kendall	11,046	13,934	5,187	1.26	0.47
Inbound Exiting Kendall	11,046	11,825	7,176	1.07	0.65
Outbound Entering Kendall	11,046	7,128	11,152	0.65	1.01
Outbound Exiting Kendall	11,046	3,651	12,427	0.33	1.13
Bus Routes					
64 Inbound Entering	135	35	9	0.26	0.07
64 Inbound Exiting	135	35	11	0.26	0.08
64 Outbound Entering	162	0	0	0.00	0.00
64 Outbound Exiting	162	19	81	0.12	0.50
68 Inbound Entering	108	19	4	0.17	0.04
68 Inbound Exiting	108	19	4	0.17	0.04
68 Outbound Entering	108	0	0	0.00	0.00
68 Outbound Exiting	108	14	24	0.13	0.23
85 Inbound Entering	108	105	9	0.97	0.08
85 Inbound Exiting	108	76	4	0.70	0.04
85 Outbound Entering	108	0	0	0.00	0.00
85 Outbound Exiting	108	7	49	0.06	0.45
CT2 Inbound Entering	162	115	42	0.71	0.26
CT2 Inbound Exiting	162	108	57	0.67	0.35
CT2 Outbound Entering	162	106	153	0.65	0.94
CT2 Outbound Exiting	162	58	145	0.36	0.89
EZRide Shuttle					
Inbound Entering	267	140	78	0.52	0.29
Inbound Exiting	267	84	85	0.31	0.32
Outbound Entering	267	109	27	0.41	0.10
Outbound Exiting	267	79	31	0.30	0.12

Notes: (a) Calculated V/C = ridership / capacity

As presented in **Table 10.e.1**, all of the Bus Routes, including EZ Ride, are expected to operate within MBTA policy capacity (with V/C ratios below 1.0) in the Build Condition.

The table also indicates that the Red Line is expected to operate at similar levels in the Build Condition as under Existing Conditions. Most movements continue to show operating levels within MBTA policy capacity, except for Inbound trains in the morning and Outbound trains in the evening peak hour, which come is slightly above policy capacity⁸.

A V/C ratio over 1.0 does not necessarily translate to passengers not able to board a train, instead the ratio indicates the number of passengers riding above MBTA's policy level of 167 passengers per car. Note that MBTA's crush capacity ranges between 260 and 277 passengers per car, depending on Red Line car model. This crush capacity definition (source MBTA Blue Book 14th edition) assumes a 1.5 square foot area per passenger.

A similar utilization analysis using the observed field data capacity levels from MIT KS TIS results in the following V/C ratios for the Build Condition.

TABLE 10.c.2 BUILD CONDITION TRANSIT SERVICE UTILIZATION (PER MIT FIELD CAPACITY & FIELD RIDERSHIP)

Route and Direction	AM Peak Hour Observed Capacity (a)	PM Peak Hour Observed Capacity (b)	AM Peak Hour Observed Ridership (Step 2+3)	PM Peak Hour Observed Ridership (Steps 2+3)	AM Peak Hour V/C	PM Peak Hour V/C
Red Line						
Inbound Entering Kendall	14,028	12,024	13,934	5,187	0.99	0.43
Inbound Exiting Kendall	14,028	12,024	11,825	7,176	0.84	0.60
Outbound Entering Kendall	14,028	10,020	7,128	11,152	0.51	1.11
Outbound Exiting Kendall	14,028	10,020	3,651	12,427	0.26	1.24

Notes:

- (a) VHB observed 14 trains serving the Inbound and Outbound platforms during the AM Peak Hour on May 12&13, 2015
- (b) VHB observed 12 trains serving the Inbound platform and 10 trains serving the Outbound platform during the PM Peak Hour on May 12&13, 2015. Signal delays and disabled trains were observed on both platforms during the PM peak hour.

Based on the MIT KS TIS Field Data, the Build Condition shows similar utilization rates as the Existing Condition. Most movements continue to show operating levels within policy capacity, except for the Outbound trains during PM Peak Hour, which continue to come is slightly above policy capacity⁹. A V/C ratio of 1.11 for outbound trains entering the station translates to approximately 113 passengers per train (or 19 passengers per car) riding above MBTA Policy Capacity, during the PM Peak Hour. Note that this is an increase of only 0.5 passenger per car, when compared to Existing Conditions. Similarly a V/C ratio of 1.24 for outbound



⁸ Capacity benchmark used for all comparisons is MBTA's Service Delivery Policy (Red Line at 167 pass / car), actual crush capacity is at 269 pass per car

⁹ Capacity benchmark used for all comparisons is MBTA's Service Delivery Policy (Red Line at 167 pass / car), actual crush capacity is at 269 pass per car

trains exiting the station translates to approximately 241 passengers per train (or 40 passengers per car) riding above MBTA Policy, during the PM Peak Hour. Note that this is an increase of only 2.5 passengers per car, when compared to Existing Conditions.

11 Pedestrian Analysis

Pedestrian crossing volumes at study 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. **Figures 11.a.1 and 11.a.2** provide a graphical representation of the PLOS at the study area intersections for the morning and evening peak hours under theoretical existing, build and future conditions.

Pedestrian level-of-service at signalized intersections is dictated by the portion of the signal cycle dedicated to pedestrian crossings. Accordingly, increasing pedestrian or vehicle volumes does not alter pedestrian level of service at signalized intersections. It is assumed that the walk time and cycle length at the intersection will not change from existing to build conditions, but due to the future infrastructure projects within the area, some PLOS operations will change.

For unsignalized intersections, the PLOS is calculated using the crosswalk length and the conflicting vehicle flow rates for AM and PM peak hours.

All intersections show no change in PLOS with the addition of Project trips.

TABLE 11.A.1 SIGNALIZED INTERSECTION - PEDESTRIAN LEVEL OF SERVICE SUMMARY

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
O'Brien Highway at Third Street	East	D	D	E	D	D	E
	West	D	D	E	D	D	E
	South	D	D	E	D	D	E
O'Brien Highway at First Street	East	-	-	E	-	-	D
	West	-	-	E	-	-	D
	North	-	-	E	-	-	D
	South	-	-	E	-	-	E
Cambridge Street at Third Street	East	B	B	B	B	B	B
	West	B	B	B	B	B	B
	North	B	B	B	B	B	B
	South	B	B	B	B	B	B
Cambridge Street at First Street	East	D	D	E	D	D	D
	West	D	D	E	D	D	D

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
O'Brien Highway at Cambridge Street / East Street	South	D	D	E	D	D	D
	North	-	-	E	-	-	D
	East	D	D	E	D	D	D
	West	D	D	E	D	D	D
	North	D	D	E	D	D	D
O'Brien Highway at Land Boulevard	South	C	C	E	C	C	D
	East	E	E	E	E	E	E
	West	E	E	E	E	E	E
Broadway at Portland Street	North	E	E	E	E	E	E
	East	B	B	B	B	B	B
	West	B	B	B	B	B	B
	North	B	B	B	B	B	B
Broadway at Hampshire Street	South	B	B	B	B	B	B
	East	D	D	D	D	D	D
	West	C	C	C	C	C	C
	North	C	C	C	C	C	C
Binney Street at Galileo Galilei Way/Fulkerson Street	South	C	C	C	C	C	C
	East	D	D	D	D	D	D
	West	D	D	D	D	D	D
	Northeast	D	D	D	D	D	D
Binney Street at Third Street	Northwest	D	D	D	D	D	D
	East	D	D	D	D	D	D
	West	D	D	D	D	D	D
	North	D	D	D	D	D	D
Binney Street at First Street	South	D	D	D	D	D	D
	East	E	E	E	E	E	E
	West	E	E	E	E	E	E
	North	E	E	E	E	E	E
Binney Street at Land Boulevard	South	E	E	E	E	E	E
	East	E	E	E	E	E	E
	North	E	E	E	E	E	E
Broadway at Galileo Galilei Way	South	E	E	E	E	E	E
	East	D	D	D	D	D	D
	West	D	D	D	D	D	D
	North	D	D	D	D	D	D
Broadway at Ames Street	South	D	D	D	D	D	D
	East	D	D	D	D	D	D

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
Broadway at Third Street	South	C	C	C	C	C	C
	East	D	D	D	D	D	D
	West	D	D	D	D	D	D
	North	C	C	C	C	C	C
	South	C	C	C	C	C	C
Main Street at Galileo Galilei Way/ Vassar Street	East	C	C	C	C	C	C
	West	C	C	C	C	C	C
	North	C	C	C	C	C	C
	South	C	C	C	C	C	C
Main Street at Ames Street	East	D	D	D	D	D	D
	West	D	D	D	D	D	D
	North	C	C	D	C	C	D
	South	C	C	D	C	C	D

TABLE 11.A.2 UNSIGNALIZED INTERSECTION - PEDESTRIAN LEVEL OF SERVICE SUMMARY

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing 2016	Build 2016	Future 2021	Existing 2016	Build 2016	Future 2021
Broadway/Main Street at Memorial Drive/Longfellow Bridge	North Approach	A	A	B	A	A	A
	North Receiving	B	B	C	A	A	A
	South Receiving	A	A	A	A	A	A
	South Approach	A	A	A	B	B	C
Main Street at Broadway	South	A	A	A	B	B	B
Memorial Drive /Route 3 Westbound at Ames Street	East	F	F	F	F	F	F
	West	F	F	F	F	F	F
	North	E	E	F	C	C	D
Memorial Drive /Route 3 Eastbound at Ames Street	East	F	F	F	F	F	F
	West	F	F	F	F	F	F

As indicated in the pedestrian LOS analysis, the Project does change the pedestrian LOS at the study area intersections. Slight decreases in pedestrian LOS occur at some intersection in the future condition due to infrastructure changes and the increase in traffic from the

accumulation of other area project specific trips and general background growth within the area.

While the Project does not change the pedestrian LOS at the intersections, the Project does support the enhancement of the pedestrian experience within the KSURP area and particularly around the Project site locations. As described in Chapter 13.e – Transportation Mitigation Proposed Pedestrian Access, Safety, and Streetscape Improvements, the Project will look to enhance the pedestrian environment by creating inviting, safe and comfortable connections between the Project sites, to the rest of the KSURP area, and to the rest of the Kendall Square area.

12 Bicycle Analysis

The KSURP area is well serviced by many different bicycle facilities including bike lanes and cycle tracks, as indicated in **Figure 12**. As indicated in the figure, the City, over time, plans to build a vast bicycle network providing great connections from West Cambridge through the Kendall Square area down to the Charles River multi-use path.

12.a Bicycle Parking

The new bicycle parking associated with the Project is determined by the ratios established by the City of Cambridge Bicycle Parking Guide. The ratios and number of bicycle parking spaces being provided by the Project are shown in **Table 12.a.1**.

TABLE 12.A.1 REQUIRED PROJECT BICYCLE PARKING

Project Component	Size	Long-Term		Short-Term	
		Rate	Spaces	Rate	Spaces
Blue Garage Residential North	96 units	1.05 space per dwelling ¹	100	0.10 spaces per dwelling	10
Blue Garage Residential South	464 units	1.05 space per dwelling ¹	487	0.10 spaces per dwelling	47
145 Broadway (Office)	315,600	0.30 spaces per 1,000 sf	95	0.06 spaces per 1,000 sf	19
145 Broadway (Retail)	10,000 sf	0.10 spaces per 1,000 sf ²	1	1.00 spaces per 1,000 sf	10
250 Binney Street (Office)	315,600	0.30 spaces per 1,000 sf	95	0.06 spaces per 1,000 sf	19
250 Binney Street (Retail)	20,000 sf	0.10 spaces per 1,000 sf ²	2	1.00 spaces per 1,000 sf	20
Total			780		125

Source: City of Cambridge Bicycle Parking Guide

Notes: 1 – per city guide – 1.00 spaces per unit for the first 20 units in a building

2 – per city guide – up to 4 retail long-term spaces may be provided as short term

The Project will provide approximately 780 covered and secure long-term bicycle spaces within the vicinity of the Project components. As the individual buildings are still in the design phase, preliminary bicycle parking layouts are provided for each building in **Figures 12.a.1 and 12.a.2** and in previously shown **Figures D.1 through D.6**. The Project intends to provide a variety of long-term bicycle parking options to accommodate all types of users. For employees looking to ride their bike every day, the convenience of having a bicycle parking

spot inside their office building might be very important. These spaces are provided within the below grade parking structures at each office building, 145 Broadway and 250 Binney Street. For less frequent employee riders, spaces will be available within the Blue Garage where a secure shared bicycle area is provided. Residents will also have varying needs and wants for bicycle storage. Residents who use their bicycle daily will have the convenience of storing their bicycle at grade level within the Blue Garage in existing facilities and new areas within close proximity of their particular building. Other residents may want to store their bicycle in a more remote location such as one of the top floors of the parking garage. The variety of long-term bicycle parking options will allow for all users to be appropriately accommodated.

Short-term spaces, approximately 125 spaces, will be accommodated throughout the site, focusing on the areas near retail and along the 6th Street Connector and various access point off of the pathway. A variance for the locations of the short-term bicycle parking will be discussed with the City to allow for parking spaces to be further from the building entrance points than zoning allows. **Figure 12.a.3** shows the approximate locations of the short-term spaces within the Project area and **Figure 12.a.4** shows a proposed detailed design of the large short-term bicycle parking area along the east-west connector from the Sixth Street Connector to the site's east access road. All bicycle racks, short- and long-term will be compliant with required standards.

12.b Bicycle Conflict Analysis

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

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

Intersection	Time Period	Bicycle Direction	Existing Peak Hour Bicycle Volume	Conflicting Vehicle Movements					
				2016 Existing		2016 Build		2021 Future	
				Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b
O'Brien Highway at Third Street	AM	EB	6	604	51	622	51	707	NA
		WB	2	0	0	0	0	5	0
		NB	0	25	0	25	0	30	0
		SB	-	0	0	0	0	5	160
	PM	EB	0	376	46	383	46	433	NA
		WB	13	0	12	0	12	10	12
		NB	0	19	0	19	0	25	3
		SB	-	0	0	0	0	8	946
O'Brien Highway at First Street	AM	EB	-	NA	NA	NA	NA	251	668
		WB	-	NA	NA	NA	NA	8	NA
		NB	-	NA	NA	NA	NA	0	84

Intersection	Time Period	Bicycle Direction	Existing Peak Hour Bicycle Volume	Conflicting Vehicle Movements					
				2016 Existing		2016 Build		2021 Future	
				Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b
Cambridge Street at Third Street	PM	SB	-	NA	NA	NA	NA	0	53
		EB	-	NA	NA	NA	NA	134	306
		WB	-	NA	NA	NA	NA	18	NA
		NB	-	NA	NA	NA	NA	0	57
		SB	-	NA	NA	NA	NA	0	101
	AM	EB	89	54	42	54	46	119	161
		WB	7	37	36	37	36	39	89
		NB	2	19	58	22	58	39	59
		SB	10	49	19	49	19	40	31
		EB	17	35	10	35	13	55	51
Cambridge Street at First Street	PM	WB	57	244	63	244	63	200	95
		NB	3	8	43	11	43	12	43
		SB	1	62	18	62	18	58	84
	AM	EB	77	55	306	55	323	78	NA
		WB	7	0	0	0	0	NA	NA
		NB	-	116	0	123	0	169	NA
		SB	-	0	0	0	0	420	NA
		EB	16	54	154	54	162	61	NA
O'Brien Highway at East Street/Cambridge Street	PM	WB	45	0	0	0	0	NA	NA
		NB	-	469	0	487	0	685	NA
		SB	-	0	0	0	0	285	NA
	AM	EB	-	NA	NA	NA	NA	NA	NA
		SEB	17	103	422	103	443	NA	NA
		NWB	2	29	84	29	84	74	NA
		SWB	6	46	21	46	21	74	23
		EB	-	NA	NA	NA	NA	NA	NA
O'Brien Highway at Land Boulevard	PM	SEB	0	78	198	78	209	NA	NA
		NWB	13	2	75	2	75	28	NA
		SWB	13	79	164	79	164	128	187
	AM	SEB	52	537	212	537	229	565	301
		NWB	2	278	127	278	132	297	171
		NEB	1	182	328	189	328	230	339
		SWB	11	128	129	138	129	301	158
		SEB	10	263	181	263	189	290	214
Broadway at Portland Street	PM	NWB	27	334	350	334	362	362	490
		NEB	0	279	177	297	177	387	183
		SWB	6	93	363	99	363	154	394
	AM	EB	57	40	35	40	35	41	36
		WB	6	8	75	8	75	8	77

Intersection	Time Period	Bicycle Direction	Existing Peak Hour Bicycle Volume	Conflicting Vehicle Movements					
				2016 Existing		2016 Build		2021 Future	
				Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b
Broadway at Hampshire Street	PM	NB	20	88	77	88	77	90	79
		SB	42	59	43	59	43	60	44
		EB	15	16	25	16	25	16	26
		WB	85	19	62	19	62	19	64
		NB	43	50	14	50	14	51	14
		SB	19	71	76	71	76	73	78
	AM	EB	86	133	142	133	142	136	146
		WB	9	206	4	214	4	258	4
		NB	0	15	266	15	271	15	346
		SB	17	3	3	3	3	3	3
		EB	1	12	30	12	30	12	31
		WB	96	320	15	335	15	467	15
		NB	18	3	231	3	236	3	272
		SB	5	12	68	12	68	12	70
Binney Street at Galileo Galilei Way/Fulkerson Street	AM	EB	6	NA	NA	NA	NA	NA	NA
		WB	9	135	NA	135	NA	196	NA
		SEB	11	24	NA	24	NA	31	NA
		SB	0	46	134	46	134	63	151
	PM	EB	4	NA	NA	NA	NA	NA	NA
		WB	24	83	NA	83	NA	206	NA
		SEB	1	60	NA	60	NA	99	NA
		SB	0	54	141	54	141	57	165
Binney Street at Third Street	AM	EB	14	58	143	78	145	112	202
		WB	12	48	93	48	103	51	124
		NB	12	68	49	68	49	108	40
		SB	17	130	79	150	79	221	95
	PM	EB	11	80	66	137	68	149	145
		WB	20	37	226	37	296	60	385
		NB	19	134	42	138	42	172	43
		SB	11	78	73	87	73	97	78
Binney Street at First Street	AM	EB	2	88	130	88	130	103	263
		WB	10	163	122	163	128	215	205
		NB	5	4	9	4	9	20	9
		SB	4	110	0	127	0	217	0
	PM	EB	1	58	31	58	31	96	59
		WB	3	222	275	222	293	250	372
		NB	5	6	4	6	4	69	4
		SB	3	77	0	85	0	239	0
Binney Street at Land	AM	EB	0	1	NA	1	NA	1	NA

Intersection	Time Period	Bicycle Direction	Existing Peak Hour Bicycle Volume	Conflicting Vehicle Movements					
				2016 Existing		2016 Build		2021 Future	
				Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b
Boulevard	PM	NB	0	NA	NA	NA	NA	NA	NA
		SB	3	326	390	359	390	440	672
		EB	0	3	NA	3	NA	3	NA
		NB	0	NA	NA	NA	NA	NA	NA
		SB	5	134	363	150	363	174	439
Broadway at Galileo Galilei Way	AM	EB	353	97	78	97	122	129	124
		WB	12	36	132	36	159	41	218
		NB	7	114	108	114	108	118	114
	PM	SB	17	187	76	187	76	225	78
		EB	56	58	146	58	243	67	250
		WB	183	25	135	25	151	55	185
		NB	13	106	74	106	74	109	74
		SB	19	162	104	162	106	262	109
Broadway at Ames Street	AM	EB	284	105	117	105	124	141	264
		WB	11	NA	NA	NA	NA	NA	NA
		NB	0	87	NA	88	NA	147	NA
	PM	EB	52	59	85	59	89	68	141
		WB	198	NA	NA	NA	NA	NA	NA
		NB	0	135	NA	149	NA	233	NA
Broadway at Third Street	AM	EB	220	52	NA	52	NA	53	NA
		WB	18	320	230	320	231	394	321
		SB	0	105	NA	109	NA	140	NA
	PM	EB	29	73	NA	73	NA	75	NA
		WB	176	166	196	166	204	204	283
		SB	0	109	NA	112	NA	216	NA
Main Street at Galileo Galilei Way/ Vassar Street	AM	EB	88	73	53	73	53	75	67
		WB	8	107	197	107	248	114	307
		NB	40	150	55	150	55	196	86
	PM	SB	68	228	68	250	68	358	70
		EB	29	75	51	75	51	77	84
		WB	37	25	254	25	282	51	383
		NB	40	140	48	140	48	169	57
		SB	40	155	38	210	38	262	39
Main Street at Ames Street	AM	EB	102	70	10	70	10	144	110
		WB	6	37	75	37	75	38	126
		NB	8	10	52	10	52	10	113
	PM	SB	11	139	64	139	64	187	89
		EB	40	77	15	77	15	97	40
		WB	44	38	37	38	37	39	68

Intersection	Time Period	Bicycle Direction	Existing Peak Hour Bicycle Volume	Conflicting Vehicle Movements					
				2016 Existing		2016 Build		2021 Future	
				Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b	Right Turn ^a	Left Turn ^b
Broadway/Main Street at Memorial Drive/Longfellow Bridge	AM	NB	19	12	43	12	43	12	59
		SB	4	77	70	77	70	105	211
		EB	298	97	NA	97	NA	100	NA
		WB	38	256	NA	256	NA	331	NA
	PM	NB	-	210	NA	210	NA	215	NA
		SB	-	95	NA	95	NA	144	NA
		EB	84	227	NA	227	NA	236	NA
		WB	204	136	NA	136	NA	168	NA
		NB	-	378	NA	378	NA	388	NA
		SB	-	69	NA	69	NA	119	NA
Memorial Drive /Route 3 at Ames Street	AM	EB	6	NA	NA	NA	NA	NA	NA
		WB	0	430	NA	430	NA	474	NA
		SB	0	75	NA	75	NA	87	NA
	PM	EB	1	NA	NA	NA	NA	NA	NA
		WB	1	188	NA	188	NA	193	NA
		SB	1	124	NA	124	NA	138	NA

a Advancing volume

b Opposing volume

NA Movement not available

13 Transportation Demand Management (TDM)

13.a General TDM Measures

The proposed TDM measures aim to reduce drive-alone trips, or single occupancy vehicles (SOVs), by encouraging employees, residents and visitors to use alternative modes of transportation. The proposed TDM plan for the Project includes consideration of enhanced TDM measures outlined in the K2 Final Report 2013, where applicable and feasible, the commitments made through the SEIR, as well as Project-specific measures, with the goal of surpassing SOV of 41 percent for office and 32 percent for residential. While current data and survey of KSURP tenants suggest the existing area meets and surpasses the office goal with only 34 percent of employees driving, the new goal will be to maintain this low driving rate as additional office and residential land uses are built in the area. Overall, the goal of the proposed TDM Plan is to reduce the use SOVs by encouraging carpooling and vanpooling, bicycle commuting and walking, and increased use of the Kendall Square public transportation system by employees and residents. The following TDM measures are proposed to be implemented as part of the Project:

- Appropriate pricing of parking – market rate paid by employees and residents.

- Encourage employers and tenants to provide transportation benefits paid to all employees for commuter expenses regardless of mode, or 100 percent transit subsidy.
- Offer new residents an initial or partial transit subsidy (exact terms to be based on City coordination).
- Provide free access to EZRide shuttle to Lechmere and North Station.
- Encourage employers and tenants to provide private employee shuttles.
- Provide adequate bicycle parking and benefits including Hubway availability and possible membership subsidy.
- Maintain eight (8) parking spaces for ZipCar® car share parking currently in the Green Garage and determine the feasibility of implementing or sponsoring additional car-sharing programs.
- Provide designated car-share parking spaces within and/or nearby KSURP parking garages to the car-share business, if deemed feasible.
- Provide preferential parking to carpool and vanpool participants.
- Provide additional electric vehicle (EV) charging stations and preferential parking to alternative fuel vehicles, as dictated by market.
- Designate a Transportation Coordinator to oversee all transportation-related operational matters at each Project Component site, including vehicular operations, servicing and loading, parking and implementation of the TDM Plan. The Transportation Coordinator will act as the contact and liaison for the City, local Transportation Management Association (TMA) and tenants of the Project.
- Post and make available transit maps, schedules and other information relevant to commuting options in the office and residential building lobbies.
- Provide real-time transportation information in all new and “significantly” renovated/improved lobbies within the Project Components using Transit Screen or other similar products including online platforms.
- Display real-time transit information in the public plaza framed by the Marriott Hotel at 50 Broadway, and 255 and 325 Broadway on Parcel 4.
- Continue to participate in the Charles River TMA who’s membership includes, but not limited to:
 - Emergency Ride Home,
 - NuRide – Ridematching system from MassRIDES, and
 - Carpool and vanpool matching.
- Implement shared parking strategies to reduce the number of new parking spaces needed to support the Project.
- Implement new parking pricing strategies to discourage parking in the area and reduce vehicle trips to the area.
- Monitor mode share goals identified as part of the K2 planning process though the proposed Traffic Monitoring Program (described further in the next subsection).

13.b Proposed Traffic Monitoring Program

The CRA has been conducting an annual traffic study and analysis of Kendall Square for the past 20 years, since implementation as compliance with the 1994 Section 61 Findings. The CRA plans to update the scope of the monitoring program to reflect the evolution of Cambridge's transportation priorities in a complex multi-modal urban environment such as Kendall Square. The improved study shall utilize the most up to date development square footage and traffic projections as well as more holistically consider additional data on bicycles, pedestrians, travel behavior and transit service, as it becomes available.

Changes that may be considered in a new scope of work to be developed by the CRA in the near future may include, but not limited to, the following:

- Obtain and utilize basic data on ridership at the MBTA Kendall Square/MIT station for both subway and bus services.
- Include boarding information from EZRide shuttle and other bus services in the area, as data becomes available.
- Update the tenant questionnaire to be more specific on the mode split – differentiating the type of bus (MBTA, EZRide) or new systems, such as Bridj™ and Uber.
- Differentiate between transient and monthly parkers in the garage data collection process.
- Evaluate new bicycle count locations in response to installation of new bicycle facilities.
- Evaluate the annual traffic data collected by other parties and investigate collaborative reporting over a broader geographic scope.
- Utilize emerging pedestrian, bicycle, and traffic counting technologies as they become feasible and fully comparable to existing dataset.

13.c Proposed Kendall Square Transit Enhancement Program (KSTEP)

The CRA and Boston Properties remain focused, as they have throughout the development of Kendall Center, on preserving and enhancing the favorable transportation mode split in Kendall Square that has played such an important role in the successful redevelopment of the area. It is acknowledged and well documented that approximately 70 percent of trip making in Kendall Square utilizes transit, walking, biking, shuttle and carpool. This remarkable factor is at the core of the opportunity for the Project. The importance of preserving and enhancing this condition cannot be overstated and is central to the CRA's plans for expansion of the KSURP.

The CRA and BP are committed to developing an expanded program of transportation enhancements designed to both preserve the favorable mode share balance in Kendall Square and provide additional improvements to support local efforts to further reduce the vehicle trips generated as a result of the Project and the broader Kendall Square area. The KSTEP will be developed in conjunction with the many stakeholders engaged in transportation planning

and operations in Kendall Square, including the MBTA, MassDOT, and others. The KSTEP would supplement the proposed transportation-related mitigation and other beneficial measures described herein.

The CRA and BP have engaged in multiple discussions with MassDOT and the MBTA to discuss the Project, its impacts, and potential transportation mitigation and enhancements in the Kendall Square area. A range of issues have been identified and potential improvement opportunities considered for inclusion in the KSTEP program. The KSTEP would be designed to enhance access to and mobility around Kendall Square, which the CRA believes is critical to the long-term economic success of the area. It is expected that the KSTEP will be focused on major transportation initiatives that will improve transit options and services in Kendall Square. They will include a range of projects, programs, and services directed at improving and enhancing transit and related options for people working, living, and visiting the Kendall Square area. The KSTEP would focus on enhancements to transit. Transit and transit-related improvements options to be considered would include both capital and operational investments that would result in service level improvements and capacity expansion in Kendall Square.

The CRA and BP recognizes that the development of the KSTEP will require detailed consideration and analysis of the enhancement alternatives as well as careful coordination with the stakeholders and service providers. The CRA believes that this analysis can be undertaken by a Working Group, which shall include the CRA, BP, the MBTA, MassDOT and other stakeholders as may be designated. The analysis will be designed to coordinate with the City's Transit Strategic Plan, which is focused on improving transit capacity and quality throughout the City. The CRA, in coordination with the City, will work with Mass DOT and the MBTA to develop the elements of the KSTEP, which can be refined supplemented over time as the Working Group completes its work.

The KSTEP would be supported by immediate and long-term funding commitments facilitated by the CRA and BP in connection with the approvals for the Project. It is the expectation of the CRA that consultations with the MBTA, MassDOT, and the City will continue to examine a range of potential transit improvements for Kendall Square to be included in the KSTEP and on the appropriate mechanism(s) for making commitments for these improvements and incorporating the program elements into the transportation planning processes at the City and state level. The CRA recognizes the extensive demands and limited resources available to MassDOT and the MBTA for service improvements throughout the system.

The CRA is committed to developing a MOU with MassDOT and the MBTA, together with BP and the City, as a mechanism to identify and implement appropriate transit improvements consistent with the KSTEP. The Working Group shall decide on funding priorities and allocations for identified transit improvement projects.

The CRA is committed to filing the draft MOU with MEPA for review by July 1, 2016. The KSTEP will be based upon the recommendations of the Working Group. As a transit mitigation measure for the Project, an initial payment of the sum of not less than \$6 million for transit

improvements recommended by the KSTEP will be contributed as a “fair share” contribution. This one-time payment would be made at the time a Building Permit is obtained for the first major phase of the Project. Additionally, through a mechanism(s) to be determined by the terms of the MOU, the KSTEP will receive additional funding to be provided by BP, which will represent an allocation of funding under the KSURP supplemented by contributions from others. The MOU process will ultimately lead to a plan, agreed upon by all involved parties, of mitigation measures the CRA and BP will implement to improve the public transportation infrastructure and experience within the KSURP area.

Over the coming months, the key stakeholders will continue to work closely to develop and refine the KSTEP proposal, including additional details on the potential source of these funds and the range of transit mitigation projects and program options for consideration, including:

- **MBTA Red Line Kendall Station Improvements** - Immediate operating and capital improvements to the existing transit infrastructure at Kendall Station, including station capacity and egress, Kendall Square transit information, communications and way-finding, Red Line ticketing, climate change adaptation/resiliency, bus and bicycle connectivity, and overall station functionality and appearance.
- **Kendall Station / Kendall Square Connection Enhancements** - Capital support for improving existing or new ground transportation via non-MBTA shuttles and/or MBTA buses or Bus Rapid Transit (BRT) aimed at facilitating access to and from Kendall Square.
- **MBTA Red Line Service Modernization and Improvements** - Signal, track and other technology improvements designed to increase capacity and reliability especially at peak-of-the-peak including enhancing headways (time between service) and other improvements that will positively impact the quality of transit service and the customer experience.
- **Long-Range Feasibility Investigations** – Planning for and potential capital investment toward new public transit services.

Proposed MBTA Bus and EZRide Shuttle Improvements

The CRA and BP understands the importance of the bus system within the Kendall Square area, both the MBTA routes and the EZRide Shuttle. As indicated in the analysis, bus operations will be affected by Project-generated traffic, particularly the EZRide Shuttle. The CRA will work with the MBTA, City, and Charles River TMA to evaluate potential bus operations improvements in the KSURP area, including:

- Studying and partially funding the increase in EZRide service. The CRA will work with the Charles River TMA to devise a plan as to how EZRide can best serve the community in the future and provide support to the expansion of EZRide service including, but not limited to:
 - Decreasing headways
 - Increasing bus fleet

- Optimizing bus routes
- Discuss, with the City, the implementation of the proposed local roadway intersection signal improvements, discussed and analyzed in the SEIR which will decrease delay at specific intersections that MBTA buses pass through. The bus routes anticipated to experience reductions in delay include Routes 64, 68, 85 and EZRide at the intersections of Broadway at Galileo Galilei Way and Main Street at Galileo Galilei Way/Vassar Street, respectively.
- The CRA will discuss with the City, MBTA and MassDOT as part of the MOU process, the study and possible implementation of the following bus mitigation measures along the bus routes serving the area:
 - Bus Priority Signals
 - Bus Lanes
 - Bus Shelter Improvements
- Implementing the extension of bus routes from Central Square to Kendall Square.

The August 25, 2014 draft report, Central Square Access and Circulation Study Existing Conditions Analysis (Task 1) presents a story that there is a potential need for a bus connection between Central Square and Kendall Square. Many passengers riding buses that terminate at Central Square use the Red Line to make their last connection to Kendall Square. With the extension of MBTA bus route(s) to Kendall Square demand could be shifted away from the Red Line and a vital second connection would be made between Central Square and Kendall Square. The study was completed and a report compiled July 2015 to address the bus issues within Central Square. While the near-term and longer-term recommendations do not discuss, in-depth, the possibility of extending one or two bus lines to Kendall Square, from the Existing Conditions Analysis Study, this connection is vital. The CRA is interested in exploring and discussing the possibility of providing another Central Square/Kendall Square connection through an MBTA bus route.

13.d Proposed Pedestrian Access, Safety, and Streetscape Improvements

As discussed previously, the KSURP area provides excellent pedestrian accommodations, including sidewalks on all study area roadways and crosswalks at all study area intersections. The City is ahead of many other communities in utilizing pedestrian countdown timers with LPI (Leading Pedestrian Interval) programming and many of the signalized intersections within the KSURP area have pedestrian countdown timers with such technology.

Both the CRA and BP are committed to creating a cohesive, integrated network of open spaces and connected pathways while improving pedestrian safety, access and circulation within the KSURP area. The CRA, in conjunction with BP, will work with the City to identify areas of improvement. Measures could include the following:

- Provide additional pedestrian countdown timers at study area intersections.
- Implement LPI programming at study area intersection.

- Incorporate a new mid-block pedestrian crossing at the Broadway crossing between the proposed 135 Broadway/Blue Garage office buildings and Danny Lewin Park on the south side of Broadway (refer to discussion below for more details).
- Improve the Sixth Street Connector by increasing driver awareness of the pedestrian crossing with advanced warning signs. In addition, this connection should be studied in connection with the Sixth Street Connector Pathway improvements, possibly improving upon or enhancing the existing HAWK system or other pedestrian crossing systems discussed previously in Section 2.b. The Project proposes to redesign the Sixth Street Connector Pathway to provide separated pedestrian and bicycle facilities while maintaining the mature trees along the existing pathway. **Figure 13.e.1** shows the current proposed design of the new Sixth Street Connector pathway.
- Review all pedestrian crossings within the KSURP boundaries to assess their potential for bulb-outs, raised crossings, pedestrian refuge islands, Rectangular Rapid Flashing Beacons (RRFB's), re-aligned non-apex ramps and/or other treatments to enhance the comfort and visibility of crosswalks.
- Enhance the Main Street streetscape between Ames Street and Galileo Galilei Way.
- Enhance the Broadway streetscape from Ames Street to Galileo Galilei Way.
- Enhance the Binney Street and Galileo Galilei Way streetscape from Sixth Street to Broadway.
- Improve pedestrian safety by enhancing lighting along sidewalks and pathways for safer pedestrian accommodations.
- Enhance open spaces with multiple outdoor connections to buildings within the KSURP area.
- Support roadway and streetscape improvements along Galileo Galilei Way between Binney and Main Streets.

Broadway Mid-Block Crossing

The proposed Project concentrates much of the retail and building frontage along the north side of Broadway between Galileo Galilei Way and Ames Street. While there are sufficient crosswalks provided at both of these intersections, some pedestrians cross Broadway in between these designated areas frequently and with the proposed Project adding possible destinations to this area, even more pedestrian crossings are anticipated. The idea of a Broadway mid-block crossing has been proposed, between the two access roads, to provide safer accommodations to these pedestrians already crossing at this location as well as for the anticipated future pedestrians going to and from the proposed buildings. In order to understand existing crossings at this location, observations were conducted on Thursday, June 2, 2016 during the morning and evening peak periods. **Table 13.e.1** provides a summary of the observed crossings.

TABLE 13.E.1 EXISTING BROADWAY MID-BLOCK CROSSING VOLUMES (JUNE 2016)

Crossing Direction	AM Peak (7:30 – 9:30 AM)	PM Peak (4:30 – 6:30 PM)
North side traveling east, cross southeast, continue to head east on south side	7	5
North side traveling west, cross southwest, continue to head west on south side	1	0
South side traveling east cross northeast, continue to head east on north side	2	1
South side traveling west cross northwest, continue to head west on north side	6	4
From access roads/EZRide stop (north) to park/buildings/EZRide stop (south)	17	12
From park/buildings/EZRide stop (south) to access roads/EZRide stop (north)	32	21
Total	65	43

As indicated in the table above there are many pedestrians that cross at this mid-block location and do not use the crosswalks provided at the intersections, which are only approximately 250 feet from the mid-block area. Pedestrians using this mid-block area were crossing to go to the EZRide Shuttle stop which is located on either side of the area at 150 Broadway to the north and 145 Broadway to the south. It was also observed that the majority of pedestrians crossing at this location are heading to the destinations directly north or south and possibly see walking to either of the intersections, where a crosswalk is provided, is too much out of the way. This trend would only increase with the activation of the north side of Broadway through the proposed Project and providing a mid-block crossing would increase safety to the current and future pedestrians who choose to cross at this location.

13.e Proposed Bicycle Facility Improvements

As discussed previously, the KSURP area is well serviced by bicycle facilities, including on-street bike lanes, cycle tracks, and multi-use pathways. As shown previously in **Figure 12**, the City and other improvement projects will further add to the bicycle infrastructure in the area.

Both the CRA and BP are committed to enhancing bicycle infrastructure at each Project Component and within the KSURP area by connecting this infrastructure with other area-wide improvements. The CRA will discuss with the City the possibility of contributing to the proposed infrastructure improvements within the area, including the cycle track along Galileo Galilei Way and the Grand Junction Multi-Use Path. BP is also committed to improving the Sixth Street Connector by providing separate bicycle and pedestrian facilities included a grade separated cycle track to be aligned with the future cycle track on Ames Street. **Figure 13.e.1** provides a proposed Sixth Street Connector rendering to be discussed with the City and developed further as the design process continues. Additionally, in close coordination with the

City, Boston Properties, and Other Developers, the CRA will also explore opportunities to create a full-service bike station within the area.

Based on the comprehensive evaluation of the existing KSURP bicycle parking, the current number of supplied spaces complies with the original 1981 Bicycle Parking Requirements, while retrofitting the KSURP area to meet the 2013 Bicycle Parking Ordinance is not required by zoning. However, Boston Properties is committed to supporting and expanding bicycle ridership within the district through current and future efforts in a variety of ways. BP has donated sites for two Hubway stations located at 250 Binney Street and 255 Main Street. And, a third Hubway station will be installed at 88 Ames Street in 2018. BP will also look into possible locations for adding additional Hubway stations within the Project site or KSURP area, if demand in the area warrants one. In addition to these infrastructure commitments, BP sponsors a breakfast during the annual "Bike to Work Week" in May as well as providing free bike tune-up and safety checks twice a year (Spring/Fall).

Based on the bicycle parking existing conditions occupancy study, the overall existing supply provides more than enough bicycle parking to meet current demand. The analysis did indicate that the Blue Garage was slightly over capacity during the day. In order to provide enough supply to meet this demand BP will provide additional bicycle parking within the Blue Garage as part of the 135 Broadway/Blue Garage residential and parking addition.

The Project will include approximately 780 long-term bicycle spaces and 125 short term bicycle spaces, in accordance with the City's current bike parking requirements. Long-term secure bicycle spaces will be distributed between the Blue Garage, proposed 145 Broadway office building, and proposed 250 Binney Street office building. Outdoor short-term bicycle parking spaces will be distributed around the KSURP area, focusing on areas around the Project Component sites and other high demand areas observed as part of the existing conditions occupancy study.

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	3,650	Yes
Week AM Peak Hour	240	390	Yes
Week PM Peak Hour	240	429	Yes

The Project is expected to exceed the Planning Board criteria for daily, morning peak and evening peak Project vehicle trip generation under the Full 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	AM Peak Hour				PM Peak Hour			
	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion	Existing Condition	Build Condition	Traffic Increase	Exceeds Criterion
O'Brien Highway at Third Street	F	F	1.2%	No	F	F	1.3%	No
Cambridge Street at Third Street	D	D	2.2%	No	F	F	2.4%	No
Cambridge Street at First Street	F	F	3.3%	No	F	F	2.9%	No
O'Brien Highway at Cambridge Street/ East Street	C	C	1.2%	No	B	B	1.3%	No
O'Brien Highway at Land Boulevard/ Gilmore Bridge	F	F	1.7%	No	F	F	1.9%	No
Broadway at Portland Street	D	D	2.2%	No	D	D	1.8%	No
Broadway at Hampshire Street	D	E	3.0%	Yes	D	D	3.2%	No
Binney at Galileo Galilei Way/Fulkerson Street	C	C	6.3%	No	C	C	4.1%	No
Binney Street at Third Street	C	C	7.6%	No	D	D	9.5%	Yes
Binney Street at First Street	C	C	5.1%	No	C	C	5.3%	No
Binney Street at Land Boulevard	C	C	1.8%	No	C	C	1.9%	No
Broadway at Galileo Galilei Way	F	F	6.5%	Yes	F	F	7.7%	Yes
Broadway at Ames Street	E	E	6.9%	No	E	E	4.9%	No
Broadway at Third Street	D	E	5.0%	Yes	D	D	5.3%	No
Main Street at Galileo Galilei Way/Vassar Street	C	C	6.0%	No	C	C	7.7%	No
Main Street at Ames Street	C	C	2.8%	No	C	C	1.1%	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

18 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

Roadway	Reviewed Segment	Amount of Residential	AM Peak Hour			PM Peak Hour		
			Existing	Project Trips	Exceeds Criteria?	Existing	Project Trips	Exceeds Criteria?
O'Brien Highway Broadway	Land Blvd to East St/Cambridge St	1/2 or more	2399	33	No	2237	36	No
	Clark St to Windsor St	1/2 or more	841	32	No	980	30	No
Hampshire Street	Medeiros Ave to Webster Ave	1/3 or less	534	13	No	689	20	No
	Webster Ave to Clark St	>1/3 but <1/2	534	13	No	689	20	No
Memorial Drive	Ames Street to Wadsworth	1/2 or more	2744	26	No	3126	11	No
Third Street	Broadway to Binney St	1/3 or less	817	25	No	859	68	No
	Binney St to Rodgers St	>1/3 but <1/2	778	33	No	898	44	No
	Rogers St to Bent St	1/3 or less	778	33	No	898	44	No
	Bent St to Charles St	>1/3 but <1/2	778	33	No	898	44	No
	Charles St to Hurley St	1/2 or more	778	33	No	898	44	Yes
	Hurley St to Spring St	1/2 or more	778	33	No	898	44	Yes
	Spring St to Thorndike St	1/3 or less	778	33	No	898	44	No

Roadway	Reviewed Segment	Amount of Residential	AM Peak Hour			PM Peak Hour		
			Existing	Project Trips	Exceeds Criteria?	Existing	Project Trips	Exceeds Criteria?
	Thorndike St to Otis St	1/2 or more	778	33	No	1239	38	No
	Otis St to Cambridge St	1/3 or less	785	33	No	898	44	No
	Cambridge St to Gore St	1/3 or less	831	26	No	1239	38	No
	Gore St to O'Brien Highway	1/2 or more	826	26	No	1260	38	No
Second Street	Binney St to Bent St	1/3 or less	126	4	No	298	7	No
	Bent St to Hurley	>1/3 but <1/2	288	4	No	350	7	No
	Hurley St to Thorndike	1/3 or less	272	4	No	290	7	No
	Thorndike St to Cambridge	>1/3 but <1/2	272	4	No	290	7	No
	Cambridge St to O'Brien Hwy	1/3 or less	272	4	No	290	7	No
Sixth Street	Binney St to Bent	>1/3 but <1/2	338	13	No	388	6	No
	Bent St to Hurley	>1/3 but <1/2	338	13	No	388	6	No
	Hurley St to Thorndike	1/2 or more	338	13	No	388	6	No
	Thorndike St to Cambridge St	>1/3 but <1/2	338	13	No	388	6	No
	Cambridge St to Gore St	1/2 or more	338	13	No	388	6	No

Note: Volume interpolated from nearest data available in study area

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	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
O'Brien Highway at Third Street	NB Left/Right	1	2	No	5	5	No
	SEB Thru/Right	~26	~27	No	~21	~22	No
	NWB Left/Thru	1	2	No	~14	~14	No
Cambridge Street at Third Street	EB Left/Thru/Right	8	8	No	~14	~14	No
	WB Left/Thru/Right	7	7	No	~16	~16	No
	NB Left/Thru/Right	3	4	No	7	8	No
	SB Left	2	2	No	0	0	No
	SB Thru/Right	15	16	No	4	4	No
Cambridge Street at First Street	EB Thru/Right	~9	~9	No	~10	~10	No
	WB Left	~9	~10	No	3	3	No
	WB Thru	~4	~5	No	3	3	No
	NB Left	1	1	No	4	4	No
	NB Right	3	3	No	~13	~13	No
Cambridge Street at O'Brien Highway	EB Left	3	3	No	1	1	No
	EB Thru	14	14	No	1	1	No
	EB Right	3	3	No	1	1	No
	WB Left	5	6	No	2	3	No
	WB Thru/Right	4	4	No	9	9	No
	NB Left/Thru	1	1	No	5	5	No
	NB Right	0	0	No	0	0	No
	SB Left/Thru/Right	2	2	No	2	2	No
Land Boulevard at O'Brien Highway	SEB Left	4	5	No	~16	~17	No
	SEB Thru	~15	~15	No	7	7	No
	SEB Right	0	0	No	0	0	No
	NWB Left	4	4	No	4	4	No
	NWB Thru	~11	~12	No	~11	~11	No
	NWB Right	1	1	No	4	4	No
	NEB Left	5	5	No	~17	~17	No
	NEB Thru	~9	~9	No	~24	~24	No
	NEB Right	0	0	No	4	3	No
	SWB Left/Thru/Right	~26	~27	No	~14	~15	No
Broadway at Portland Street	EB Left/Thru/Right	13	~15	No	~14	~15	No
	WB Left/Thru/Right	8	8	No	11	~16	No
	NB Left	1	1	No	2	2	No
	NB Thru/Right	7	7	No	9	9	No
	SB Left	1	1	No	1	1	No
	SB Thru/Right	2	2	No	2	2	No

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
Broadway at Hampshire Street	EB Left/Thru	12	13	No	12	12	No
	EB Right	3	3	No	1	1	No
	WB Left	~5	~6	No	1	1	No
	WB Thru	3	3	No	6	6	No
	WB Right	1	1	No	5	5	No
	NB Left	1	1	No	~3	~3	No
	NB Thru/Right	1	1	No	3	3	No
	SB Left	~6	~7	No	5	5	No
	SB Thru/Right	1	1	No	1	1	No
Binney Street at Galileo Galilei Way/Fulkerson Street	EB Thru	4	4	No	7	9	No
	WB Thru/Right	5	4	No	6	6	No
	SB Right	7	7	No	4	4	No
	SB Left	5	5	No	7	7	No
	SB Right	1	1	No	2	2	No
Binney Street at Third Street	EB Left	2	2	No	8	8	No
	EB Thru/Right	4	3	No	7	9	No
	WB Left	4	5	No	2	2	No
	WB Thru/Right	6	7	No	3	4	No
	NB Left/Thru	3	3	No	10	10	No
	NB Right	1	1	No	4	4	No
	SB Left/Thru/Right	14	15	No	9	9	No
Binney Street at First Street	EB Left	2	2	No	5	6	No
	EB Thru/Right	1	2	No	2	2	No
	WB Left/Thru/Right	13	14	No	2	2	No
	NB Left/Thru/Right	1	1	No	1	1	No
	SB Left/Thru	5	4	No	9	9	No
	SB Right	4	5	No	3	3	No
Binney Street at Land Boulevard	EB Left/Right	3	3	No	3	3	No
	NB Left	7	7	No	7	7	No
	NB Thru	3	3	No	7	7	No
	SB Thru	15	15	No	15	15	No
	SB Right	9	10	No	4	5	No
Broadway at Galileo Galilei Way	EB Left	4	5	No	3	4	No
	EB Thru	~17	~17	No	8	8	No
	EB Right	2	2	No	1	1	No
	WB Left	3	~4	No	~7	~12	No
	WB Thru/Right	6	6	No	8	8	No
	NB Left	3	2	No	4	4	No
	NB Thru/Right	5	~16	Yes	8	8	No

Intersection	Movement	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
	SB Left	3	3	No	2	2	No
	SB Thru	11	11	No	9	9	No
	SB Right	~6	~6	No	~6	~6	No
Broadway at Ames Street	EB Thru	~20	~20	No	~17	~17	No
	EB Right	2	3	No	1	1	No
	WB Left	2	2	No	2	3	No
	WB Thru	8	10	No	9	10	No
	NB Left	2	3	No	4	5	No
	NB Right	1	0	No	3	3	No
Broadway at Third Street	EB Left	7	7	No	4	5	No
	EB Thru/Right	5	5	No	9	9	No
	WB Thru	12	~16	No	9	10	No
	WB Right	8	8	No	4	4	No
	SB Left/Thru	4	4	No	~10	~14	No
	SB Right	2	3	No	3	3	No
Main Street at Galileo Galilei Way/Vassar Street	EB Left	4	6	No	5	6	No
	EB Thru/Right	6	6	No	6	6	No
	WB Left	2	2	No	1	1	No
	WB Thru/Right	5	5	No	2	2	No
	NB Left/Thru/Right	6	6	No	6	6	No
	SB Left	2	2	No	2	2	No
	SB Thru	10	10	No	9	10	No
	SB Right	7	7	No	4	6	No
Main Street at Ames Street	EB Left/Thru/Right	6	6	No	10	10	No
	WB Left/Thru/Right	1	1	No	1	1	No
	NB Left/Thru/Right	3	3	No	4	4	No
	SB Left/Thru	3	3	No	2	2	No
	SB Right	4	4	No	2	2	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. **Table 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

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
O'Brien Highway at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	D	D	No	D	D	No
Cambridge Street at Third Street	East	B	B	No	B	B	No
	West	B	B	No	B	B	No
	North	B	B	No	B	B	No
	South	B	B	No	B	B	No
Cambridge Street at First Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	D	D	No	D	D	No
O'Brien Highway at Cambridge Street / East Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	C	C	No	C	C	No
O'Brien Highway at Land Boulevard	East	E	E	Yes	E	E	Yes
	West	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
Broadway at Portland Street	East	B	B	No	B	B	No
	West	B	B	No	B	B	No
	North	B	B	No	B	B	No
	South	B	B	No	B	B	No
Broadway at Hampshire Street	East	D	D	No	D	D	No
	West	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Binney Street at Galileo Galilei Way/Fulkerson Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	Northeast	D	D	No	D	D	No
	Northwest	D	D	No	D	D	No

Intersection	Crosswalk	AM Peak Hour			PM Peak Hour		
		Existing	Build	Exceeds Criteria?	Existing	Build	Exceeds Criteria?
Binney Street at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	D	D	No	D	D	No
Binney Street at First 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
Binney Street at Land Boulevard	East	E	E	Yes	E	E	Yes
	North	E	E	Yes	E	E	Yes
	South	E	E	Yes	E	E	Yes
Broadway at Galileo Galilei Way	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	D	D	No	D	D	No
	South	D	D	No	D	D	No
Broadway at Ames Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	South	C	C	No	C	C	No
Broadway at Third Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Main Street at Galileo Galilei Way/ Vassar Street	East	C	C	No	C	C	No
	West	C	C	No	C	C	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No
Main Street at Ames Street	East	D	D	No	D	D	No
	West	D	D	No	D	D	No
	North	C	C	No	C	C	No
	South	C	C	No	C	C	No

Criteria 2 & 3: Safe Pedestrian and Bicycle Facilities

Criteria 2: Safe Pedestrian Facilities

Safe pedestrian facilities must exist on any adjacent publicly-accessible street of right-of-way; and they must connect to site entrances, interior walkways, and adjoining pedestrian facilities.

Criteria 3: Safe Bicycle Facilities

Where sufficient right-of-way currently exists, safe bicycle facilities must exist or sufficient right-of-way must be preserved on any adjacent publicly-accessible street of right-of-way; and they must connect to site entrances, interior pathways, and adjoining bicycle facilities.

Table E-3 presents the evaluation of safe pedestrian and bicycle facilities against this criteria.

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?
Binney Street	Galileo Galilei Way and Third Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Third Street (south side)	Yes	No	Yes	No
Broadway	Galileo Galilei Way and Ames Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Ames Street (south side)	Yes	No	Yes	No
	Ames Street and Third Street (north side)	Yes	No	Yes	No
	Ames Street and Third Street (south side)	Yes	No	Yes	No
Ames Street	Broadway and Main Street (north side)	Yes	No	Yes	No
	Broadway and Main Street (south side)	Yes	No	Yes	No
Galileo Galilei Way	Main Street and Broadway (west side)	Yes	No	Yes	No
	Main Street and Broadway (east side)	Yes	No	Yes	No
	Broadway and Binney Street (west side)	Yes	No	Yes	No
	Broadway and Binney Street (east side)	Yes	No	Yes	No
Main Street	Galileo Galilei Way and Ames Street (north side)	Yes	No	Yes	No
	Galileo Galilei Way and Ames Street (south side)	Yes	No	Yes	No
	Ames Street and Broadway (north side)	Yes	No	Yes	No
	Ames Street and Broadway (south side)	Yes	No	Yes	No

TIS Figures

Transportation Analysis Update Memorandum (Special Permit #315)



To: Joseph E. Barr, Director
Cambridge Traffic, Parking and
Transportation Department

Date: September 14, 2018

Memorandum

Project #: 12959.02

From: Sean M. Manning, P.E., PTOE
Selma Mandzo-Predzic, P.E.

Re: KSURP Infill Development
Transportation Analysis Update (Special Permit #315) - Final

1. Introduction

On behalf of Boston Properties, or BP, (the Proponent), Vanasse Hangen Brustlin, Inc. (VHB) is providing an update to the Certified Transportation Impact Study (TIS) for the Kendall Square Urban Renewal Plan (KSURP) Infill Development Concept Plan in Cambridge, Massachusetts (the Project).

The original TIS was submitted to the Cambridge Traffic, Parking, and Transportation (TP&T) Department on June 23, 2016 and certified on July 14, 2016. The Proponent submitted a Special Permit application (PB#315) to the Planning Board, under Article 14, in September 2016 and received Planning Board approval in March 2017. In January 2017, VHB submitted an update to the transportation analysis that reflected changes in the proposed development program, which were documented by TP&T in a memo to the Planning Board dated January 11, 2017, in support of the Board's approval of the Special Permit for the KSURP Project.

This technical memorandum provides an updated trip generation analysis and comparison, as well as an updated parking analysis, to reflect the current development program, post Planning Board approval.

Figure A illustrates BP properties throughout Kendall Square, while **Table 1** summarizes the occupancy levels for each. **Figure B** shows the sites and garages that are a part of the Infill Development Concept Plan (IDCP), and **Figure C** shows the Proposed Access and Circulation throughout the district.

■ **Table 1** **Kendall Center Buildings¹**

Building	Program	Occupied %
1CC (255 Main Street)	215,377 sf Office	57% occupied
2CC (Marriott Hotel)	289,813 sf (421 keys) & 42,245 sf Retail	100 % occupied
3CC (325 Main Street)	62,757 sf Office & 42,300 sf Retail	100 % occupied
4CC (90 Broadway)	216,751 sf Office & 4,486 sf retail	100 % occupied
5CC (355 Main Street)	257,880 sf Office & 14,507 sf Retail	100 % occupied
6CC (Residence Inn)	185,356 sf (221 keys) & 2,118 sf Retail	100 % occupied
7CC (415 Main Street) Broad Institute	194,096 sf Office	100 % occupied
75 Ames Street	237,057 sf Office & 5,449 sf Retail	100 % occupied; Retail is vacant
8CC (150 Broadway)	176,562 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied

Building	Program	Occupied %
10CC (105 Broadway)	145,603 sf Office	13 % occupied
12CC (115 Broadway)	233,945 sf Office	100 % occupied
14CC (250 Binney)	62,576 sf Office	100 % occupied
15CC (125 Broadway)	218,288 sf Office	100 % occupied
17CC (300 Binney)	189,661 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied
9CC (Whitehead Institute)	197,519 sf Office	100 % occupied

1-GFA as occupied in October 2017

2. Program Comparison

The original TIS from 2016 proposed 1,095,200 GSF of office, retail, and residential space. In January 2017, the program was reduced to a total of 1,066,500 GSF in order to strengthen the public realm features of the Project, and accelerate the development schedule.

As the overall project continues to evolve, some changes are being proposed to the 2017 program that was approved as part of the Special Permit process. The new program will maintain the approved 1,066,500 GSF development envelope, but include the following specific changes from the approved 2017 IDCP and accompanying TIS Update:

- Residential North and Residential South total unit count is being increased to 494 units from the approved 425 units (which is still less than the original 560 residential units proposed in the 2016 TIS). The total square footage dedicated to residential is remaining constant at 420,000 GSF.
- Building A, 145 Broadway (aka 11 Cambridge Center), is being adjusted from the approved 375,132 Net New GSF to 362,978 Net New GSF.
- Building B, originally proposed at 250 Binney Street (aka 14 Cambridge Center), will now be constructed at 325 Main Street (aka 3 Cambridge Center), containing 268,222 of Net New GSF, referred to as Building B' and increased from the approved 256,068 Net New GSF at Building B.
- The existing 250 Binney Street building will not be demolished, as previously contemplated, but instead remain operational at the existing 62,576 GSF office use.
- The 650-space parking garage that was associated with the originally anticipated re-developed 250 Binney Street building is no longer part of the Project.
- No new parking structures will be constructed at Building B' as part of this Project.

- The existing three campus garages (Yellow, Green and Blue) as well as the previously approved new garage at 145 Broadway, are expected to serve current and future users, through the utilization of surplus capacity that exists today, the implementation of shared parking and other parking management strategies.

Table 2 provides a summary of the proposed development program, the existing square footage to be demolished, and the resulting new-net infill program. Please note that the future Building B' retail component will be similar in size as the existing building retail component, therefore the table below shows no additional new retail square footage. The future Building B' retail component will include a replacement of the MIT coop as well as additional retail opportunities, totaling approximately 42,300 square feet.

■ **Table 2 Proposed Development Program¹**

Project Component	Proposed Project Program	Existing to be Removed	Net-New Program
Building A - 145 Broadway	<u>441,614 sf</u>	<u>(-78,636) sf</u>	<u>362,978 sf</u>
(Office)	432,914 sf	(-78,636) sf	354,278 sf
(Retail/Active Use)	8,700 sf	-0 sf	8,700 sf
Building B' - 325 Main St [#]	<u>385,423 sf</u>	<u>(-117,201) sf</u>	<u>268,222 sf</u>
(Office)	343,123 sf	(-74,901) sf	268,222 sf
(Retail/Active Use)	42,300 sf	(-42,300) sf	0 sf ^{##}
Residential North - 135 Broadway	<u>71,300 sf</u>	<u>-0 sf</u>	<u>71,300 sf</u>
(Residential)	70,000 sf (90 units)	-0 sf	70,000 sf (90 units)
(Retail/Active Use)	1,300 sf	-0 sf	1,300 sf
Residential South - 135 Broadway	<u>350,000 sf</u>	<u>-0 sf</u>	<u>350,000 sf</u>
(Residential)	350,000 sf (404 units)	-0 sf	350,000 sf (404 units)
75 Ames St / Broad Institute²	<u>14,000 sf</u>	<u>-0 sf</u>	<u>14,000 sf</u>
(Office)	14,000 sf	-0 sf	14,000 sf
TOTAL	<u>1,324,913 sf</u>	<u>(-258,413) sf</u>	<u>1,066,500 sf</u>
(Office)	852,613 sf	(-216,113) sf	636,500 sf
(Retail/Active Use) ³	52,300 sf	-42,300 sf	10,000 sf
(Residential) ⁴	420,000 sf (494 units)	-0 sf	420,000 sf (494 units)

1 – GFA/GSF as defined in Article 2.0 of the Cambridge Zoning Ordinance

2 – Represents the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial/office space at the Broad Institute's 75 Ames Street location. The Applicant is not responsible for the execution of this component of the Project.

3 – Active Ground Floor Uses, can include retail uses and active public gathering space (whether open or enclosed) where that ground floor fronts Main Street, Broadway or Ames Street, per Article 14.38 of the Cambridge Zoning Ordinance.

4 – Total residential SF of 420,000 to be split between Residential North and Residential South

[#]previously approved 256,068 SF was for Building B at 250 Binney Street

^{##}new Building B' will contain retail at approximately the same square footage as existing retail to be demolished, which is why "net-new" column in table shows a value of "0"

Table 3 provides a summary of the proposed program and a comparison to the Planning Board approved program. Compared to the previously approved program, there is an increase of 9,366 GSF of office, a reduction of 9,366 GSF of retail, and an increase of 69 residential units (although the overall GSF of the project remains constant).

■ **Table 3 Proposed Development Program VS Previously Approved Program¹**

Project Component	2018 Proposed Net-New Program	2017 Previously Approved Program	Difference
Building A - 145 Broadway	<u>362,978 sf</u>	<u>375,132 sf</u>	<u>(-12,154) sf</u>
(Office)	354,278 sf	365,095 sf	(-10,817) sf
(Retail/Active Use)	8,700 sf	10,037 sf	(-1,337) sf
Building B' - 325 Main St	<u>268,222 sf</u>	<u>256,068 sf[#]</u>	<u>+12,154 sf</u>
(Office)	268,222 sf	248,039 sf	+20,183 sf
(Retail/Active Use)	0 sf	8,029 sf	(-8,029) sf
Residential North - 135 Broadway	<u>71,300 sf</u>	<u>71,300 sf</u>	<u>0 sf</u>
(Residential)	70,000 sf (90 units)	70,000 sf (70 units)	0 sf (+20 units)
(Retail/Active Use)	1,300 sf	1,300 sf	0 sf
Residential South - 135 Broadway	<u>350,000 sf</u>	<u>350,000 sf</u>	<u>0 sf</u>
(Residential)	350,000 sf (404 units)	350,000 sf (355 units)	0 sf (+49 units)
75 Ames St / Broad Institute²	<u>14,000 sf</u>	<u>14,000 sf</u>	<u>0 sf</u>
(Office)	14,000 sf	14,000 sf	0 sf
TOTAL	<u>1,066,500 sf</u>	<u>1,066,500 sf</u>	<u>0 sf</u>
(Office)	636,500 sf	627,134 sf	9,366 sf
(Retail/Active Use) ³	10,000 sf	19,366 sf	(-9,366) sf
(Residential) ⁴	420,000 sf (494 units)	420,000 sf (425 units)	0 sf (+69 units)

1 – GFA/GSF as defined in Article 2.0 of the Cambridge Zoning Ordinance

2 – Represents the conversion of existing mechanical space to be re-purposed/fit-out into leasable commercial/office space at the Broad Institute's 75 Ames Street location. The Applicant is not responsible for the execution of this component of the Project.

3 – Active Ground Floor Uses, can include retail uses and active public gathering space (whether open or enclosed) where that ground floor fronts Main Street, Broadway or Ames Street, per Article 14.38 of the Cambridge Zoning Ordinance.

4 – Total residential SF of 420,000 to be split between Residential North and Residential South

[#]previously approved 256,068 SF was for Building B at 250 Binney Street

Table 4 provides a summary of the parking program for vehicle and bicycle parking, and compares it to the Special Permit approval from March 2017. A detailed parking analysis is provided later in this document.

■ **Table 4 Proposed Parking for Development Program VS Previously Approved**

Project Component	2018 Proposed Parking	2017 Approved Parking ¹	Difference
Vehicle Parking Spaces (Net/Total Campus)	413 (3,121)	785 (3,493)	(-372)
Long-Term Bike Parking Spaces	763	633	+130
Short-Term Bike Parking Spaces	131	102	+29

1 – Previously Approved as part of Special Permit Decision PB#315 in March 2017

3. Trip Generation

The trip generation estimates for the Project have been updated to reflect the shift of 9,366 GSF in program land use and increase of 69 residential units from the 2017 Approved Program. This updated trip generation uses the same methodology as the original certified TIS, including mode share assumptions, average vehicle occupancy rates and Institute of Transportation Engineers (ITE) Land Use Codes and trip rates.

These estimates were based on the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) rates for Apartment (LUC 220), Shopping Center (LUC 820), and General Office Building (LUC 710). ITE unadjusted vehicle trips were converted into person trips by applying the national AVO (average vehicle occupancy) factors of 1.13 for residential and work-related trips and 1.78 for retail trips. Then local AVOs were used to convert person trips back into vehicle trips once mode shares were applied. The same mode shares, as presented in **Table 5**, were used for both the original certified TIS and this updated analysis. Note that the new Building B being located directly adjacent to the Red Line could induce a higher transit mode share than that used to support the transportation analysis. However, this approach would be speculative. Note, that the study has maintained the same mode share profile that was used in the Certified TIS to provide opportunity to clearly understand the transportation and traffic impact of shifting the Building B location. For consistency, and in an effort to be conservative, the previously-approved TIS mode shares have been maintained in this TIS Update.

■ **Table 5 Project Mode Shares (per Certified TIS)**

Mode	Residential ¹	Office ²	Retail ²
Vehicle ³	32%	34%	34%
Transit	30%	37%	37%
Walk	25%	6%	6%
Bike	10%	9%	9%
Other	3%	14%	14%

1 – City of Cambridge K2 Plan Enhanced TDM Mode Shares

2 – Kendall Square Urban Renewal Area 2014 Report Mode Shares
3 – Vehicle mode share includes drive alone (SOV) and carpool (HOV) trips

Trip Generation Comparison

The resulting new trip generation estimates that reflect the changes in GSF and residential units proposed, are summarized in **Table 6** (vehicle trips) and **Table 7** (transit trips) and compared to previously approved trips. The detailed trip generation tables by land use are included in the Appendix.

■ **Table 6 Vehicle Trip Generation Comparison**

	2018 Proposed Program	2017 Previously Approved Program	Difference
Daily Trips			
In	1,612	1,642	(-30)
Out	<u>1,612</u>	<u>1,642</u>	<u>(-30)</u>
Total	3,224	3,284	(-60)
AM Peak Hour Trips			
In	265	264	+1
Out	<u>102</u>	<u>93</u>	<u>+9</u>
Total	367	357	+10
PM Peak Hour Trips			
In	123	124	(-1)
Out	<u>264</u>	<u>265</u>	<u>(-1)</u>
Total	387	389	(-2)

Notes: Trip Generation estimates based on ITE Trip Generation Manual, 9th Edition, using: LUC 220 – Apartment; LUC 820 – Shopping Center; LUC 710 - General Office Building; Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2; VOR stands for Vehicle Occupancy Rate from 2009 NHTS; Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524

■ **Table 7 Transit Trip Generation Comparison**

	2018 Proposed Program	2017 Previously Approved Program	Difference
Daily Trips			
In	1,953	2,008	(-55)
Out	<u>1,953</u>	<u>2,008</u>	<u>(-55)</u>
Total	3,906	4,016	(-110)
AM Peak Hour Trips			
In	342	342	0
Out	<u>116</u>	<u>108</u>	<u>+8</u>
Total	458	450	+8
PM Peak Hour Trips			
In	143	146	(-3)
Out	<u>333</u>	<u>337</u>	<u>(-4)</u>
Total	476	483	(-7)

Notes: Trip Generation estimates based on ITE Trip Generation Manual, 9th Edition, using:
LUC 220 – Apartment; LUC 820 - Shopping Center; LUC 710 - General Office Building
Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2

The trip generation estimates shown in Tables 5 and 6 for the updated program show a slight reduction in daily and evening peak hour vehicle and transit trips and a slight increase in the morning peak hour vehicle and transit trips compared to the previous approval. This adjustment does not materially change the overall transportation impacts that have been documented through previous approvals, and therefore no updated traffic or transit operations analyses have been conducted and no changes in transportation mitigation actions are proposed in connection with this program update.

4. Vehicle Parking Demand Analysis

A vehicle parking assessment was conducted as part of the certified TIS in 2016, and again as part of the Special Permit process in 2017. With this 2018 program update, the parking analysis has been revisited, and a summary of our demand methodologies and findings are provided in this section of the technical memorandum.

Parking Supply in the KSURP Area

As noted previously, the 650-space parking garage that was associated with the originally anticipated re-developed Building B (250 Binney Street), is no longer part of the Project. The new site for Building B' is at 325 Main Street and does not include construction of any new vehicle parking on-site, but instead the existing three campus garages (Yellow, Green and Blue) as well as the previously approved 145 Broadway new garage, will serve current and future users, through the utilization of surplus capacity that exists today, the implementation of shared parking and other parking management strategies.

Table 8 compares the previously approved parking supply to the newly proposed parking supply.

■ **Table 8 Proposed Parking for KSURP Campus Vs Previously Approved**

Parking Location	2018 Proposed Parking	2017 Previously Approved Parking¹	Difference
Blue Garage	955	955*	0
Yellow Garage	885	734	+151
Green Garage	824	804	+20
145 Broadway	457	350	+107
250 Binney Street	0	650	(-650)
Vehicle Parking Spaces	3,121	3,493	(-372)

1 – Previously Approved as part of Special Permit Decision PB#315 in March 2017

*original parking supply at this site is permitted as 1,170 spaces, however with the construction of 135 Broadway residential buildings the Proponent has estimated that approximately 215 spaces will be permanently taken out of service. The actual parking space reduction will be determined during Design Review for 135 Broadway

As noted above, and illustrated in **Figure D**, the KSURP campus-wide vehicular parking supply will change from the approved 3,493 spaces to 3,121 parking spaces. The 3,493-parking space supply number included the construction of a 650-space parking garage at 250 Binney Street, which is no longer part of the program. The "loss" of the 650 spaces is being balanced out by the following proposed reallocations in the existing garages, which result in a net loss of 372 spaces:

- Blue Garage was approved for 955 spaces, which takes into consideration a loss of 215 spaces for the construction of the Residential North and Residential South buildings at 135 Broadway. Depending on construction methods and means, there may be an opportunity to limit the loss of parking to a number that is smaller than the originally estimated 215 parking spaces. The Proponent will track construction progress and look for opportunities to increase parking supply at this location in the future, if found to be needed.

- Yellow Garage is currently recorded at 734 parking spaces and the Proponent is seeking approval to reconfigure the garage to add another 151 spaces, for a total of 885 parking spaces. The addition of seven (7) spaces will be accomplished through more efficient self-parking striping and provision of 144 managed/valet parking spaces.
- Green Garage was originally recorded at 844 parking spaces, however with the construction of 88 Ames Street the supply was contemplated to be reduced by 40 spaces, to 804 as noted in the previous approval. 88 Ames Street has been completed and the total number of permitted parking spaces in the Green Garage is 824 spaces. **Figures E-1 through E-3** show layout of the Green Garage for 824 spaces, as re-registered with the City of Cambridge in July of 2018.
- 145 Broadway Garage is currently being constructed with 350 parking spaces and as part of this update the Proponent is seeking approval to add 107 spaces to this garage through more efficient self-parking striping and provision of managed/valet parking spaces. **Figures F-1 through F-4** show a proposed layout and summary of the 145 Broadway Garage for 457 spaces.

Future Parking Supply - Zoning Requirements

As defined in Article 14 of the City of Cambridge Zoning Ordinance, the parking ratios for the Kendall Center Mixed Use Development (MxD) District, located within the KSURP Area, are presented in **Table 9**.

■ **Table 9 Zoning Requirements for Parking**

	Zoning Requirements (Article 14)
Office	No minimum Max 0.9 spaces / 1,000 GFA
Residential	Min 0.4 spaces / unit Max. 0.75 spaces / unit
Retail	No minimum Max 0.5 spaces / 1,000 GFA

Despite the proposed reduction in overall parking supply in the area, the project will meet the zoning requirements under Article 14. As proposed the project will have a Maximum of 573 office use parking spaces (0.9 spaces / 1,000 sf based on the approximately 636,500 net new office space GFA) and a Minimum of 310 parking spaces for the 774 residential units (0.4 spaces / dwelling unit).

Existing Parking Demand Analysis

The Proponent compiled parking utilization data for their three garages in Kendall Square (Green Garage, Yellow Garage, and Blue Garage), broken out by contract/monthly users and transient users. Data was provided for 260 workdays during the 2017 calendar year, and showed that the months of May, September and October experienced the highest garage occupancies, with October representing the highest of the three peak months.

Table 10 summarizes the contract and transient hourly occupancy for all three garages combined, during an average weekday (Tuesday – Thursday) in October 2017.

■ **Table 10 Kendall Square BP Garage Occupancies (October 2017, Average Weekday)**

Time of Day	Contract	Transient	Total	Percent Occupied*
5:00 AM	136	27	163	6%
6:00 AM	220	67	287	11%
7:00 AM	420	126	546	20%
8:00 AM	772	193	965	36%
9:00 AM	1,230	252	1,482	55%
10:00 AM	1,648	305	1,953	72%
11:00 AM	1,837	332	2,169	80%
12:00 PM	1,876	333	2,209	82%
1:00 PM	1,870	325	2,195	81%
2:00 PM	1,852	297	2,149	79%
3:00 PM	1,745	226	1,971	73%
4:00 PM	1,511	182	1,693	63%
5:00 PM	1,072	143	1,215	45%
6:00 PM	643	130	773	29%
7:00 PM	370	111	481	18%
8:00 PM	234	93	327	12%
9:00 PM	186	67	253	9%
10:00 PM	157	40	197	7%
11:00 PM	139	26	165	6%

Time of Day	Contract	Transient	Total	Percent Occupied*
12:00 AM	126	25	151	6%
1:00 AM	121	25	146	5%
2:00 AM	119	24	143	5%
3:00 AM	118	24	142	5%
4:00 AM	122	23	145	5%

Source: BP Parking Management Office

*Percent occupied based on 2017 existing operational parking supply in the complex, recorded at 2,708 vehicle parking spaces, and not the special permit approved 3,494 spaces

As can be seen from Table 10, October 2017 showed a maximum occupancy of 2,209 vehicles in all three garages combined, or 82 percent occupancy of total existing parking supply (2,708 spaces) in the three garages. The maximum occupancy occurred around 12:00PM. **Figure G-1** illustrates the relationship of total area parking demand vs. supply for a peak weekday/peak month condition.

Future Parking Demand

As part of the more recent program change, an updated parking demand analysis was developed based on actual garage utilization information and usage.

Table 11 summarizes the estimated parking demand generated by each building, for both the day-time and the night-time (or overnight) hours. The parking demand was calculated from actual Cambridge Center garage utilization data.

■ **Table 11 Estimated Future Parking Demand**

Project Component	Size	Estimated Day-Time Demand	Estimated Night-Time Demand
Building A (145 Broadway / 11CC)	354.3 KSF Office ¹	315	0
Residential South (135 Broadway)	404 Units ²	121	202
Residential North (135 Broadway)	90 Units	27	45
Broad Institute Conversion (75 Ames)	14 KSF Office	12	0
88 Ames Street	280 Units	84	140
Building B (325 Main Street / 3CC)	268.2 KSF Office	239	0
	<u>Total</u>	<u>798</u>	<u>387</u>
	Office 636.5 sf	566	0
	Resi. 774 units	232	387

¹ A day-time demand ratio of 0.89 spaces / KSF was recorded by Boston Properties, to reflect current 2017 utilization rates at the KSURP garages. This existing ratio was applied to future project components to estimate future parking demand during the daytime hours. Overnight parking is not provided for office uses. See Appendix.
² The residential daytime demand ratio was calculated using City of Cambridge TDM/Survey data from AvalonBay Apartments (2 Leighton / 10 Glassworks – 2017 survey) at 0.3 spaces / dwelling unit; while the night-time parking demand is calculated at 0.5 spaces / dwelling unit, also included in the Appendix

In addition to the estimated parking demand generated by the proposed Project components, Boston Properties will have additional parking commitments for space that is currently unoccupied or unleased at 105 Broadway (10 CC), and the CIC (1CC). The unoccupied/unleased spaces adds up to approximately 225 KSF, which calculates to approximately 200 parking spaces of future demand.

The concept of shared parking recognizes that peaking for different land uses occur at different times. For example, the office demand peaks during the middle of the work day when most employees are at work and residential demand peaks overnight when most residents are home. So, instead of building sufficient parking to support each Individual land use's peak demand, the site supplies enough parking to support the entire site's peak, assuming that each land use will draw from a common parking supply.

Future Parking Supply vs. Demand

As detailed in the previous sections, and summarized in **Table 10** below, the future parking demand is conservatively estimated at 3,207 spaces which includes a demand of 798 spaces for proposed Project components, plus 200 spaces from additional requirements added to the existing peak demand of 2,209 spaces.

■ **Table 10 Summary of Estimated Future Parking Demand**

Parking Component	Size	Estimated Parking Demand (# spaces)
Proposed Project Program	636.5 Ksf Office 774 Resi Units	798
Additional Commitments	225.0 Ksf Office	200
Existing Demand	2.5 Mill SF (+/-)	2,209
	Total	3,207

The estimated parking demand is then compared to the proposed future parking supply of 3,121 spaces, which yields a small peak period shortage of 86 spaces, as shown in **Table 11** below. **Figure G-2** illustrates the relationship of total area parking demand vs. supply for a peak weekday/peak month condition under future conditions with the entire Project constructed and fully occupied.

■ **Table 11 Estimated Future Parking Demand VS. Future Parking Supply**

Estimated Future Parking Demand	Estimated Future Parking Supply	Shortage
3,207 spaces	3,121 spaces	-86 spaces

Note that the 86-space parking shortage is **representative of the worst-case scenario that would be experienced during the peak hour of the peak day of the peak month**, with 100% of the Project square footage leased out. The following are key points to be made in this context:

- 86 space shortage in the context of 3,000+ space parking supply (~3%) is very small
- This condition will likely occur only on peak weekdays during peak months
- This condition is projected to occur during peak hours only (less than 2 hours per day, on these peak days)
- Assumes the Project is 100% leased and fully occupied (very conservative)

During those peak occupancy times, the following will occur to manage the shortage:

- Boston Properties will monitor real-time utilization of the garages, and sometimes on a busy day, typically between 11am and 1pm, the garages will close to transient parkers.

- Transient parkers are people who pull a ticket and pay for the actual time in which they use the garage. Even when garages are closed, the entrances are signed so that it is clear that the garages are open to monthly passholders.
- Boston Properties will continue to monitor long term parking trends to understand how demand conditions are changing in light of work habits, travel behavior and emerging technologies such as autonomous vehicles.
- Boston Properties will provide to the City on an annual basis, parking and monitoring data relevant to parking utilization as required by PTDM measures.

5. Bicycle Parking

The Project will provide 763 long-term bike parking spaces and 131 short-term spaces, as required by zoning and City of Cambridge Bicycle Parking Guidelines. On-going discussions with City staff as well as individual building design reviews will further refine the exact configuration and location of long- and short-term bicycle parking.

Figures H-1 through H-4 illustrate preliminary bicycle parking locations for the three development sites.

Table 12 shows the required long and short-term bicycle parking spaces per building.

■ **Table 12 City of Cambridge Zoning Required Project Bicycle Parking**

Project Component	Size	Long-Term Category* / Rate	Spaces ²	Short-Term Category* / Rate	Spaces ²
135 Broadway North (Residential)	90 units	R2: 1.00 - 1.05 space per unit ¹	94	R2: 0.10 spaces per unit	9
135 Broadway North (Retail)	1,300 sf	N4: 0.10 spaces per 1,000 sf ³	1	N2: 0.60 spaces per 1,000 sf	1
135 Broadway South (Residential)	404 units	R2: 1.00 - 1.05 space per unit ¹	424	R2: 0.10 spaces per unit	41
145 Broadway (Office)	432,914 sf	N1: 0.30 spaces per 1,000 sf ³	130	N5: 0.06 spaces per 1,000 sf	26
145 Broadway (Retail)	8,700 sf	N4: 0.10 spaces per 1,000 sf ³	1	N2: 0.60 spaces per 1,000 sf	6
325 Main St / 3CC (Office)	343,123 sf	N1: 0.30 spaces per 1,000 sf ³	103	N5: 0.06 spaces per 1,000 sf	21
325 Main St / 3 CC (Retail)	42,300 sf	N4: 0.10 spaces per 1,000 sf ³	5	N2: 0.60 spaces per 1,000 sf	26
75 Ames St / Broad Institute (Office)	14,000 sf	N1: 0.30 spaces per 1,000 sf ³	5	N5: 0.06 spaces per 1,000 sf	1
Total			763		131
		Office	238	Office	48
		Retail	7	Retail	33
		Residential	518	Residential	50

*Category and rates as defined by the City of Cambridge Bicycle Parking Guide and Article 6 City of Cambridge Zoning

1 – Per Zoning 6.107.2: Category R2 (Multifamily Dwellings) 1.00 long-term space per unit for the first 20 units in a building; 1.05 spaces per unit for all units over 20 in a building

2 – Wherever the application of such rate results in a fractional value such fraction shall be considered one required Bicycle Parking Space.

3 – Per Zoning 6.107.5 - a: For non-residential uses, up to 20% of the required number of Long-Term Bicycle Parking Spaces or 4 spaces, whichever is greater, may be provided as Short-Term Bicycle Parking Spaces

6. Truck Loading/Deliveries and Trash Removal

Loading and service to portion of the Project, including the proposed Broad Institute Office Conversion, and Three Cambridge Center (Building B') will use existing loading facilities. The new 145 Broadway loading docks have been designed and located on-site, to minimize impact to Broadway. The proposed Residential North and South buildings may use existing infrastructure within the area to accommodate loading, parking laybys on the West Service drive and potentially smaller truck docks access on the West service drive. The details of loading will be submitted as part of the design Review process.

Conclusion

The trip generation estimates for the Project have been updated to reflect the change in the Project program from the special permit approval from 2017. The trip generation estimates for the updated program show a slight reduction in daily vehicle trips (-60 trips), and evening peak hour vehicle trips (-2 trips) and a slight increase in the morning peak hour vehicle trips (+10 trips). We believe that this change does not materially change the overall transportation impacts that are expected and documented in the certified TIS.

Bicycle parking will be provided to meet City of Cambridge Bike requirements.

The proposed program update is requesting a reduction in vehicle parking, from previous special permit approval. The updated analyses indicate that the new parking being supplied, together with the existing parking, will provide sufficient parking to meet demand, throughout the vast majority of the year. In a small number of instances, the parking demand could potentially exceed the available parking by up to 86 spaces, for a very short duration (1-2 hours) mid-day during peak months only. However, with the implementation of the outlined TDM strategies, it is anticipated that parking supply will sufficiently serve the parking demand of the Project. The analysis also indicated that the overall parking demand within the KSURP area will be able to provide enough parking for the area residents, tenants and visitors with the proposed TDM measures and close monitoring of each garage.

Emerging technologies and mobility tech companies such as nuTonomy have brought a fleet of autonomous vehicles (AVs) to the City of Boston Seaport District, and Lyft predicts a full fleet of shared-autonomous vehicles (SAVs) within a five-year timeframe. Additionally, in April 2018, the City of Cambridge voted to begin AV testing on city streets. Over time, a functioning SVA fleet will likely induce a fundamental change in trip-making behaviors within dense urban areas like Kendall Square for both work and recreational trips. Autonomous vehicles, particularly SAV's, are expected to reduce future parking demand by enabling families that would typically purchase more than one vehicle to share a single vehicle throughout the day. SAV's can eliminate this need altogether by providing subscription service for mobility on-demand. As such, SAVs can change an individual or family's decision to own an automobile. The Project's office, hotel and retail uses will also benefit from AVs and SAVs. Parking demand for these uses could be significantly reduced given the improved access to MBTA's transit network. Further, AV's can alter the size and shape of parking facilities. AVs can drop their riders off at the curb, they can park themselves in parking stalls of reduced width, requiring no accommodation for door swing. In addition, autonomous vehicles will be able to stack within parking facilities and arrange themselves in the most efficient arrangements.

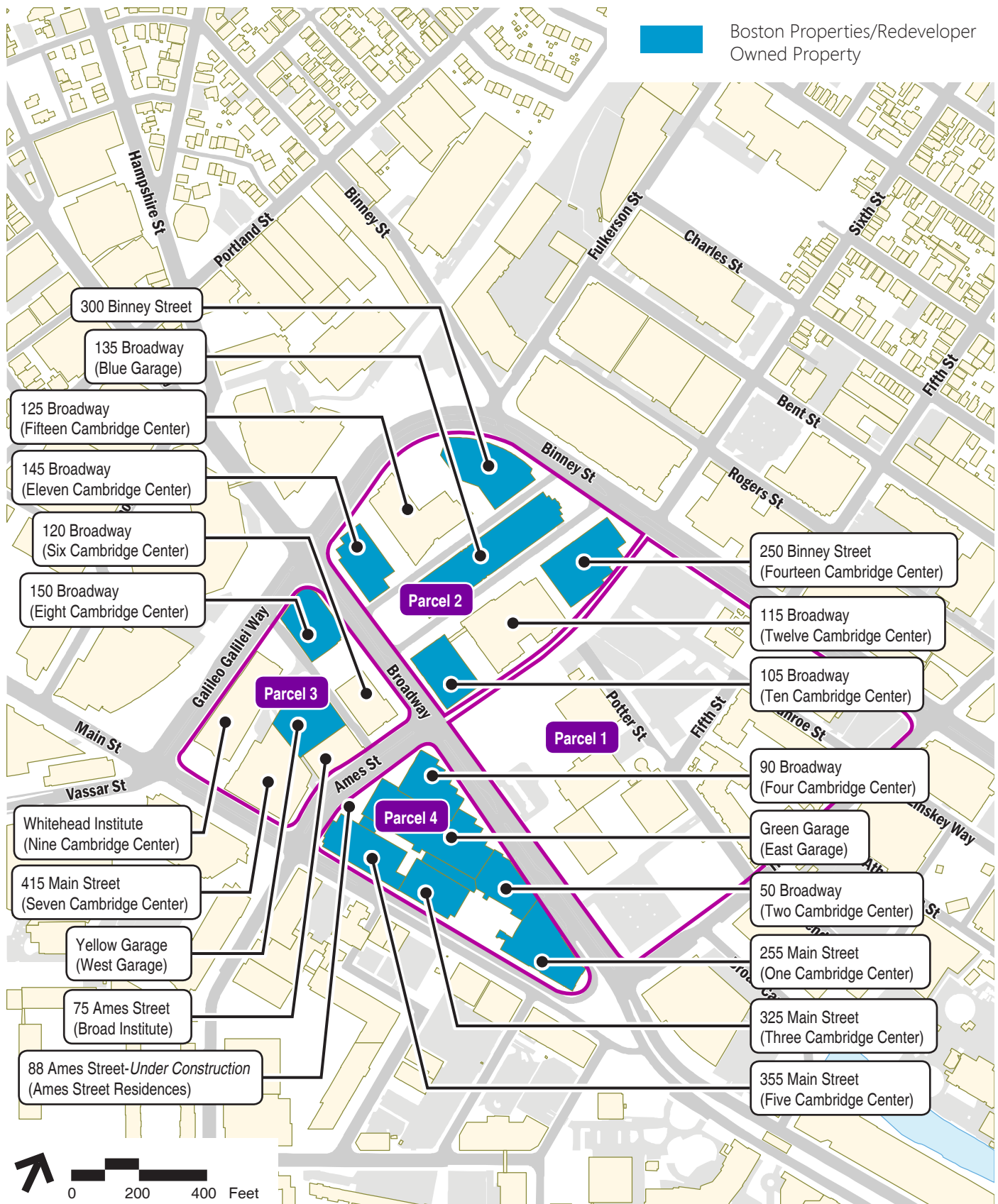
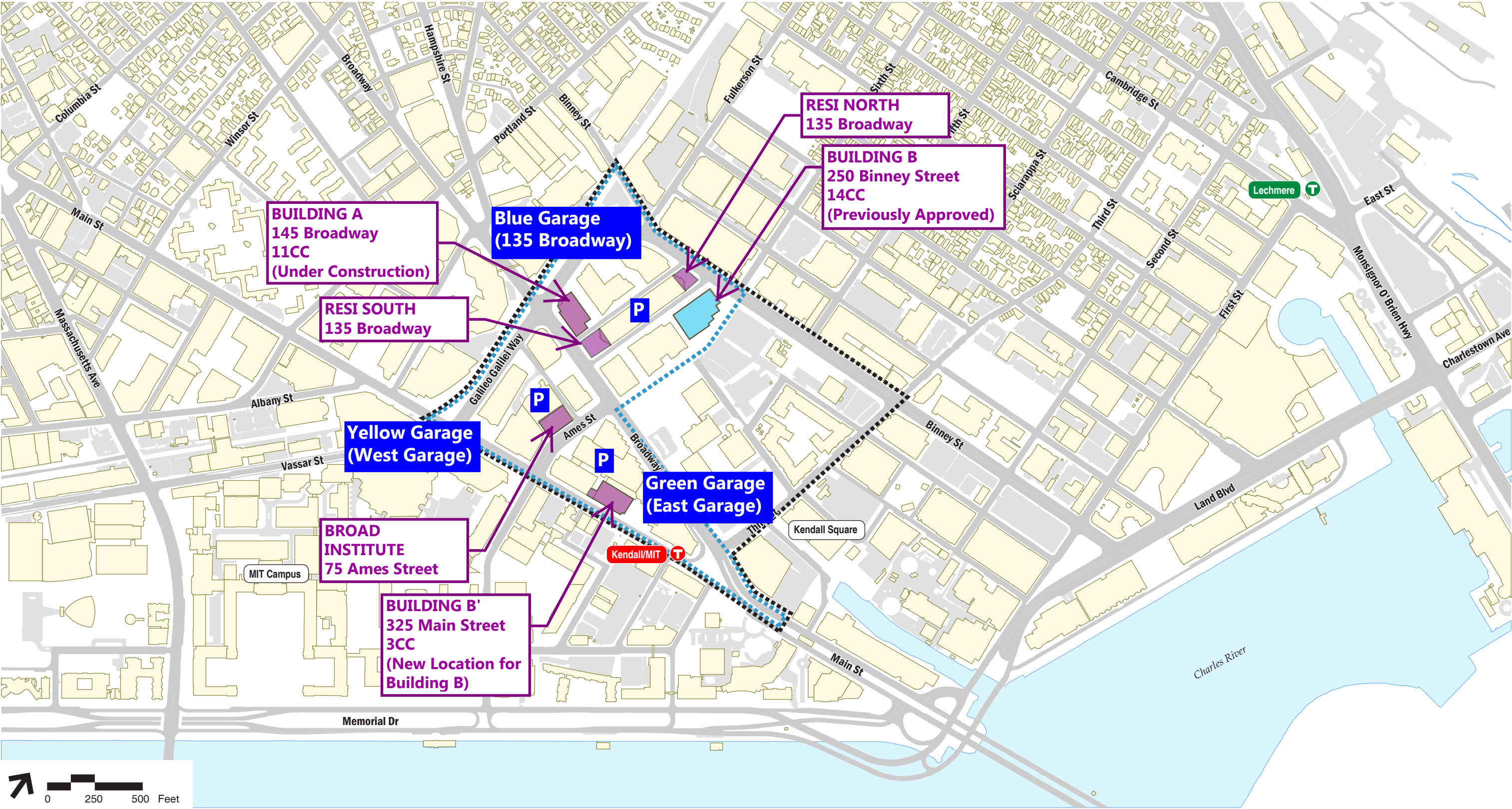


Figure A
Kendall Center Properties Key Map

Kendall Square Urban Renewal Project Amendment
Cambridge, MA

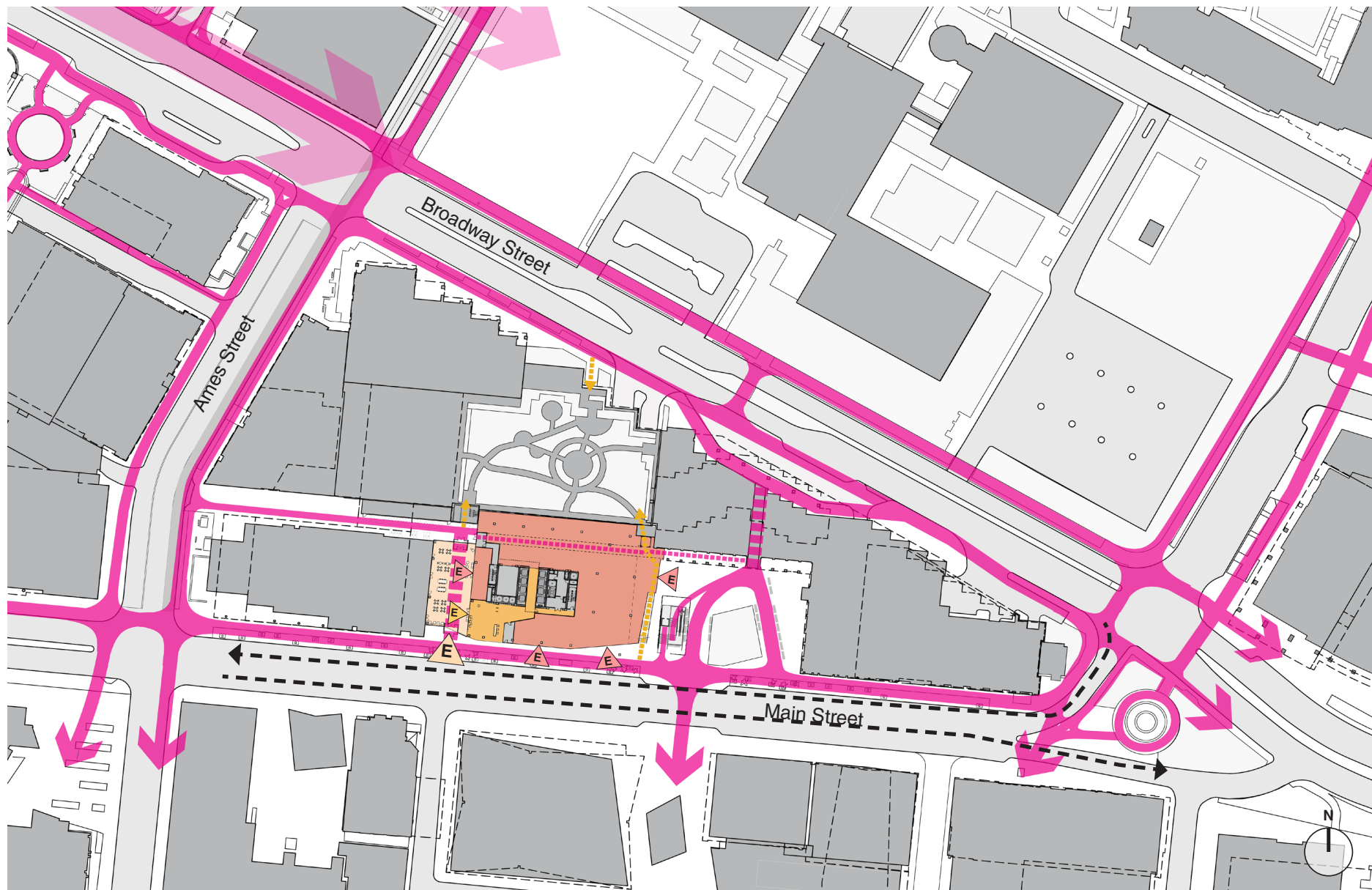


- KSURP Boundary
- MXD District
- Proposed Project Component
- Previously Proposed Project Component



Figure B
Project Area Map

Kendall Square Urban Renewal Project Amendment
Cambridge, MA



— Circulation Routes
--- Vertical Circulation

— Lobby
— Active Use

E Entrance
 (per use type)

E Potential Entrance
 (per use type)

--- Vehicular Circulation

Figure C
Proposed Pedestrian Access & Circulation

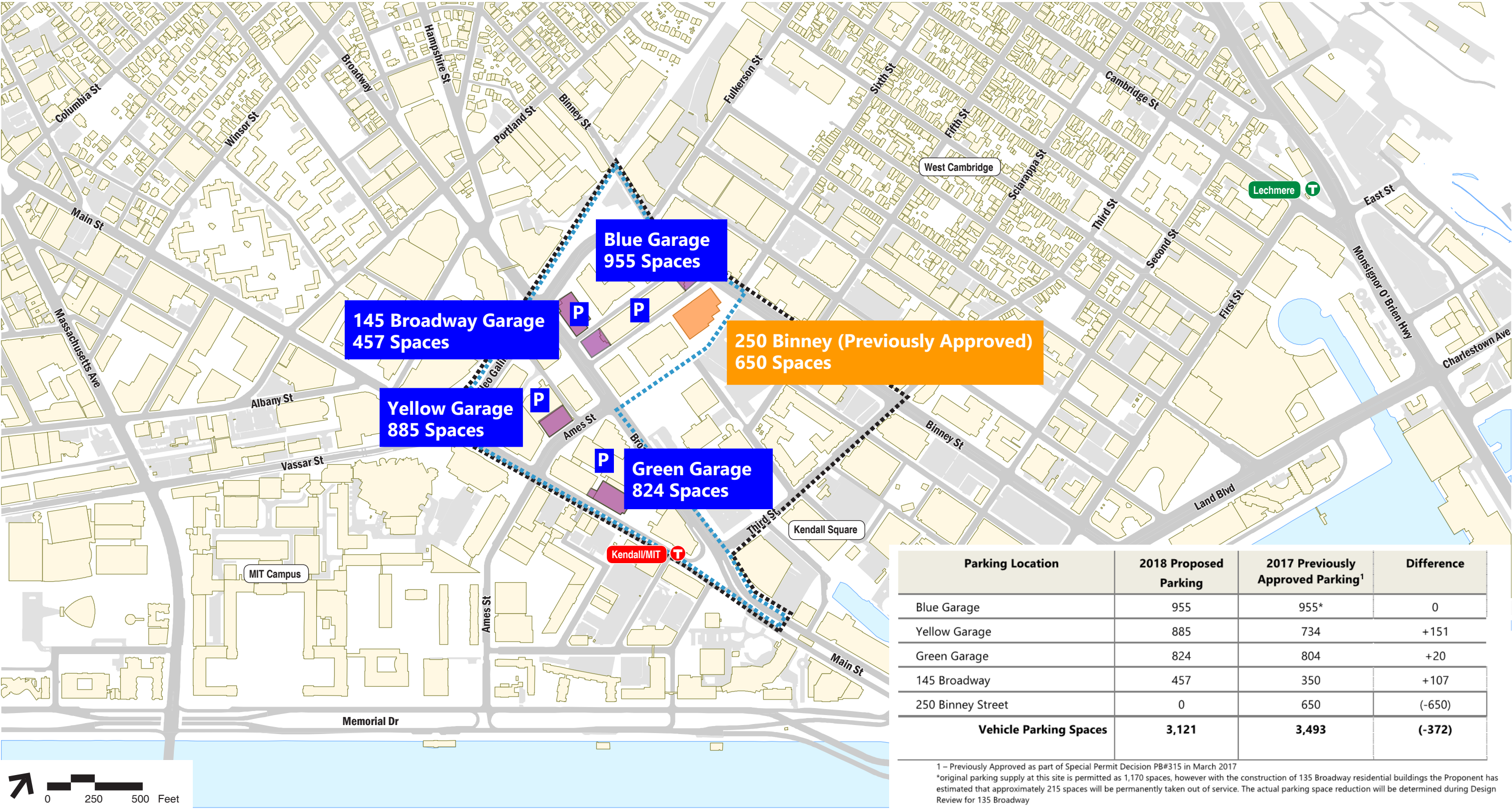


Figure D
Proposed Project Parking Map



Figure E-2
Proposed Layout
Green Garage (824 Spaces)

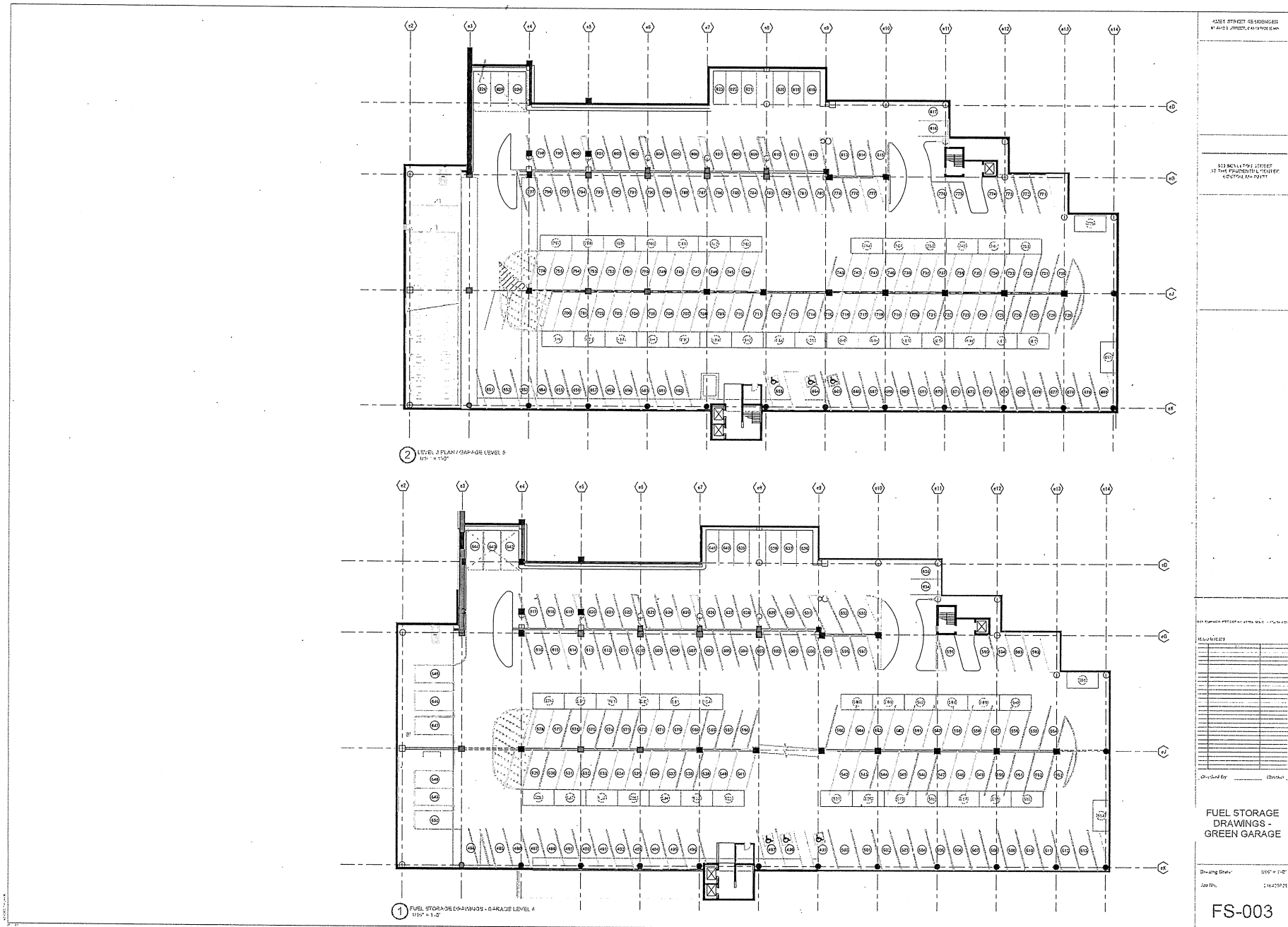


Figure E-3
Proposed Layout
Green Garage (824 Spaces)

145 Broadway Garage – B5

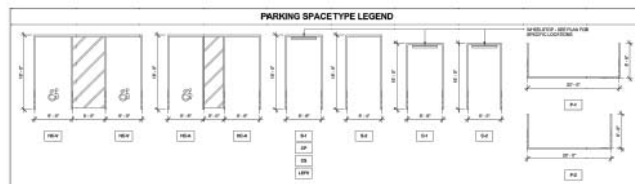
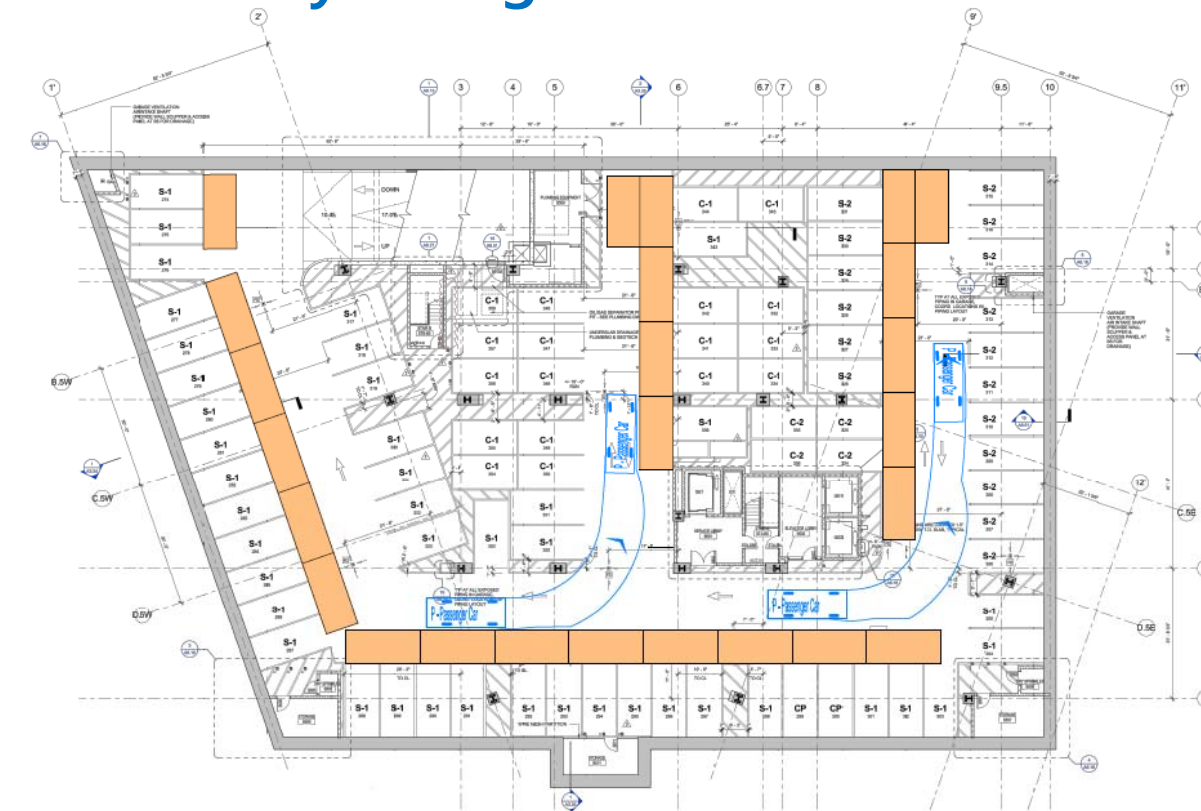


www.stantec.com
Copyright Reserved
All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means electronic or mechanical, including photocopying and recording, or by any information storage or retrieval system, without the prior written permission of Stantec.

Legend



B5
83 Striped
+ 25 Aisle
= 108 Total per floor



PARKING SPACES - B5		PARKING SPACES - GRAND TOTAL	
TYPE	COUNT	TYPE	COUNT
Compact Space 8' x 12'	25	Car Charge/Storage 8' x 12'	1
Standard 8' x 12'	43	Compact Space 8' x 12'	16
Standard 8' x 12'	117	Compact 8' x 12'	16
Parking Stalls	81	Compact 8' x 12'	16
Compact 8' x 12'	1	HC Van 8' x 12'	1
Compact 8' x 12'	1	LCV 8' x 12'	1
Compact 8' x 12'	1	Van 8' x 12'	1
Compact 8' x 12'	1	Standard 8' x 12'	16
Grand Total	81	Grand Total	108

1. Revision	2010.12.10
2. Revision	2010.12.10
3. Revision	2010.12.10
4. Revision	2010.12.10
5. Revision	2010.12.10

Client/Project
Station Properties
145 Broadway
Cambridge, MA

File
LEVEL B5
Project No. 101-112
Scale 1/8" = 1'-0"
Revision 6 Drawing No. A2.B5

A2.B5

Figure F-3
Proposed Layout 145 Broadway Garage
(457 Spaces)

145 Broadway Garage – Parking Space Summary

Floor	Striped	Additional Managed	Total
B1	33	+16	49
B2	78	+22	100
B3	78	+22	100
B4	78	+22	100
B5	83	+25	108
	350	+107	457

Figure F-4
Proposed Layout 145 Broadway Garage
(457 Spaces)

All BP Garages - Average Weekday - Existing Demand and Capacity

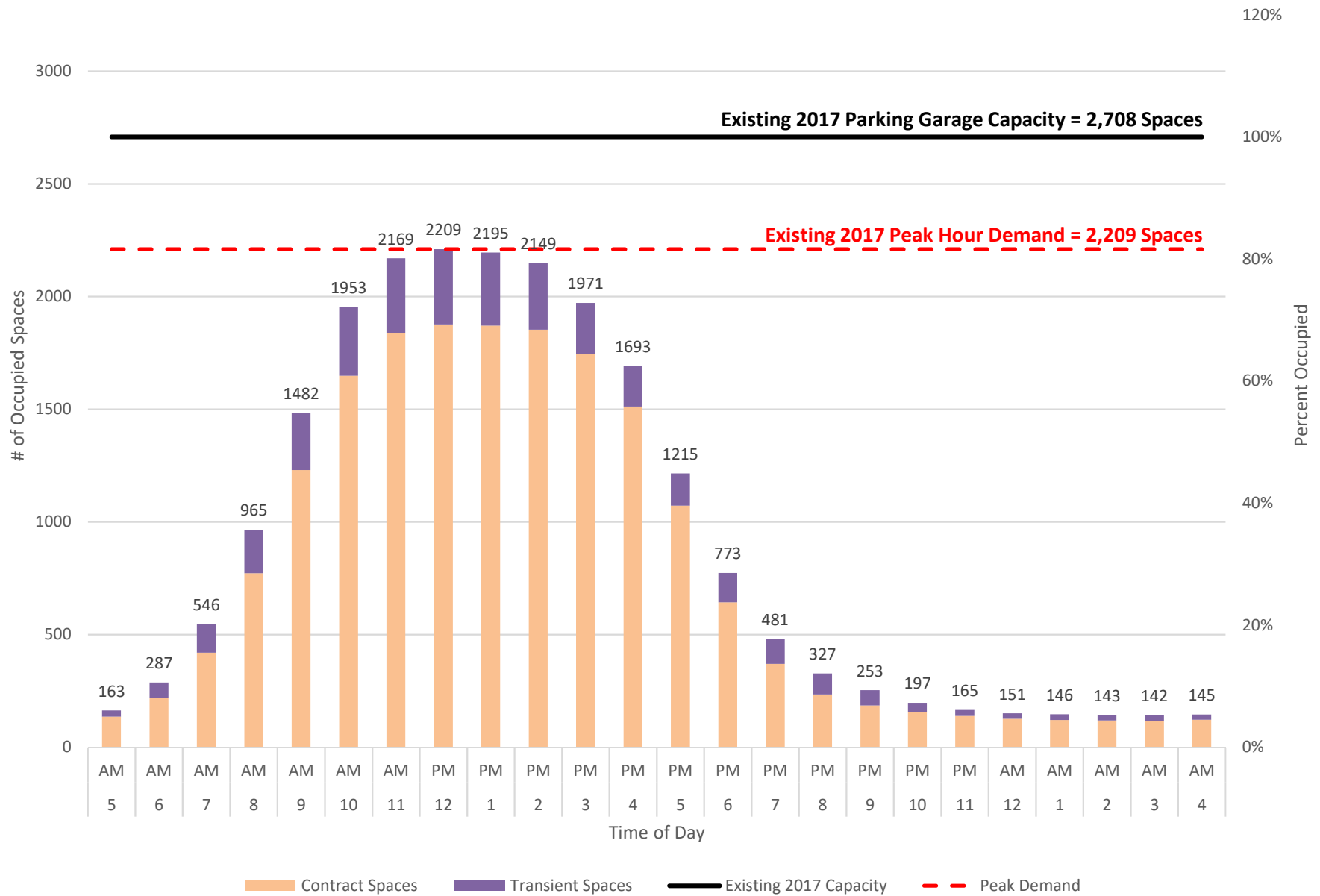


Figure G-1
Existing Parking Demand

All BP Garages - Average Weekday - Future Full Build Demand

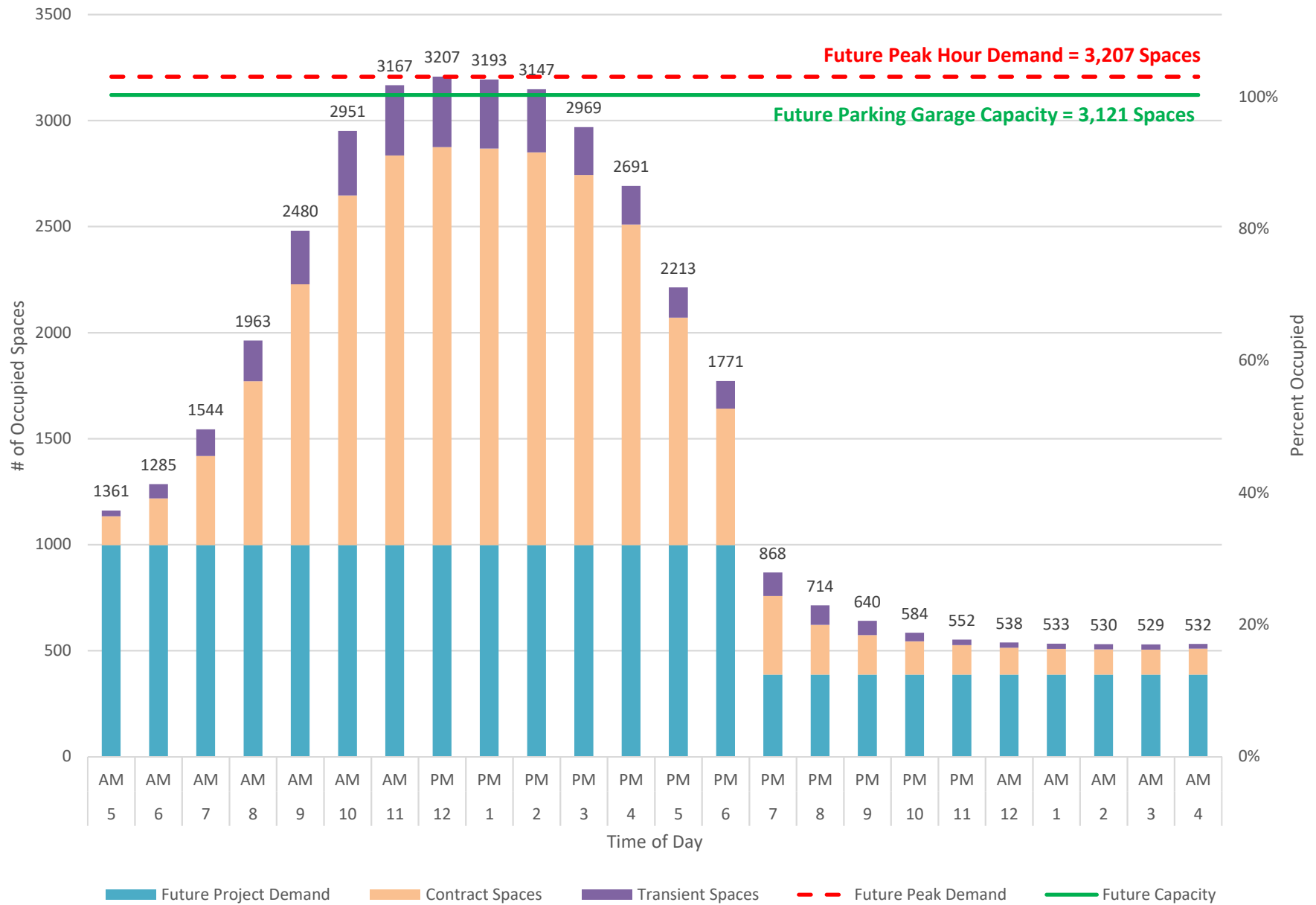
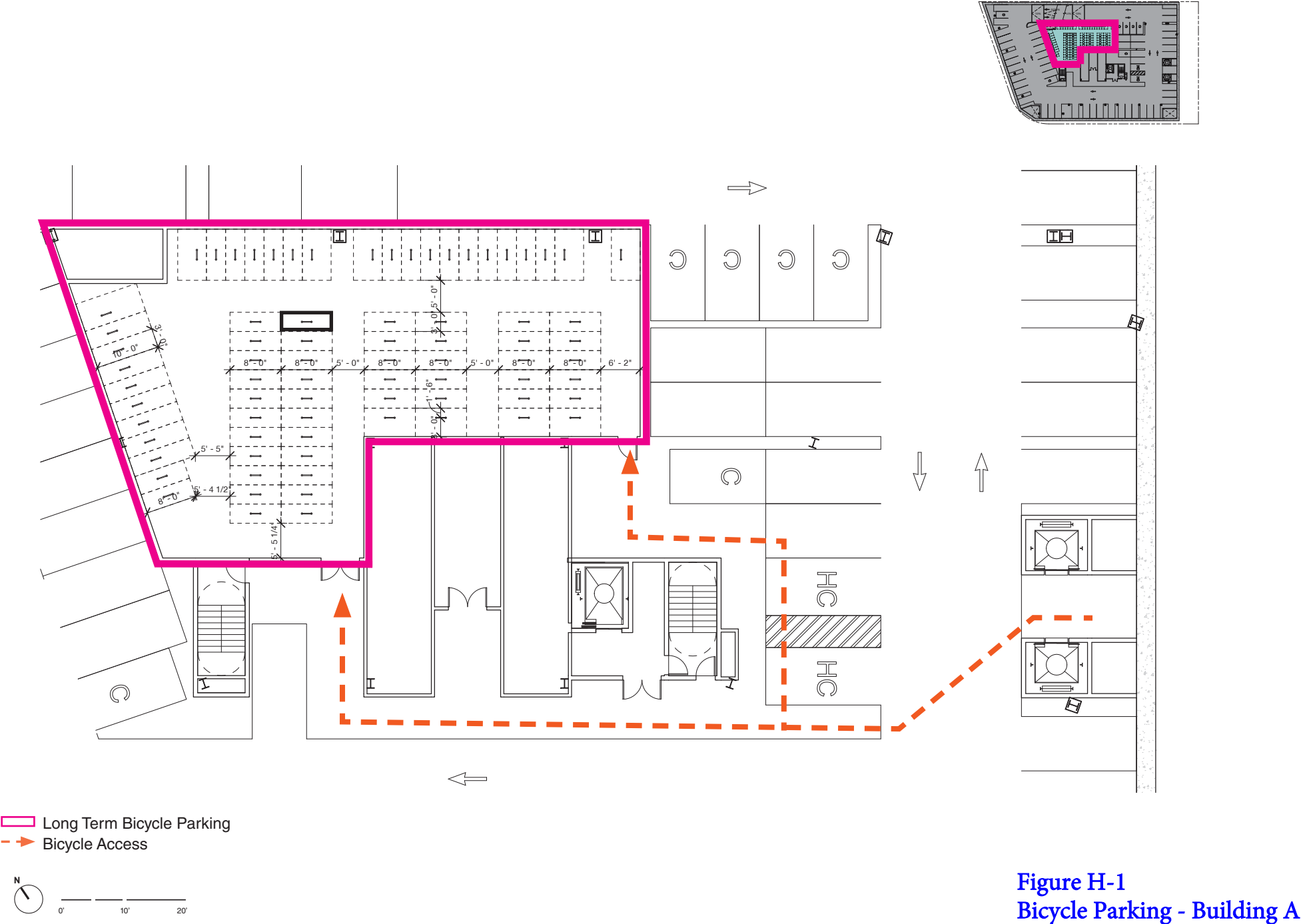


Figure G-2
Future Parking Demand

COMMERCIAL BUILDING A- LONG TERM BICYCLE PARKING



RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING

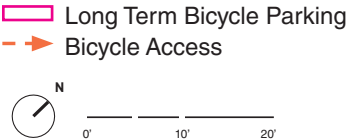
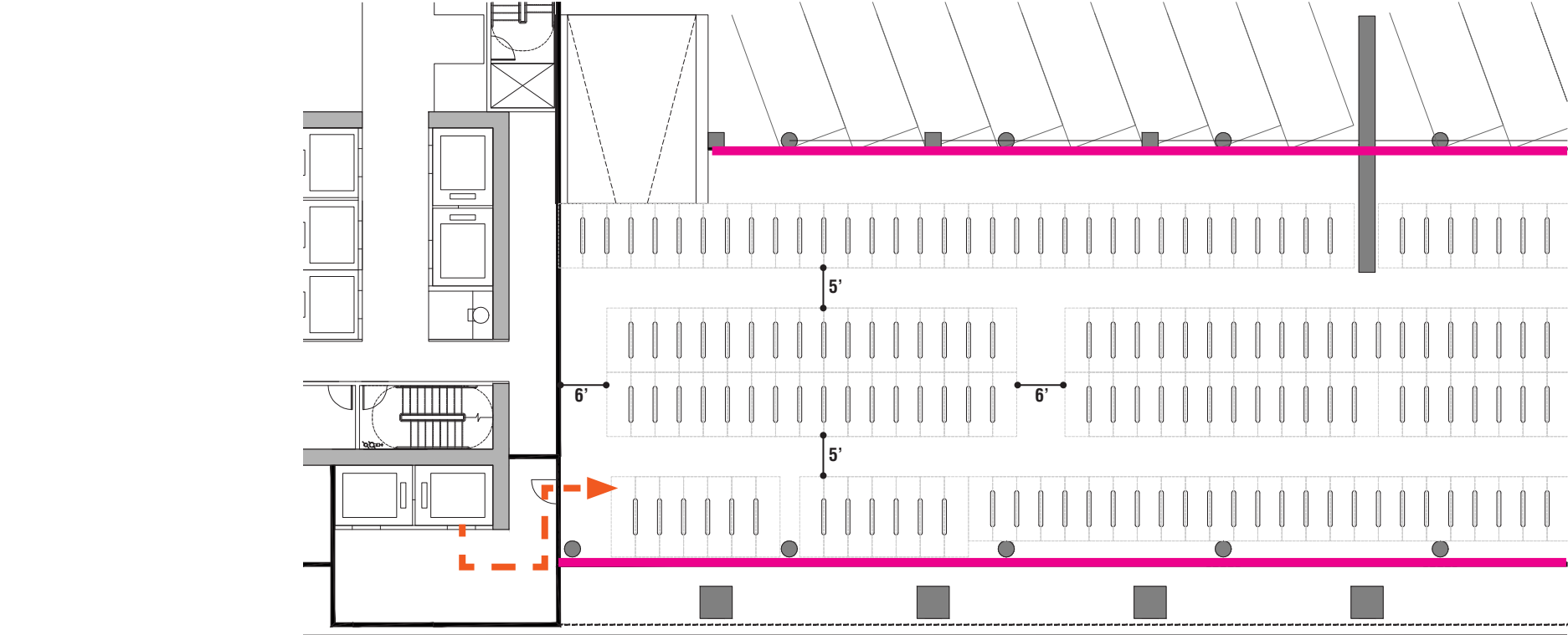
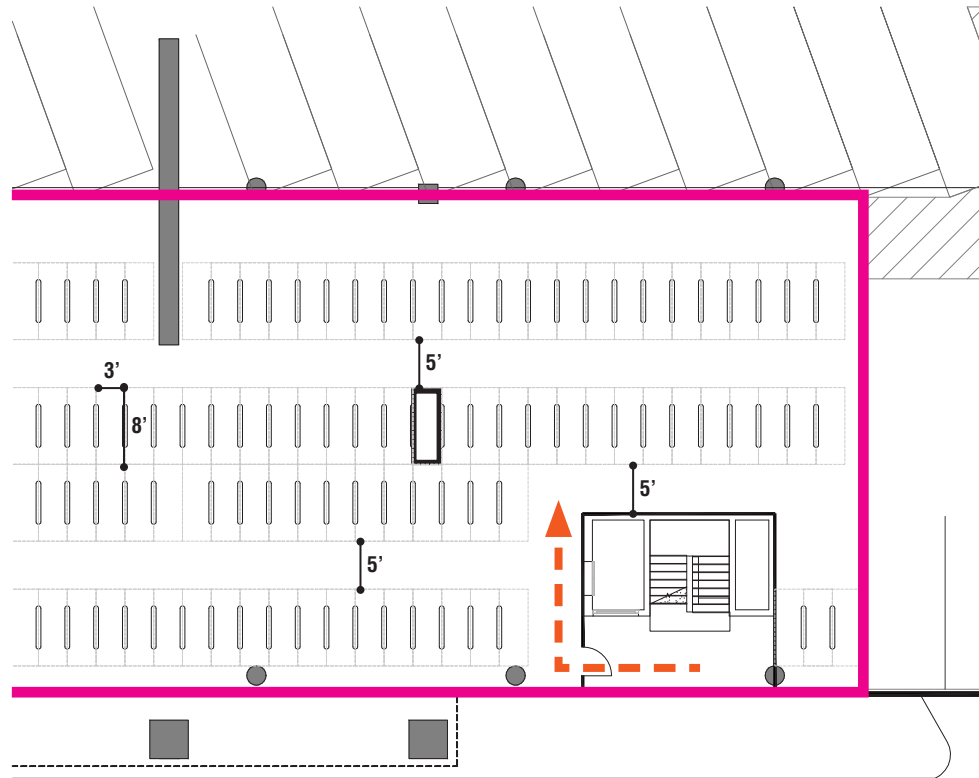


Figure H-2
Bicycle Parking - Residential North & South

RESIDENTIAL BUILDING SOUTH + NORTH - LONG TERM BIKE PARKING



Long Term Bicycle Parking
- - - - - ➔ Bicycle Access

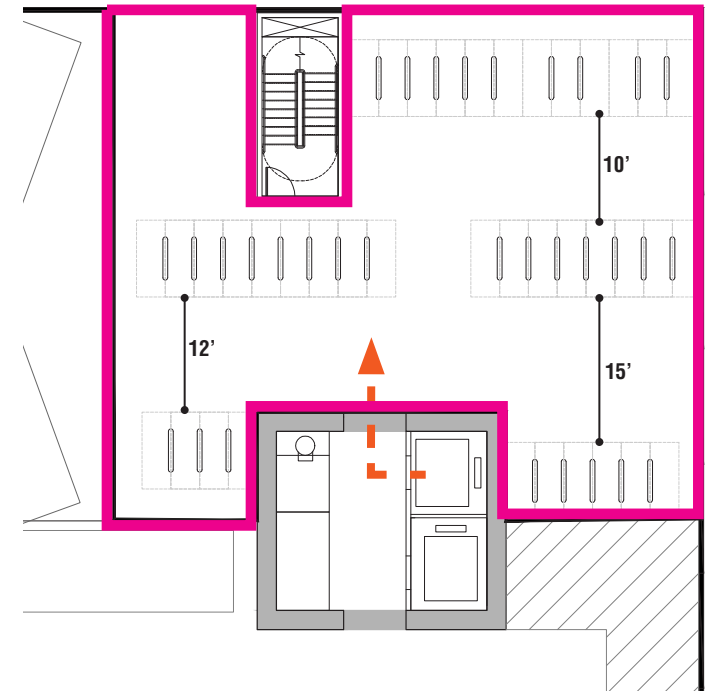
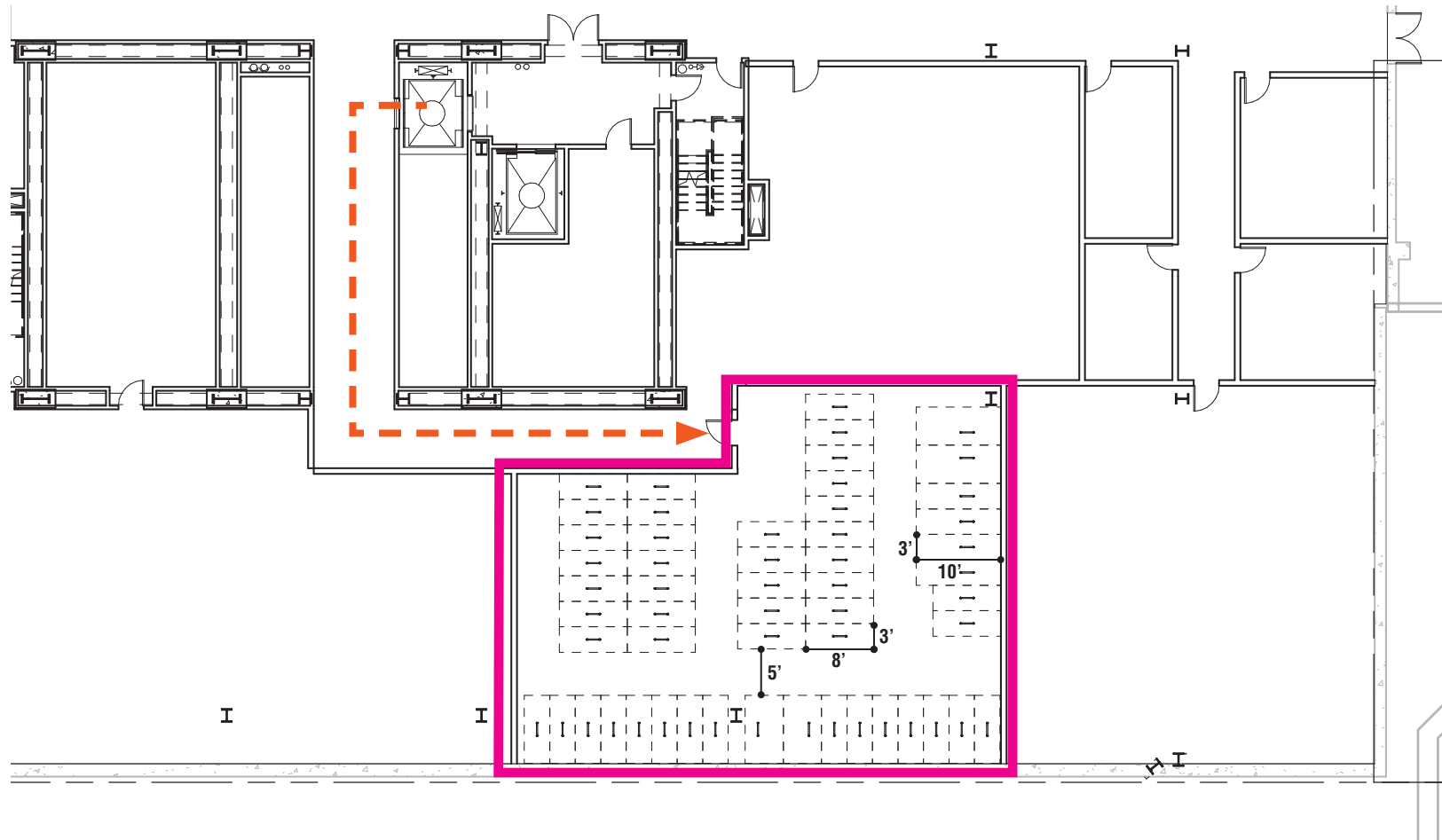
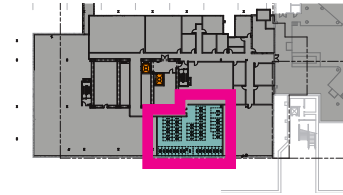


Figure H-3
Bicycle Parking - Residential North & South

COMMERCIAL BUILDING B - LONG TERM BIKE PARKING



Long Term Bicycle Parking
Bicycle Access

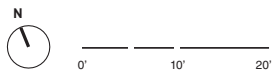
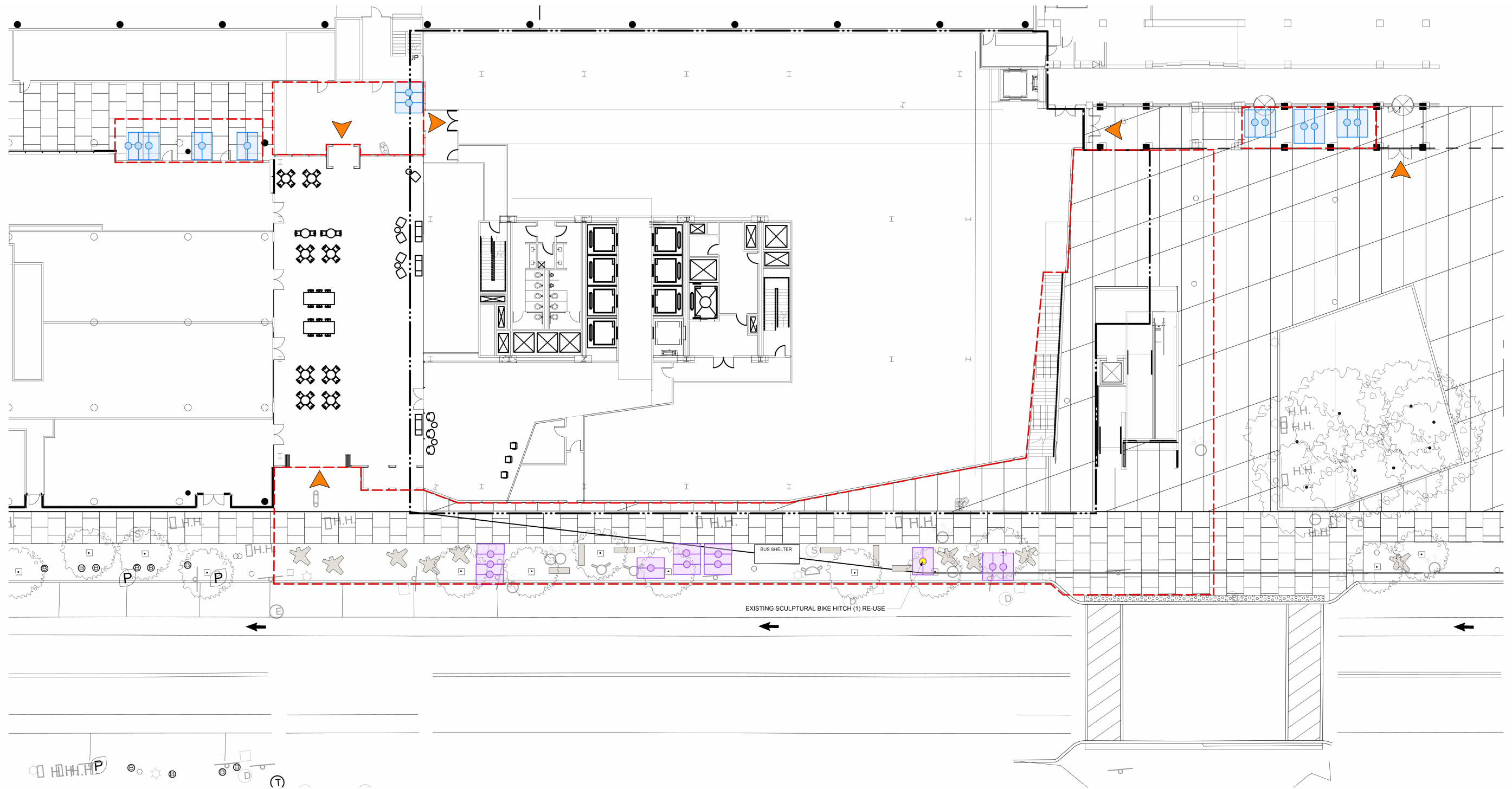





Figure H-4
Bicycle Parking - Building B'



TOTAL SHORT-TERM BIKE PARKING: 47 SPACES	
	22 EXISTING SPACES (3' x 8') TO REMAIN/ REPLACE POST CONSTRUCTION
	21 NEW SPACES (3' x 8')
	4 NEW TANDEM SPACES (3' x 10')
23 TOTAL NEW BIKE HITCHES TO MATCH EXISTING (NOT INCLUDING SCULPTURAL BIKE HITCH TO BE REUSED)	

Source:
LEMON BROOKE

Figure H-5
Bicycle Parking - Building B' (Short-Term)

KSURP Upzoning Project
Boston Properties
Trip Generation Estimate
Article 14 Updated Program

Trip Generation
Special Permit 2017

KSURP Infill Development Estimated Trip Generation

	Size	Distribution	Trip Rate	Unadjusted Vehicle Trips	VOR	Person Trips	Vehicle	Transit	Walk	Bike	Other	Local VOR	Vehicle	Transit	Walk	Bike	Other
Daily Residential			-	2,823		3,190							940	958	796	320	96
In	425	50%	-	1,411	1.13	1,595	32%	30%	25%	10%	3%	1.11	470	479	398	160	48
Out	units	50%	-	1,411	1.13	1,595	32%	30%	25%	10%	3%	1.11	470	479	398	160	48
Daily Retail			-	1,175		2,092							598	774	126	186	292
In	19.366	50%	-	588	1.78	1,046	34%	37%	6%	9%	14%	1.19	299	387	63	93	146
Out	ksf	50%	-	588	1.78	1,046	34%	37%	6%	9%	14%	1.19	299	387	63	93	146
Daily Office			-	5,462		6,172							1,746	2,284	370	554	862
In	627.134	50%	-	2,731	1.13	3,086	34%	37%	6%	9%	14%	1.19	873	1,142	185	277	431
Out	ksf	50%	-	2,731	1.13	3,086	34%	37%	6%	9%	14%	1.19	873	1,142	185	277	431
Total Daily				9460		11453							3284	4016	1292	1060	1250
In				4730		5727							1642	2008	646	530	625
Out				4730		5727							1642	2008	646	530	625
AM Residential			-	216		244							70	73	61	24	7
In	425	20%	-	43	1.13	49	32%	30%	25%	10%	3%	1.11	14	15	12	5	1
Out	units	80%	-	173	1.13	195	32%	30%	25%	10%	3%	1.11	56	58	49	19	6
AM Retail			-	28		50							13	19	3	5	7
In	19	62%	-	18	1.78	31	34%	37%	6%	9%	14%	1.19	8	12	3	3	4
Out	ksf	38%	-	11	1.78	19	34%	37%	6%	9%	14%	1.19	5	7	0	2	3
AM Office			-	854		965							274	358	58	86	137
In	522	88%	-	752	1.13	850	34%	37%	6%	9%	14%	1.19	242	315	51	76	120
Out	ksf	12%	-	103	1.13	116	34%	37%	6%	9%	14%	1.19	32	43	7	10	17
Total AM Peak Hour				1098		1260							357	450	122	115	151
In				813		930							264	342	66	84	125
Out				286		330							93	108	56	31	26
PM Residential			-	269		304							88	91	76	30	10
In	425	65%	-	175	1.13	198	32%	30%	25%	10%	3%	1.11	58	59	49	20	6
Out	units	35%	-	94	1.13	106	32%	30%	25%	10%	3%	1.11	30	32	27	10	4
PM Retail			-	100		178							51	66	12	16	25
In	19	48%	-	48	1.78	86	34%	37%	6%	9%	14%	1.19	24	32	6	8	12
Out	ksf	52%	-	52	1.78	92	34%	37%	6%	9%	14%	1.19	27	34	6	8	13
PM Office			-	781		882							250	326	53	79	123
In	522	17%	-	133	1.13	150	34%	37%	6%	9%	14%	1.19	42	55	9	13	21
Out	ksf	83%	-	648	1.13	732	34%	37%	6%	9%	14%	1.19	208	271	44	66	102
Total PM Peak Hour				1150		1365							389	483	141	125	158
In				355		434							124	146	64	41	39
Out				794		931							265	337	77	84	119

Notes:

Trip Generation based on *ITE Trip Generation Manual*, 9th Edition, using:

LUC 220 - Apartment

LUC 820 - Shopping Center

LUC 710 - General Office Building

Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2

VOR stands for Vehicle Occupancy Rate from 2009 NHTS

Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524

KSURP Infill Development Estimated Trip Generation - 2018 Update

			Unadjusted		Person							Local					
	Size	Distri- bution	Trip Rate	Vehicle Trips	VOR	Trips	Vehicle	Transit	Walk	Bike	Other	VOR	Vehicle	Transit	Walk	Bike	Other
Daily Residential			-	3241		3662							1076	1098	916	366	110
In	494	50%	-	1620	1.13	1831	32%	30%	25%	10%	3%	1.11	538	549	458	183	55
Out	units	50%	-	1620	1.13	1831	32%	30%	25%	10%	3%	1.11	538	549	458	183	55
Daily Retail			-	775		1380							394	510	84	124	192
In	10	50%	-	388	1.78	690	34%	37%	6%	9%	14%	1.19	197	255	42	62	96
Out	ksf	50%	-	388	1.78	690	34%	37%	6%	9%	14%	1.19	197	255	42	62	96
Daily Office			-	5496		6211							1754	2298	374	556	868
In	637	50%	-	2748	1.13	3105	34%	37%	6%	9%	14%	1.19	877	1149	187	278	434
Out	ksf	50%	-	2748	1.13	3105	34%	37%	6%	9%	14%	1.19	877	1149	187	278	434
Total Daily				9512		0							3224	3906	1374	1046	1170
In				4756		0							1612	1953	687	523	585
Out				4756		0							1612	1953	687	523	585
AM Residential			-	250		282							81	85	71	29	8
In	494	20%	-	50	1.13	56	32%	30%	25%	10%	3%	1.11	16	17	14	6	1
Out	units	80%	-	200	1.13	226	32%	30%	25%	10%	3%	1.11	65	68	57	23	7
AM Retail			-	19		34							10	13	2	4	5
In	10	62%	-	12	1.78	21	34%	37%	6%	9%	14%	1.19	6	8	2	2	3
Out	ksf	38%	-	7	1.78	13	34%	37%	6%	9%	14%	1.19	4	5	0	2	2
AM Office			-	861		973							276	360	59	87	137
In	637	88%	-	758	1.13	856	34%	37%	6%	9%	14%	1.19	243	317	52	77	120
Out	ksf	12%	-	103	1.13	117	34%	37%	6%	9%	14%	1.19	33	43	7	10	17
Total AM Peak Hour				1130		0							367	458	132	120	150
In				820		0							265	342	68	85	124
Out				310		0							102	116	64	35	26
PM Residential			-	307		347							101	103	86	34	10
In	494	65%	-	200	1.13	225	32%	30%	25%	10%	3%	1.11	66	67	56	22	6
Out	units	35%	-	107	1.13	121	32%	30%	25%	10%	3%	1.11	35	36	30	12	4
PM Retail			-	65		116							34	42	8	11	16
In	10	48%	-	31	1.78	55	34%	37%	6%	9%	14%	1.19	16	20	4	5	8
Out	ksf	52%	-	34	1.78	60	34%	37%	6%	9%	14%	1.19	18	22	4	6	8
PM Office			-	791		894							252	331	53	81	126
In	637	17%	-	135	1.13	152	34%	37%	6%	9%	14%	1.19	41	56	8	14	22
Out	ksf	83%	-	657	1.13	742	34%	37%	6%	9%	14%	1.19	211	275	45	67	104
Total PM Peak Hour				1163		0							387	476	147	126	152
In				365		0							123	143	68	41	36
Out				798		0							264	333	79	85	116

Notes:
Trip Generation based on *ITE Trip Generation Manual*, 9th Edition, using:
LUC 220 - Apartment
LUC 820 - Shopping Center
LUC 710 - General Office Building
Mode shares based on FST Study and Kendall Square Advisory Committee Meeting presentation from January 26, 2012 / k2c2
VOR stands for Vehicle Occupancy Rate from 2009 NHTS
Local VOR from American Community Survey 2006-2010; Census Tract 3523 and 3524

Kendall Center
Office Parking Generation Rate Analysis

Building	Office GFA Occupied (SF) ¹	Retail GFA Occupied (SF) ¹	Other GFA Occupied (SF) ¹	Total GFA Occupied (SF) ¹	Garage	Comments
<u>Parcels 3 and 4</u>						
5CC (355 Main St) Office/Retail	257,880	14,507		272,387	Green	
4CC (90 Broadway) Office/Retail	216,751	4,486		221,237	Green	
9CC Whitehead Institute	197,519			197,519	Yellow	
2CC CC Marriott (421 keys)		40,245	289,813	330,058	Green	Marriot has a dedicated nest for 75 vehicles.
3CC (325 Main St) Office/Retail	62,757	42,300		105,057	Green	Google has rights to 27 spaces in the Yellow Garage.
6CC Residence Inn (221 keys)		2,118	185,356	187,474	Yellow	
7CC (415 Main St) Broad Institute	194,096			194,096	Yellow	
75 Ames - Broad Expansion	237,057	0		237,057	Yellow	Ames St Deli space of 5,449 SF is vacant.
8CC (150 Broadway) Office	176,562			176,562	Yellow	
1CC (255 Main St) Office	123,377			123,377	Green	92,000 SF (92,000 RSF) is vacant. Tenant has rights for 6 spaces in Yellow Garage.
88 Ames Street - Proto (280 units)	under const.	under const.	under const.	under const.	Green	Will have 140 spaces (70 during the day).
Sub-total	1,465,999	103,656	475,169	2,044,824		
<u>Parcel 2</u>						
14CC (250 Binney) Biogen	62,576			62,576	Blue	
11CC (145 Broadway) Office	under const.	under const.	under const.	under const.	Blue	
10CC (105 Broadway) Biogen	19,253			19,253	Blue	126,350 SF (133,000 RSF) is vacant.
12CC (115 Broadway) Biogen	233,945			233,945	Blue	
15CC (125 Broadway) Biogen	218,288			218,288	Blue	
17CC (300 Binney) Biogen	189,661			189,661	Blue	
Sub-total	723,723	0	0	723,723		
			Total Office	2,189,722		

Notes:

¹ This is the GFA occupied in Oct 2017.

Peak Demand	2,209 vehicles	
Deduct Retail Demand	(207)	Assume 2 spaces per 1,000 SF
Deduct Residence Inn Demand	(44)	
Peak Office Demand	1,958	
Peak Office Demand per 1,000 SF	0.89	

Date: _____

CITY OF CAMBRIDGE

TDM Annual Report Summary Form—2016

Special Permit Number: PB 175 Amd 3

Date of Original Approval: 12/7/2011

PROJECT NAME: Avalon North Point Residences/Lofts **IF CHANGED, UPDATE CONTACT INFO BELOW**

Address: 2 Leighton St/10 Glassworks Ave _____

Owner Name: AvalonBay Communities, Inc. _____ North Point II Apartments LLC

Owner Contact Person: Lee Block _____ Michael Roberts

Owner Address: 1250 Broadway, 12th Floor _____ c/o AvalonBay Communities, Attn: Joanne Lockridge
New York, NY 10001 _____ Ballston Tower, 671 N. Glebe Rd, Ste 800, Arlington VA 22203

Owner Phone: (212) 915-3800 _____ (617) 654-9503

Owner Email: Please fill in _____ Michael_roberts@avalonbay.com

PTDM Contact Person: Please fill in _____ MaryKate Daly

PTDM Contact Address: Please fill in _____ 600 Atlantic Ave., 20th Floor, Boston, MA 02210

PTDM Contact Phone: Please fill in _____ 617-654-9547

PTDM Contact Email: Please fill in _____ MaryKate_Daly@avalonbay.com

SURVEY (Please fill in this year's survey information.)

Year	Resident SOV rate	# of Survey Responses	Response Rate	Survey Dates
2017	39%	321	65%	Oct.25 – Nov 1

PROJECT TENANTS/OCCUPANTS: (Please note any changes and fill in missing information.)

	# Units	Square Feet	# Vehicle Parking Spaces
Leased	498		241
Unleased	23		127
Visitor			10
Emp/Admin			53
Zipcar			3
Total	521	??	434

Percent annual unit turnover: _____ 68% NorthPoint, 75% Lofts

BIKE PARKING:**

Total number of long-term bike parking spaces: 272 (secure, weather-protected)

Total number of short-term bike parking spaces: 0 (can be outdoors)

** To count as bike parking, it must meet the City of Cambridge bike parking guidelines

Traffic Counts

Automatic Traffic Recorder Counts (ATR)

Turning Movement Counts (TMCs)

Automatic Traffic Recorder Counts (ATR)

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Volume
Site Code: 14777.00

Start	EB		WB		Combin ed		05/01/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Wed	
12:00	14	76	4	61	18	137		
12:15	3	77	6	59	9	136		
12:30	11	63	5	46	16	109		
12:45	8	36 84	3 300	18 73	239 11	54 157	539	
01:00	11	97	5	56	16	153		
01:15	4	101	3	46	7	147		
01:30	5	107	1	56	6	163		
01:45	2	22 96	5 401	14 48	206 7	36 144	607	
02:00	15	132	3	67	18	199		
02:15	5	130	3	57	8	187		
02:30	6	131	3	58	9	189		
02:45	2	28 133	5 526	14 69	251 7	42 202	777	
03:00	2	182	6	63	8	245		
03:15	7	146	7	60	14	206		
03:30	5	151	7	71	12	222		
03:45	1	15 153	11 632	31 58	252 12	46 211	884	
04:00	7	149	12	77	19	226		
04:15	5	175	16	58	21	233		
04:30	5	137	19	61	24	198		
04:45	12	29 159	25 620	72 77	273 37	101 236	893	
05:00	8	159	41	62	49	221		
05:15	22	157	80	87	102	244		
05:30	24	172	93	76	117	248		
05:45	24	78 195	126 683	340 61	286 150	418 256	969	
06:00	27	167	109	75	136	242		
06:15	34	114	100	80	134	194		
06:30	33	147	80	64	113	211		
06:45	51	145 153	107 581	396 62	281 158	541 215	862	
07:00	67	105	125	60	192	165		
07:15	57	96	132	40	189	136		
07:30	79	70	136	38	215	108		
07:45	79	282 63	334 148	541 44	182 227	823 107	516	
08:00	77	54	142	38	219	92		
08:15	75	45	143	34	218	79		
08:30	78	42	132	23	210	65		
08:45	93	323 46	187 143	560 30	125 236	883 76	312	
09:00	94	42	143	34	237	76		
09:15	86	51	148	25	234	76		
09:30	90	33	131	17	221	50		
09:45	73	343 41	167 104	526 20	96 177	869 61	263	
10:00	81	30	82	25	163	55		
10:15	69	35	74	28	143	63		
10:30	60	22	73	25	133	47		
10:45	74	284 22	109 87	316 19	97 161	600 41	206	
11:00	63	19	80	15	143	34		
11:15	65	14	78	15	143	29		
11:30	76	8	83	17	159	25		
11:45	86	290 4	45 78	319 11	58 164	609 15	103	
Total	1875	4585	3147	2346	5022	6931		
Percent	37.3%	66.2%	62.7%	33.8%				
Day Total		6460		5493		11953		
Peak	08:45	-	05:15	-	07:30	-	04:45	-
Vol.	363	-	691	-	569	-	302	-
P.H.F.	0.965	-	0.886	-	0.961	-	0.868	-

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Volume
Site Code: 14777.00

Start	EB		WB		Combin ed		05/02/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Thu	
12:00	11	91	14	79	25	170		
12:15	10	78	7	64	17	142		
12:30	4	74	14	74	18	148		
12:45	13	38 72	8 315	43 50	267 21	81 122	582	
01:00	8	93	5	67	13	160		
01:15	9	101	5	61	14	162		
01:30	11	100	2	62	13	162		
01:45	7	35 131	425 3	15 67	257 10	50 198	682	
02:00	15	145	2	54	17	199		
02:15	2	139	1	74	3	213		
02:30	2	124	4	50	6	174		
02:45	3	22 142	550 4	11 78	256 7	33 220	806	
03:00	5	169	4	55	9	224		
03:15	2	160	3	59	5	219		
03:30	3	147	4	64	7	211		
03:45	2	12 164	640 9	20 59	237 11	32 223	877	
04:00	3	170	9	64	12	234		
04:15	8	164	19	72	27	236		
04:30	6	158	32	61	38	219		
04:45	9	26 159	651 29	89 80	277 38	115 239	928	
05:00	12	183	52	68	64	251		
05:15	27	205	66	85	93	290		
05:30	28	194	115	77	143	271		
05:45	25	92 198	780 109	342 84	314 134	434 282	1094	
06:00	23	181	97	87	120	268		
06:15	34	172	98	83	132	255		
06:30	36	157	107	83	143	240		
06:45	38	131 105	615 94	396 59	312 132	527 164	927	
07:00	70	129	105	50	175	179		
07:15	68	91	128	54	196	145		
07:30	78	79	138	31	216	110		
07:45	61	277 65	364 137	508 39	174 198	785 104	538	
08:00	74	62	139	23	213	85		
08:15	82	64	140	38	222	102		
08:30	83	75	157	34	240	109		
08:45	99	338 49	250 161	597 30	125 260	935 79	375	
09:00	91	44	155	18	246	62		
09:15	92	54	120	26	212	80		
09:30	79	46	105	25	184	71		
09:45	72	334 40	184 113	493 35	104 185	827 75	288	
10:00	80	38	107	20	187	58		
10:15	93	27	76	21	169	48		
10:30	61	19	100	30	161	49		
10:45	53	287 25	109 78	361 18	89 131	648 43	198	
11:00	81	19	84	13	165	32		
11:15	95	15	82	11	177	26		
11:30	81	13	65	6	146	19		
11:45	85	342 8	55 72	303 8	38 157	645 16	93	
Total	1934	4938	3178	2450	5112	7388		
Percent	37.8%	66.8%	62.2%	33.2%				
Day Total		6872		5628		12500		
Peak	08:30	- 05:00	- 08:15	- 05:45	- 08:15	- 05:15	- - -	
Vol.	365	- 780	- 613	- 337	- 968	- 1111	- - -	
P.H.F.	0.922	0.951	0.952	0.968	0.931	0.958		

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy											Total
05/01/1														
9	29	5	2	0	0	0	0	0	0	0	0	0	0	36
01:00	20	0	2	0	0	0	0	0	0	0	0	0	0	22
02:00	24	3	1	0	0	0	0	0	0	0	0	0	0	28
03:00	10	4	1	0	0	0	0	0	0	0	0	0	0	15
04:00	16	11	2	0	0	0	0	0	0	0	0	0	0	29
05:00	62	13	3	0	0	0	0	0	0	0	0	0	0	78
06:00	118	25	2	0	0	0	0	0	0	0	0	0	0	145
07:00	218	50	14	0	0	0	0	0	0	0	0	0	0	282
08:00	268	49	6	0	0	0	0	0	0	0	0	0	0	323
09:00	287	50	6	0	0	0	0	0	0	0	0	0	0	343
10:00	211	63	10	0	0	0	0	0	0	0	0	0	0	284
11:00	228	54	8	0	0	0	0	0	0	0	0	0	0	290
12 PM	248	42	10	0	0	0	0	0	0	0	0	0	0	300
13:00	335	58	8	0	0	0	0	0	0	0	0	0	0	401
14:00	481	40	5	0	0	0	0	0	0	0	0	0	0	526
15:00	593	38	1	0	0	0	0	0	0	0	0	0	0	632
16:00	590	29	1	0	0	0	0	0	0	0	0	0	0	620
17:00	663	18	2	0	0	0	0	0	0	0	0	0	0	683
18:00	559	20	2	0	0	0	0	0	0	0	0	0	0	581
19:00	316	18	0	0	0	0	0	0	0	0	0	0	0	334
20:00	173	12	2	0	0	0	0	0	0	0	0	0	0	187
21:00	164	1	2	0	0	0	0	0	0	0	0	0	0	167
22:00	106	1	2	0	0	0	0	0	0	0	0	0	0	109
23:00	45	0	0	0	0	0	0	0	0	0	0	0	0	45
Total	5764	604	92	0	0	0	0	0	0	0	0	0	0	6460
Percent	89.2%	9.3%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM														
Peak	09:00	10:00	07:00											09:00
Vol.	287	63	14											343
PM														
Peak	17:00	13:00	12:00											17:00
Vol.	663	58	10											683

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	33	4	1	0	0	0	0	0	0	0	0	0	0	0	38
01:00	29	3	3	0	0	0	0	0	0	0	0	0	0	0	35
02:00	19	1	2	0	0	0	0	0	0	0	0	0	0	0	22
03:00	8	3	1	0	0	0	0	0	0	0	0	0	0	0	12
04:00	17	7	2	0	0	0	0	0	0	0	0	0	0	0	26
05:00	68	18	6	0	0	0	0	0	0	0	0	0	0	0	92
06:00	108	18	5	0	0	0	0	0	0	0	0	0	0	0	131
07:00	215	57	5	0	0	0	0	0	0	0	0	0	0	0	277
08:00	287	50	1	0	0	0	0	0	0	0	0	0	0	0	338
09:00	280	48	6	0	0	0	0	0	0	0	0	0	0	0	334
10:00	232	49	6	0	0	0	0	0	0	0	0	0	0	0	287
11:00	282	54	6	0	0	0	0	0	0	0	0	0	0	0	342
12 PM	268	43	4	0	0	0	0	0	0	0	0	0	0	0	315
13:00	372	49	4	0	0	0	0	0	0	0	0	0	0	0	425
14:00	497	51	2	0	0	0	0	0	0	0	0	0	0	0	550
15:00	610	29	1	0	0	0	0	0	0	0	0	0	0	0	640
16:00	617	32	2	0	0	0	0	0	0	0	0	0	0	0	651
17:00	763	16	1	0	0	0	0	0	0	0	0	0	0	0	780
18:00	599	15	1	0	0	0	0	0	0	0	0	0	0	0	615
19:00	344	19	1	0	0	0	0	0	0	0	0	0	0	0	364
20:00	238	11	1	0	0	0	0	0	0	0	0	0	0	0	250
21:00	182	0	2	0	0	0	0	0	0	0	0	0	0	0	184
22:00	105	4	0	0	0	0	0	0	0	0	0	0	0	0	109
23:00	52	2	1	0	0	0	0	0	0	0	0	0	0	0	55
Total	6225	583	64	0	0	0	0	0	0	0	0	0	0	0	6872
Percent	90.6%	8.5%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	05:00												11:00
Vol.	287	57	6												342
PM Peak	17:00	14:00	12:00												17:00
Vol.	763	51	4												780

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	15	1	2	0	0	0	0	0	0	0	0	0	0	0	18
01:00	9	3	2	0	0	0	0	0	0	0	0	0	0	0	14
02:00	9	5	0	0	0	0	0	0	0	0	0	0	0	0	14
03:00	22	6	3	0	0	0	0	0	0	0	0	0	0	0	31
04:00	55	15	2	0	0	0	0	0	0	0	0	0	0	0	72
05:00	294	41	5	0	0	0	0	0	0	0	0	0	0	0	340
06:00	341	50	5	0	0	0	0	0	0	0	0	0	0	0	396
07:00	454	75	12	0	0	0	0	0	0	0	0	0	0	0	541
08:00	510	46	4	0	0	0	0	0	0	0	0	0	0	0	560
09:00	467	54	5	0	0	0	0	0	0	0	0	0	0	0	526
10:00	282	33	1	0	0	0	0	0	0	0	0	0	0	0	316
11:00	267	45	7	0	0	0	0	0	0	0	0	0	0	0	319
12 PM	204	30	5	0	0	0	0	0	0	0	0	0	0	0	239
13:00	179	24	3	0	0	0	0	0	0	0	0	0	0	0	206
14:00	213	34	4	0	0	0	0	0	0	0	0	0	0	0	251
15:00	226	26	0	0	0	0	0	0	0	0	0	0	0	0	252
16:00	241	30	2	0	0	0	0	0	0	0	0	0	0	0	273
17:00	264	21	1	0	0	0	0	0	0	0	0	0	0	0	286
18:00	260	21	0	0	0	0	0	0	0	0	0	0	0	0	281
19:00	172	9	1	0	0	0	0	0	0	0	0	0	0	0	182
20:00	120	5	0	0	0	0	0	0	0	0	0	0	0	0	125
21:00	90	4	2	0	0	0	0	0	0	0	0	0	0	0	96
22:00	94	3	0	0	0	0	0	0	0	0	0	0	0	0	97
23:00	50	6	2	0	0	0	0	0	0	0	0	0	0	0	58
Total	4838	587	68	0	0	0	0	0	0	0	0	0	0	0	5493
Percent	88.1%	10.7%	1.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00												08:00
Vol.	510	75	12												560
PM Peak	17:00	14:00	12:00												17:00
Vol.	264	34	5												286

Binney Street between
5th Street and 6th Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 A Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy											Total
05/02/1														
9	34	6	3	0	0	0	0	0	0	0	0	0	0	43
01:00	12	1	2	0	0	0	0	0	0	0	0	0	0	15
02:00	5	6	0	0	0	0	0	0	0	0	0	0	0	11
03:00	13	4	3	0	0	0	0	0	0	0	0	0	0	20
04:00	62	22	5	0	0	0	0	0	0	0	0	0	0	89
05:00	294	43	5	0	0	0	0	0	0	0	0	0	0	342
06:00	342	51	3	0	0	0	0	0	0	0	0	0	0	396
07:00	438	62	8	0	0	0	0	0	0	0	0	0	0	508
08:00	536	55	6	0	0	0	0	0	0	0	0	0	0	597
09:00	428	61	4	0	0	0	0	0	0	0	0	0	0	493
10:00	314	43	4	0	0	0	0	0	0	0	0	0	0	361
11:00	251	46	6	0	0	0	0	0	0	0	0	0	0	303
12 PM	235	32	0	0	0	0	0	0	0	0	0	0	0	267
13:00	219	35	3	0	0	0	0	0	0	0	0	0	0	257
14:00	231	25	0	0	0	0	0	0	0	0	0	0	0	256
15:00	218	17	2	0	0	0	0	0	0	0	0	0	0	237
16:00	256	21	0	0	0	0	0	0	0	0	0	0	0	277
17:00	301	13	0	0	0	0	0	0	0	0	0	0	0	314
18:00	286	24	2	0	0	0	0	0	0	0	0	0	0	312
19:00	160	13	1	0	0	0	0	0	0	0	0	0	0	174
20:00	122	3	0	0	0	0	0	0	0	0	0	0	0	125
21:00	98	6	0	0	0	0	0	0	0	0	0	0	0	104
22:00	82	6	1	0	0	0	0	0	0	0	0	0	0	89
23:00	33	4	1	0	0	0	0	0	0	0	0	0	0	38
Total	4970	599	59	0	0	0	0	0	0	0	0	0	0	5628
Percent	88.3%	10.6%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00											08:00
Vol.	536	62	8											597
PM Peak	17:00	13:00	13:00											17:00
Vol.	301	35	3											314

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Volume
Site Code: 14777.00

Start		EB		WB		Combin ed		05/01/19	
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	Wed	
12:00	12	76		22	91	34	167		
12:15	15	100		15	74	30	174		
12:30	14	93		19	77	33	170		
12:45	8	49 92	361	10	66 67	309 18	115 159	670	
01:00	15	89		9	69	24	158		
01:15	5	96		3	85	8	181		
01:30	5	99		7	66	12	165		
01:45	6	31 90	374	8	27 75	295 14	58 165	669	
02:00	7	102		8	74	15	176		
02:15	5	121		4	91	9	212		
02:30	8	97		3	84	11	181		
02:45	3	23 128	448	4	19 95	344 7	42 223	792	
03:00	2	134		1	92	3	226		
03:15	1	127		3	70	4	197		
03:30	1	132		7	74	8	206		
03:45	3	7 96	489	4	15 75	311 7	22 171	800	
04:00	5	134		3	85	8	219		
04:15	10	146		8	71	18	217		
04:30	11	127		21	87	32	214		
04:45	20	46 141	548	33	65 90	333 53	111 231	881	
05:00	9	133		36	99	45	232		
05:15	19	171		55	106	74	277		
05:30	29	153		80	100	109	253		
05:45	39	96 156	613	102	273 98	403 141	369 254	1016	
06:00	55	169		84	82	139	251		
06:15	62	141		70	88	132	229		
06:30	62	117		80	81	142	198		
06:45	61	240 121	548	97	331 95	346 158	571 216	894	
07:00	86	112		108	98	194	210		
07:15	80	86		120	97	200	183		
07:30	76	96		125	95	201	191		
07:45	77	319 71	365	114	467 77	367 191	786 148	732	
08:00	99	59		107	67	206	126		
08:15	100	62		143	68	243	130		
08:30	88	68		126	60	214	128		
08:45	107	394 49	238	136	512 53	248 243	906 102	486	
09:00	107	79		103	56	210	135		
09:15	103	80		139	65	242	145		
09:30	107	65		127	51	234	116		
09:45	98	415 72	296	105	474 64	236 203	889 136	532	
10:00	123	58		111	58	234	116		
10:15	99	47		111	33	210	80		
10:30	88	31		90	52	178	83		
10:45	85	395 40	176	95	407 55	198 180	802 95	374	
11:00	92	36		102	43	194	79		
11:15	112	26		84	25	196	51		
11:30	85	19		78	27	163	46		
11:45	90	379 12	93	85	349 21	116 175	728 33	209	
Total	2394	4549		3005	3506	5399	8055		
Percent	44.3%	56.5%		55.7%	43.5%				
Day Total		6943		6511		13454			
Peak	09:15	-	05:15	-	08:00	-	05:15	-	-
Vol.	431	-	649	-	512	-	1035	-	-
P.H.F.	0.876		0.949		0.895		0.956		0.934

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Volume
Site Code: 14777.00

Start	EB		WB		Combin		05/02/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Thu	
12:00	16	105	13	90	29	195		
12:15	10	88	18	100	28	188		
12:30	26	103	16	71	42	174		
12:45	16	109	8	83	24	192	749	
01:00	11	104	7	102	18	206		
01:15	10	99	6	71	16	170		
01:30	7	105	5	92	12	197		
01:45	9	92	5	76	14	168	741	
02:00	3	119	1	69	4	188		
02:15	7	131	7	89	14	220		
02:30	5	112	4	83	9	195		
02:45	2	99	2	71	4	170	773	
03:00	1	137	7	92	8	229		
03:15	3	132	2	108	5	240		
03:30	7	144	3	96	10	240		
03:45	4	150	4	93	8	243	952	
04:00	3	153	7	77	10	230		
04:15	6	127	14	82	20	209		
04:30	11	120	19	98	30	218		
04:45	12	137	30	103	42	240	897	
05:00	16	130	40	99	56	229		
05:15	17	161	60	81	77	242		
05:30	19	149	73	88	92	237		
05:45	47	163	111	84	158	247	955	
06:00	48	167	78	90	126	257		
06:15	47	169	72	87	119	256		
06:30	67	150	74	85	141	235		
06:45	71	106	91	101	162	207	955	
07:00	87	89	117	72	204	161		
07:15	94	68	129	71	223	139		
07:30	87	79	134	81	221	160		
07:45	98	90	129	88	312	178	638	
08:00	92	72	125	66	217	138		
08:15	102	78	135	75	237	153		
08:30	88	59	124	70	212	129		
08:45	102	63	146	69	248	132	552	
09:00	109	55	132	51	241	106		
09:15	89	66	134	60	223	126		
09:30	105	54	116	56	221	110		
09:45	90	48	125	42	215	90	432	
10:00	92	39	92	51	184	90		
10:15	95	46	113	49	208	95		
10:30	118	44	91	44	209	88		
10:45	99	38	69	39	168	77	350	
11:00	99	23	89	54	188	77		
11:15	88	34	72	40	160	74		
11:30	113	24	97	31	210	55		
11:45	118	29	97	22	215	51	257	
Total	2466	4659	3043	3592	5509	8251		
Percent	44.8%	56.5%	55.2%	43.5%				
Day Total		7125		6635		13760		
Peak	11:00	-	05:45	-	08:15	-	05:30	-
Vol.	418	-	649	-	537	-	997	-
P.H.F.	0.886	-	0.960	-	0.920	-	0.970	-

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	48	1	0	0	0	0	0	0	0	0	0	0	0	0	49
01:00	29	1	1	0	0	0	0	0	0	0	0	0	0	0	31
02:00	20	3	0	0	0	0	0	0	0	0	0	0	0	0	23
03:00	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7
04:00	41	5	0	0	0	0	0	0	0	0	0	0	0	0	46
05:00	87	8	1	0	0	0	0	0	0	0	0	0	0	0	96
06:00	217	23	0	0	0	0	0	0	0	0	0	0	0	0	240
07:00	287	30	2	0	0	0	0	0	0	0	0	0	0	0	319
08:00	350	35	9	0	0	0	0	0	0	0	0	0	0	0	394
09:00	367	47	1	0	0	0	0	0	0	0	0	0	0	0	415
10:00	351	42	2	0	0	0	0	0	0	0	0	0	0	0	395
11:00	327	48	4	0	0	0	0	0	0	0	0	0	0	0	379
12 PM	326	33	2	0	0	0	0	0	0	0	0	0	0	0	361
13:00	346	26	2	0	0	0	0	0	0	0	0	0	0	0	374
14:00	415	31	2	0	0	0	0	0	0	0	0	0	0	0	448
15:00	474	15	0	0	0	0	0	0	0	0	0	0	0	0	489
16:00	516	32	0	0	0	0	0	0	0	0	0	0	0	0	548
17:00	587	24	2	0	0	0	0	0	0	0	0	0	0	0	613
18:00	529	19	0	0	0	0	0	0	0	0	0	0	0	0	548
19:00	349	15	1	0	0	0	0	0	0	0	0	0	0	0	365
20:00	235	3	0	0	0	0	0	0	0	0	0	0	0	0	238
21:00	294	2	0	0	0	0	0	0	0	0	0	0	0	0	296
22:00	170	6	0	0	0	0	0	0	0	0	0	0	0	0	176
23:00	92	1	0	0	0	0	0	0	0	0	0	0	0	0	93
Total	6463	451	29	0	0	0	0	0	0	0	0	0	0	0	6943
Percent	93.1%	6.5%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	08:00												09:00
Vol.	367	48	9												415
PM Peak	17:00	12:00	12:00												17:00
Vol.	587	33	2												613

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	67	0	1	0	0	0	0	0	0	0	0	0	0	0	68
01:00	34	2	1	0	0	0	0	0	0	0	0	0	0	0	37
02:00	16	1	0	0	0	0	0	0	0	0	0	0	0	0	17
03:00	9	6	0	0	0	0	0	0	0	0	0	0	0	0	15
04:00	27	4	1	0	0	0	0	0	0	0	0	0	0	0	32
05:00	92	7	0	0	0	0	0	0	0	0	0	0	0	0	99
06:00	214	19	0	0	0	0	0	0	0	0	0	0	0	0	233
07:00	317	39	10	0	0	0	0	0	0	0	0	0	0	0	366
08:00	337	45	2	0	0	0	0	0	0	0	0	0	0	0	384
09:00	342	48	3	0	0	0	0	0	0	0	0	0	0	0	393
10:00	357	42	5	0	0	0	0	0	0	0	0	0	0	0	404
11:00	355	55	8	0	0	0	0	0	0	0	0	0	0	0	418
12 PM	363	39	3	0	0	0	0	0	0	0	0	0	0	0	405
13:00	362	33	5	0	0	0	0	0	0	0	0	0	0	0	400
14:00	427	29	5	0	0	0	0	0	0	0	0	0	0	0	461
15:00	527	36	0	0	0	0	0	0	0	0	0	0	0	0	563
16:00	507	30	0	0	0	0	0	0	0	0	0	0	0	0	537
17:00	576	26	1	0	0	0	0	0	0	0	0	0	0	0	603
18:00	568	24	0	0	0	0	0	0	0	0	0	0	0	0	592
19:00	309	17	0	0	0	0	0	0	0	0	0	0	0	0	326
20:00	268	4	0	0	0	0	0	0	0	0	0	0	0	0	272
21:00	221	2	0	0	0	0	0	0	0	0	0	0	0	0	223
22:00	165	2	0	0	0	0	0	0	0	0	0	0	0	0	167
23:00	107	2	1	0	0	0	0	0	0	0	0	0	0	0	110
Total	6567	512	46	0	0	0	0	0	0	0	0	0	0	0	7125
Percent	92.2%	7.2%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	11:00	07:00												11:00
Vol.	357	55	10												418
PM Peak	17:00	12:00	13:00												17:00
Vol.	576	39	5												603

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	66	0	0	0	0	0	0	0	0	0	0	0	0	0	66
01:00	27	0	0	0	0	0	0	0	0	0	0	0	0	0	27
02:00	18	1	0	0	0	0	0	0	0	0	0	0	0	0	19
03:00	10	5	0	0	0	0	0	0	0	0	0	0	0	0	15
04:00	62	3	0	0	0	0	0	0	0	0	0	0	0	0	65
05:00	259	12	2	0	0	0	0	0	0	0	0	0	0	0	273
06:00	314	16	1	0	0	0	0	0	0	0	0	0	0	0	331
07:00	442	25	0	0	0	0	0	0	0	0	0	0	0	0	467
08:00	482	28	2	0	0	0	0	0	0	0	0	0	0	0	512
09:00	435	37	2	0	0	0	0	0	0	0	0	0	0	0	474
10:00	375	32	0	0	0	0	0	0	0	0	0	0	0	0	407
11:00	320	20	9	0	0	0	0	0	0	0	0	0	0	0	349
12 PM	283	26	0	0	0	0	0	0	0	0	0	0	0	0	309
13:00	275	19	1	0	0	0	0	0	0	0	0	0	0	0	295
14:00	323	20	1	0	0	0	0	0	0	0	0	0	0	0	344
15:00	290	20	1	0	0	0	0	0	0	0	0	0	0	0	311
16:00	326	7	0	0	0	0	0	0	0	0	0	0	0	0	333
17:00	396	7	0	0	0	0	0	0	0	0	0	0	0	0	403
18:00	343	3	0	0	0	0	0	0	0	0	0	0	0	0	346
19:00	365	2	0	0	0	0	0	0	0	0	0	0	0	0	367
20:00	247	1	0	0	0	0	0	0	0	0	0	0	0	0	248
21:00	234	2	0	0	0	0	0	0	0	0	0	0	0	0	236
22:00	196	1	1	0	0	0	0	0	0	0	0	0	0	0	198
23:00	115	0	1	0	0	0	0	0	0	0	0	0	0	0	116
Total	6203	287	21	0	0	0	0	0	0	0	0	0	0	0	6511
Percent	95.3%	4.4%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM															
Peak	08:00	09:00	11:00												08:00
Vol.	482	37	9												512
PM															
Peak	17:00	12:00	13:00												17:00
Vol.	396	26	1												403

Broadway
east of Ames Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 B Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	52	3	0	0	0	0	0	0	0	0	0	0	0	0	55
01:00	23	0	0	0	0	0	0	0	0	0	0	0	0	0	23
02:00	14	0	0	0	0	0	0	0	0	0	0	0	0	0	14
03:00	14	2	0	0	0	0	0	0	0	0	0	0	0	0	16
04:00	69	1	0	0	0	0	0	0	0	0	0	0	0	0	70
05:00	265	19	0	0	0	0	0	0	0	0	0	0	0	0	284
06:00	295	19	1	0	0	0	0	0	0	0	0	0	0	0	315
07:00	476	30	3	0	0	0	0	0	0	0	0	0	0	0	509
08:00	502	27	1	0	0	0	0	0	0	0	0	0	0	0	530
09:00	476	30	1	0	0	0	0	0	0	0	0	0	0	0	507
10:00	339	24	2	0	0	0	0	0	0	0	0	0	0	0	365
11:00	327	26	2	0	0	0	0	0	0	0	0	0	0	0	355
12 PM	314	29	1	0	0	0	0	0	0	0	0	0	0	0	344
13:00	316	24	1	0	0	0	0	0	0	0	0	0	0	0	341
14:00	291	21	0	0	0	0	0	0	0	0	0	0	0	0	312
15:00	371	18	0	0	0	0	0	0	0	0	0	0	0	0	389
16:00	341	19	0	0	0	0	0	0	0	0	0	0	0	0	360
17:00	345	7	0	0	0	0	0	0	0	0	0	0	0	0	352
18:00	360	2	1	0	0	0	0	0	0	0	0	0	0	0	363
19:00	308	4	0	0	0	0	0	0	0	0	0	0	0	0	312
20:00	277	3	0	0	0	0	0	0	0	0	0	0	0	0	280
21:00	209	0	0	0	0	0	0	0	0	0	0	0	0	0	209
22:00	182	1	0	0	0	0	0	0	0	0	0	0	0	0	183
23:00	146	1	0	0	0	0	0	0	0	0	0	0	0	0	147
Total	6312	310	13	0	0	0	0	0	0	0	0	0	0	0	6635
Percent	95.1%	4.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	07:00												08:00
Vol.	502	30	3												530
PM Peak	15:00	12:00	12:00												15:00
Vol.	371	29	1												389

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 C Volume
Site Code: 14777.00

Start	NB		SB		Combined		05/01/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Wed	
12:00	6	62	6	83	12	145		
12:15	7	69	9	63	16	132		
12:30	6	57	3	68	9	125		
12:45	3	62	5	58	8	120	522	
01:00	9	55	7	63	16	118		
01:15	3	77	2	52	5	129		
01:30	2	56	1	70	3	126		
01:45	4	51	3	69	7	120	493	
02:00	2	72	3	102	5	174		
02:15	5	53	2	104	7	157		
02:30	3	51	3	86	6	137		
02:45	1	82	0	96	1	178	646	
03:00	0	75	0	91	0	166		
03:15	3	66	7	95	10	161		
03:30	2	65	2	104	4	169		
03:45	4	68	6	105	10	173	669	
04:00	5	65	0	109	5	174		
04:15	7	82	3	112	10	194		
04:30	8	74	6	119	14	193		
04:45	15	89	9	113	24	202	763	
05:00	22	75	11	133	33	208		
05:15	37	121	13	113	50	234		
05:30	48	83	30	139	78	222		
05:45	77	97	38	114	115	211	875	
06:00	69	87	40	76	109	163		
06:15	51	98	60	87	111	185		
06:30	57	75	56	83	113	158		
06:45	63	86	64	69	127	155	661	
07:00	63	51	79	64	142	115		
07:15	68	48	80	65	148	113		
07:30	74	55	68	55	142	110		
07:45	77	35	92	49	169	84	422	
08:00	76	54	85	47	161	101		
08:15	73	28	90	42	163	70		
08:30	117	35	104	41	221	76		
08:45	90	43	83	47	173	90	337	
09:00	71	38	73	50	144	88		
09:15	74	34	87	23	161	57		
09:30	72	40	83	25	155	65		
09:45	55	32	87	30	142	62	272	
10:00	73	46	87	37	160	83		
10:15	66	30	79	38	145	68		
10:30	71	20	80	29	151	49		
10:45	61	21	59	23	120	44	244	
11:00	49	16	65	12	114	28		
11:15	80	19	58	6	138	25		
11:30	57	17	51	21	108	38		
11:45	61	9	56	9	117	18	109	
Total	1947	2724	1935	3289	3882	6013		
Percent	50.2%	45.3%	49.8%	54.7%				
Day Total		4671		5224		9895		
Peak	08:00	-	05:15	-	07:45	-	05:00	-
Vol.	356	-	388	-	371	-	499	-
P.H.F.	0.761	-	0.802	-	0.892	-	0.897	-

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

196867 C Volume
Site Code: 14777.00

Start	NB		SB		Combin		05/02/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Thu	
12:00	6	78	5	88	11	166		
12:15	10	68	8	79	18	147		
12:30	12	71	2	54	14	125		
12:45	7	35 68	285 5	20 67	288 12	55 135	573	
01:00	7	74	4	76	11	150		
01:15	6	53	3	68	9	121		
01:30	6	59	6	79	12	138		
01:45	5	24 74	260 3	16 78	301 8	40 152	561	
02:00	5	69	0	87	5	156		
02:15	4	67	0	90	4	157		
02:30	4	70	4	91	8	161		
02:45	2	15 66	272 3	7 106	374 5	22 172	646	
03:00	4	80	4	93	8	173		
03:15	0	78	3	102	3	180		
03:30	5	67	2	109	7	176		
03:45	3	12 78	303 2	11 109	413 5	23 187	716	
04:00	8	91	7	125	15	216		
04:15	7	88	3	108	10	196		
04:30	11	76	7	108	18	184		
04:45	13	39 84	339 9	26 91	432 22	65 175	771	
05:00	26	102	9	95	35	197		
05:15	37	89	18	109	55	198		
05:30	49	121	26	92	75	213		
05:45	60	172 105	417 34	87 134	430 94	259 239	847	
06:00	56	93	45	125	101	218		
06:15	50	100	33	95	83	195		
06:30	74	81	44	122	118	203		
06:45	62	242 63	337 76	198 69	411 138	440 132	748	
07:00	61	65	67	63	128	128		
07:15	71	58	74	66	145	124		
07:30	78	66	104	67	182	133		
07:45	89	299 53	242 94	339 48	244 183	638 101	486	
08:00	84	46	79	47	163	93		
08:15	95	33	85	42	180	75		
08:30	81	37	86	48	167	85		
08:45	87	347 33	149 79	329 35	172 166	676 68	321	
09:00	72	35	104	33	176	68		
09:15	76	28	86	26	162	54		
09:30	75	29	93	22	168	51		
09:45	85	308 30	122 92	375 37	118 177	683 67	240	
10:00	53	32	72	20	125	52		
10:15	60	28	78	33	138	61		
10:30	69	28	71	13	140	41		
10:45	61	243 32	120 63	284 13	79 124	527 45	199	
11:00	63	20	62	20	125	40		
11:15	77	8	69	12	146	20		
11:30	73	12	70	14	143	26		
11:45	75	288 15	55 77	278 9	55 152	566 24	110	
Total	2024	2901	1970	3317	3994	6218		
Percent	50.7%	46.7%	49.3%	53.3%				
Day Total		4925		5287		10212		
Peak	07:45	-	05:30	-	09:00	-	05:15	-
Vol.	349	-	419	-	375	-	868	-
P.H.F.	0.918	-	0.866	-	0.901	-	0.888	-

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 C Class
Site Code: 14777.00

NB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	21	1	0	0	0	0	0	0	0	0	0	0	0	0	22
01:00	15	2	1	0	0	0	0	0	0	0	0	0	0	0	18
02:00	9	2	0	0	0	0	0	0	0	0	0	0	0	0	11
03:00	8	1	0	0	0	0	0	0	0	0	0	0	0	0	9
04:00	31	4	0	0	0	0	0	0	0	0	0	0	0	0	35
05:00	178	5	1	0	0	0	0	0	0	0	0	0	0	0	184
06:00	229	11	0	0	0	0	0	0	0	0	0	0	0	0	240
07:00	256	24	2	0	0	0	0	0	0	0	0	0	0	0	282
08:00	325	25	6	0	0	0	0	0	0	0	0	0	0	0	356
09:00	249	21	2	0	0	0	0	0	0	0	0	0	0	0	272
10:00	240	29	2	0	0	0	0	0	0	0	0	0	0	0	271
11:00	219	22	6	0	0	0	0	0	0	0	0	0	0	0	247
12 PM	228	21	1	0	0	0	0	0	0	0	0	0	0	0	250
13:00	220	18	1	0	0	0	0	0	0	0	0	0	0	0	239
14:00	243	13	2	0	0	0	0	0	0	0	0	0	0	0	258
15:00	263	11	0	0	0	0	0	0	0	0	0	0	0	0	274
16:00	294	16	0	0	0	0	0	0	0	0	0	0	0	0	310
17:00	362	12	2	0	0	0	0	0	0	0	0	0	0	0	376
18:00	335	11	0	0	0	0	0	0	0	0	0	0	0	0	346
19:00	185	4	0	0	0	0	0	0	0	0	0	0	0	0	189
20:00	159	1	0	0	0	0	0	0	0	0	0	0	0	0	160
21:00	143	1	0	0	0	0	0	0	0	0	0	0	0	0	144
22:00	115	2	0	0	0	0	0	0	0	0	0	0	0	0	117
23:00	61	0	0	0	0	0	0	0	0	0	0	0	0	0	61
Total	4388	257	26	0	0	0	0	0	0	0	0	0	0	0	4671
Percent	93.9%	5.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	10:00	08:00												08:00
Vol.	325	29	6												356
PM Peak	17:00	12:00	14:00												17:00
Vol.	362	21	2												376

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 C Class
Site Code: 14777.00

NB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	35	0	0	0	0	0	0	0	0	0	0	0	0	0	35
01:00	22	0	2	0	0	0	0	0	0	0	0	0	0	0	24
02:00	13	1	1	0	0	0	0	0	0	0	0	0	0	0	15
03:00	7	4	1	0	0	0	0	0	0	0	0	0	0	0	12
04:00	37	0	2	0	0	0	0	0	0	0	0	0	0	0	39
05:00	166	6	0	0	0	0	0	0	0	0	0	0	0	0	172
06:00	230	11	1	0	0	0	0	0	0	0	0	0	0	0	242
07:00	273	16	10	0	0	0	0	0	0	0	0	0	0	0	299
08:00	317	27	3	0	0	0	0	0	0	0	0	0	0	0	347
09:00	281	23	4	0	0	0	0	0	0	0	0	0	0	0	308
10:00	211	25	7	0	0	0	0	0	0	0	0	0	0	0	243
11:00	249	31	8	0	0	0	0	0	0	0	0	0	0	0	288
12 PM	254	27	4	0	0	0	0	0	0	0	0	0	0	0	285
13:00	241	14	5	0	0	0	0	0	0	0	0	0	0	0	260
14:00	255	12	5	0	0	0	0	0	0	0	0	0	0	0	272
15:00	281	22	0	0	0	0	0	0	0	0	0	0	0	0	303
16:00	326	13	0	0	0	0	0	0	0	0	0	0	0	0	339
17:00	408	9	0	0	0	0	0	0	0	0	0	0	0	0	417
18:00	325	12	0	0	0	0	0	0	0	0	0	0	0	0	337
19:00	231	11	0	0	0	0	0	0	0	0	0	0	0	0	242
20:00	147	2	0	0	0	0	0	0	0	0	0	0	0	0	149
21:00	121	1	0	0	0	0	0	0	0	0	0	0	0	0	122
22:00	119	0	1	0	0	0	0	0	0	0	0	0	0	0	120
23:00	54	1	0	0	0	0	0	0	0	0	0	0	0	0	55
Total	4603	268	54	0	0	0	0	0	0	0	0	0	0	0	4925
Percent	93.5%	5.4%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	07:00												08:00
Vol.	317	31	10												347
PM Peak	17:00	12:00	13:00												17:00
Vol.	408	27	5												417

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 C Class
Site Code: 14777.00

SB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	22	1	0	0	0	0	0	0	0	0	0	0	0	0	23
01:00	12	1	0	0	0	0	0	0	0	0	0	0	0	0	13
02:00	8	0	0	0	0	0	0	0	0	0	0	0	0	0	8
03:00	10	4	1	0	0	0	0	0	0	0	0	0	0	0	15
04:00	15	3	0	0	0	0	0	0	0	0	0	0	0	0	18
05:00	82	9	1	0	0	0	0	0	0	0	0	0	0	0	92
06:00	204	13	3	0	0	0	0	0	0	0	0	0	0	0	220
07:00	278	31	10	0	0	0	0	0	0	0	0	0	0	0	319
08:00	330	30	2	0	0	0	0	0	0	0	0	0	0	0	362
09:00	292	33	5	0	0	0	0	0	0	0	0	0	0	0	330
10:00	274	27	4	0	0	0	0	0	0	0	0	0	0	0	305
11:00	202	19	9	0	0	0	0	0	0	0	0	0	0	0	230
12 PM	243	24	5	0	0	0	0	0	0	0	0	0	0	0	272
13:00	236	15	3	0	0	0	0	0	0	0	0	0	0	0	254
14:00	375	13	0	0	0	0	0	0	0	0	0	0	0	0	388
15:00	379	16	0	0	0	0	0	0	0	0	0	0	0	0	395
16:00	449	4	0	0	0	0	0	0	0	0	0	0	0	0	453
17:00	493	6	0	0	0	0	0	0	0	0	0	0	0	0	499
18:00	311	4	0	0	0	0	0	0	0	0	0	0	0	0	315
19:00	229	4	0	0	0	0	0	0	0	0	0	0	0	0	233
20:00	176	1	0	0	0	0	0	0	0	0	0	0	0	0	177
21:00	125	3	0	0	0	0	0	0	0	0	0	0	0	0	128
22:00	125	2	0	0	0	0	0	0	0	0	0	0	0	0	127
23:00	47	1	0	0	0	0	0	0	0	0	0	0	0	0	48
Total	4917	264	43	0	0	0	0	0	0	0	0	0	0	0	5224
Percent	94.1%	5.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	09:00	07:00												08:00
Vol.	330	33	10												362
PM Peak	17:00	12:00	12:00												17:00
Vol.	493	24	5												499

Third Street
north of Main Street
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 C Class
Site Code: 14777.00

SB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	20	0	0	0	0	0	0	0	0	0	0	0	0	0	20
01:00	16	0	0	0	0	0	0	0	0	0	0	0	0	0	16
02:00	6	1	0	0	0	0	0	0	0	0	0	0	0	0	7
03:00	9	2	0	0	0	0	0	0	0	0	0	0	0	0	11
04:00	21	5	0	0	0	0	0	0	0	0	0	0	0	0	26
05:00	78	9	0	0	0	0	0	0	0	0	0	0	0	0	87
06:00	175	17	6	0	0	0	0	0	0	0	0	0	0	0	198
07:00	294	38	7	0	0	0	0	0	0	0	0	0	0	0	339
08:00	300	26	3	0	0	0	0	0	0	0	0	0	0	0	329
09:00	339	29	7	0	0	0	0	0	0	0	0	0	0	0	375
10:00	256	22	6	0	0	0	0	0	0	0	0	0	0	0	284
11:00	248	24	6	0	0	0	0	0	0	0	0	0	0	0	278
12 PM	267	15	6	0	0	0	0	0	0	0	0	0	0	0	288
13:00	270	23	8	0	0	0	0	0	0	0	0	0	0	0	301
14:00	348	25	1	0	0	0	0	0	0	0	0	0	0	0	374
15:00	392	20	1	0	0	0	0	0	0	0	0	0	0	0	413
16:00	416	16	0	0	0	0	0	0	0	0	0	0	0	0	432
17:00	412	14	4	0	0	0	0	0	0	0	0	0	0	0	430
18:00	406	5	0	0	0	0	0	0	0	0	0	0	0	0	411
19:00	234	10	0	0	0	0	0	0	0	0	0	0	0	0	244
20:00	170	2	0	0	0	0	0	0	0	0	0	0	0	0	172
21:00	118	0	0	0	0	0	0	0	0	0	0	0	0	0	118
22:00	79	0	0	0	0	0	0	0	0	0	0	0	0	0	79
23:00	55	0	0	0	0	0	0	0	0	0	0	0	0	0	55
Total	4929	303	55	0	0	0	0	0	0	0	0	0	0	0	5287
Percent	93.2%	5.7%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	07:00	07:00												09:00
Vol.	339	38	7												375
PM Peak	16:00	14:00	13:00												16:00
Vol.	416	25	8												432

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

196867 D Volume
Site Code: 14777.00

Start	EB		WB		Combin		05/01/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Wed	
12:00	22	70	12	47	34	117		
12:15	15	72	10	57	25	129		
12:30	2	43	9	52	11	95		
12:45	6	45 73	6 258	37 55	211 12	82 128	469	
01:00	10	73	9	52	19	125		
01:15	8	73	5	61	13	134		
01:30	14	74	5	42	19	116		
01:45	10	42 88	3 308	22 56	211 13	64 144	519	
02:00	5	93	9	51	14	144		
02:15	8	86	4	46	12	132		
02:30	5	95	1	57	6	152		
02:45	2	20 106	6 380	20 59	213 8	40 165	593	
03:00	5	134	1	59	6	193		
03:15	6	91	6	60	12	151		
03:30	5	100	9	56	14	156		
03:45	6	22 94	3 419	19 55	230 9	41 149	649	
04:00	7	122	4	70	11	192		
04:15	11	141	11	87	22	228		
04:30	8	107	11	68	19	175		
04:45	10	36 106	28 476	54 80	305 38	90 186	781	
05:00	17	137	34	87	51	224		
05:15	9	116	28	113	37	229		
05:30	22	101	51	130	73	231		
05:45	33	81 107	57 461	170 74	404 90	251 181	865	
06:00	21	104	65	90	86	194		
06:15	43	108	73	90	116	198		
06:30	32	89	59	62	91	151		
06:45	36	132 100	59 401	256 78	320 95	388 178	721	
07:00	59	83	76	63	135	146		
07:15	44	95	90	67	134	162		
07:30	42	69	109	55	151	124		
07:45	70	215 54	130 301	405 43	228 200	620 97	529	
08:00	80	51	107	44	187	95		
08:15	68	57	100	40	168	97		
08:30	70	57	98	32	168	89		
08:45	86	304 61	114 226	419 27	143 200	723 88	369	
09:00	79	64	100	45	179	109		
09:15	85	48	119	30	204	78		
09:30	84	65	87	21	171	86		
09:45	73	321 43	220 83	389 33	129 156	710 76	349	
10:00	62	40	65	26	127	66		
10:15	74	49	80	26	154	75		
10:30	81	26	51	18	132	44		
10:45	78	295 42	157 67	263 20	90 145	558 62	247	
11:00	78	35	73	25	151	60		
11:15	74	20	59	8	133	28		
11:30	79	17	59	10	138	27		
11:45	77	308 19	91 56	247 12	55 133	555 31	146	
Total	1821	3698	2301	2539	4122	6237		
Percent	44.2%	59.3%	55.8%	40.7%				
Day Total		5519		4840		10359		
Peak	08:45	-	04:15	-	07:30	-	04:45	-
Vol.	334	-	491	-	446	-	410	-
P.H.F.	0.971	-	0.871	-	0.858	-	0.788	-

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

196867 D Volume
Site Code: 14777.00

Start	EB		WB		Combin		05/02/19	
Time	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	Thu	
12:00	14	82	9	73	23	155		
12:15	17	64	13	63	30	127		
12:30	12	62	8	77	20	139		
12:45	9	52 70	5 278	35 55	268 14	87 125	546	
01:00	19	92	8	57	27	149		
01:15	6	69	5	73	11	142		
01:30	14	83	4	58	18	141		
01:45	6	45 99	4 343	21 62	250 10	66 161	593	
02:00	5	132	5	56	10	188		
02:15	6	102	4	48	10	150		
02:30	4	116	6	50	10	166		
02:45	5	20 137	487 8	23 62	216 13	43 199	703	
03:00	5	122	5	70	10	192		
03:15	5	111	1	64	6	175		
03:30	4	108	5	87	9	195		
03:45	4	18 109	450 6	17 90	311 10	35 199	761	
04:00	6	125	7	69	13	194		
04:15	7	119	9	77	16	196		
04:30	11	113	13	95	24	208		
04:45	6	30 131	488 16	45 92	333 22	75 223	821	
05:00	14	128	33	119	47	247		
05:15	13	108	35	106	48	214		
05:30	16	96	46	131	62	227		
05:45	25	68 117	449 56	170 121	477 81	238 238	926	
06:00	32	112	62	82	94	194		
06:15	27	99	58	87	85	186		
06:30	24	86	54	101	78	187		
06:45	35	118 82	379 78	252 87	357 113	370 169	736	
07:00	54	79	78	57	132	136		
07:15	51	87	108	46	159	133		
07:30	57	61	117	54	174	115		
07:45	60	222 85	312 131	434 54	211 191	656 139	523	
08:00	67	61	105	38	172	99		
08:15	57	68	121	40	178	108		
08:30	75	48	103	44	178	92		
08:45	76	275 50	227 124	453 42	164 200	728 92	391	
09:00	102	58	116	32	218	90		
09:15	93	56	115	32	208	88		
09:30	88	58	95	30	183	88		
09:45	77	360 49	221 73	399 25	119 150	759 74	340	
10:00	72	41	85	30	157	71		
10:15	69	47	73	26	142	73		
10:30	81	41	80	19	161	60		
10:45	77	299 37	166 79	317 11	86 156	616 48	252	
11:00	78	37	44	19	122	56		
11:15	75	28	70	16	145	44		
11:30	80	16	75	24	155	40		
11:45	85	318 23	104 68	257 10	69 153	575 33	173	
Total	1825	3904	2423	2861	4248	6765		
Percent	43.0%	57.7%	57.0%	42.3%				
Day Total		5729		5284		11013		
Peak	09:00	- 04:15	- 07:30	- 05:00	- 08:45	- 05:00	- - -	
Vol.	360	- 491	- 474	- 477	- 809	- 926	- - -	
P.H.F.	0.882	0.937	0.905	0.910	0.928	0.937		

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 D Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	43	0	2	0	0	0	0	0	0	0	0	0	0	0	45
01:00	40	1	1	0	0	0	0	0	0	0	0	0	0	0	42
02:00	19	1	0	0	0	0	0	0	0	0	0	0	0	0	20
03:00	18	2	2	0	0	0	0	0	0	0	0	0	0	0	22
04:00	30	6	0	0	0	0	0	0	0	0	0	0	0	0	36
05:00	67	12	2	0	0	0	0	0	0	0	0	0	0	0	81
06:00	113	16	3	0	0	0	0	0	0	0	0	0	0	0	132
07:00	182	26	7	0	0	0	0	0	0	0	0	0	0	0	215
08:00	264	38	2	0	0	0	0	0	0	0	0	0	0	0	304
09:00	282	38	1	0	0	0	0	0	0	0	0	0	0	0	321
10:00	248	44	3	0	0	0	0	0	0	0	0	0	0	0	295
11:00	274	31	3	0	0	0	0	0	0	0	0	0	0	0	308
12 PM	225	29	4	0	0	0	0	0	0	0	0	0	0	0	258
13:00	281	26	1	0	0	0	0	0	0	0	0	0	0	0	308
14:00	359	20	1	0	0	0	0	0	0	0	0	0	0	0	380
15:00	401	15	3	0	0	0	0	0	0	0	0	0	0	0	419
16:00	461	13	2	0	0	0	0	0	0	0	0	0	0	0	476
17:00	448	13	0	0	0	0	0	0	0	0	0	0	0	0	461
18:00	383	17	1	0	0	0	0	0	0	0	0	0	0	0	401
19:00	290	11	0	0	0	0	0	0	0	0	0	0	0	0	301
20:00	220	6	0	0	0	0	0	0	0	0	0	0	0	0	226
21:00	216	4	0	0	0	0	0	0	0	0	0	0	0	0	220
22:00	153	3	1	0	0	0	0	0	0	0	0	0	0	0	157
23:00	89	2	0	0	0	0	0	0	0	0	0	0	0	0	91
Total	5106	374	39	0	0	0	0	0	0	0	0	0	0	0	5519
Percent	92.5%	6.8%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	10:00	07:00												09:00
Vol.	282	44	7												321
PM Peak	16:00	12:00	12:00												16:00
Vol.	461	29	4												476

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 D Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	43	8	1	0	0	0	0	0	0	0	0	0	0	0	52
01:00	40	2	3	0	0	0	0	0	0	0	0	0	0	0	45
02:00	18	0	2	0	0	0	0	0	0	0	0	0	0	0	20
03:00	17	0	1	0	0	0	0	0	0	0	0	0	0	0	18
04:00	28	2	0	0	0	0	0	0	0	0	0	0	0	0	30
05:00	56	9	3	0	0	0	0	0	0	0	0	0	0	0	68
06:00	100	15	3	0	0	0	0	0	0	0	0	0	0	0	118
07:00	180	40	2	0	0	0	0	0	0	0	0	0	0	0	222
08:00	239	35	1	0	0	0	0	0	0	0	0	0	0	0	275
09:00	322	37	1	0	0	0	0	0	0	0	0	0	0	0	360
10:00	266	30	3	0	0	0	0	0	0	0	0	0	0	0	299
11:00	280	36	2	0	0	0	0	0	0	0	0	0	0	0	318
12 PM	254	24	0	0	0	0	0	0	0	0	0	0	0	0	278
13:00	313	25	5	0	0	0	0	0	0	0	0	0	0	0	343
14:00	459	25	3	0	0	0	0	0	0	0	0	0	0	0	487
15:00	434	16	0	0	0	0	0	0	0	0	0	0	0	0	450
16:00	474	13	1	0	0	0	0	0	0	0	0	0	0	0	488
17:00	439	10	0	0	0	0	0	0	0	0	0	0	0	0	449
18:00	364	14	1	0	0	0	0	0	0	0	0	0	0	0	379
19:00	299	12	1	0	0	0	0	0	0	0	0	0	0	0	312
20:00	222	4	1	0	0	0	0	0	0	0	0	0	0	0	227
21:00	218	2	1	0	0	0	0	0	0	0	0	0	0	0	221
22:00	163	3	0	0	0	0	0	0	0	0	0	0	0	0	166
23:00	100	2	2	0	0	0	0	0	0	0	0	0	0	0	104
Total	5328	364	37	0	0	0	0	0	0	0	0	0	0	0	5729
Percent	93.0%	6.4%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	07:00	01:00												09:00
Vol.	322	40	3												360
PM Peak	16:00	13:00	13:00												16:00
Vol.	474	25	5												488

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 D Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	36	0	1	0	0	0	0	0	0	0	0	0	0	0	37
01:00	15	7	0	0	0	0	0	0	0	0	0	0	0	0	22
02:00	19	1	0	0	0	0	0	0	0	0	0	0	0	0	20
03:00	12	6	1	0	0	0	0	0	0	0	0	0	0	0	19
04:00	45	8	1	0	0	0	0	0	0	0	0	0	0	0	54
05:00	151	16	3	0	0	0	0	0	0	0	0	0	0	0	170
06:00	231	23	2	0	0	0	0	0	0	0	0	0	0	0	256
07:00	365	37	3	0	0	0	0	0	0	0	0	0	0	0	405
08:00	374	38	7	0	0	0	0	0	0	0	0	0	0	0	419
09:00	349	39	1	0	0	0	0	0	0	0	0	0	0	0	389
10:00	236	25	2	0	0	0	0	0	0	0	0	0	0	0	263
11:00	225	17	5	0	0	0	0	0	0	0	0	0	0	0	247
12 PM	184	23	4	0	0	0	0	0	0	0	0	0	0	0	211
13:00	194	16	1	0	0	0	0	0	0	0	0	0	0	0	211
14:00	192	21	0	0	0	0	0	0	0	0	0	0	0	0	213
15:00	213	17	0	0	0	0	0	0	0	0	0	0	0	0	230
16:00	293	12	0	0	0	0	0	0	0	0	0	0	0	0	305
17:00	392	12	0	0	0	0	0	0	0	0	0	0	0	0	404
18:00	308	11	1	0	0	0	0	0	0	0	0	0	0	0	320
19:00	221	6	1	0	0	0	0	0	0	0	0	0	0	0	228
20:00	141	2	0	0	0	0	0	0	0	0	0	0	0	0	143
21:00	127	1	1	0	0	0	0	0	0	0	0	0	0	0	129
22:00	88	1	1	0	0	0	0	0	0	0	0	0	0	0	90
23:00	45	8	2	0	0	0	0	0	0	0	0	0	0	0	55
Total	4456	347	37	0	0	0	0	0	0	0	0	0	0	0	4840
Percent	92.1%	7.2%	0.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	09:00	08:00												08:00
Vol.	374	39	7												419
PM Peak	17:00	12:00	12:00												17:00
Vol.	392	23	4												404

Main Street
west of Galileo-Galilei Way
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilc.com

196867 D Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	30	3	2	0	0	0	0	0	0	0	0	0	0	0	35
01:00	20	1	0	0	0	0	0	0	0	0	0	0	0	0	21
02:00	18	4	1	0	0	0	0	0	0	0	0	0	0	0	23
03:00	14	2	1	0	0	0	0	0	0	0	0	0	0	0	17
04:00	38	4	3	0	0	0	0	0	0	0	0	0	0	0	45
05:00	147	19	4	0	0	0	0	0	0	0	0	0	0	0	170
06:00	220	29	3	0	0	0	0	0	0	0	0	0	0	0	252
07:00	392	40	2	0	0	0	0	0	0	0	0	0	0	0	434
08:00	416	35	2	0	0	0	0	0	0	0	0	0	0	0	453
09:00	355	41	3	0	0	0	0	0	0	0	0	0	0	0	399
10:00	290	22	5	0	0	0	0	0	0	0	0	0	0	0	317
11:00	228	26	3	0	0	0	0	0	0	0	0	0	0	0	257
12 PM	239	29	0	0	0	0	0	0	0	0	0	0	0	0	268
13:00	230	17	3	0	0	0	0	0	0	0	0	0	0	0	250
14:00	203	12	1	0	0	0	0	0	0	0	0	0	0	0	216
15:00	292	18	1	0	0	0	0	0	0	0	0	0	0	0	311
16:00	317	16	0	0	0	0	0	0	0	0	0	0	0	0	333
17:00	463	14	0	0	0	0	0	0	0	0	0	0	0	0	477
18:00	331	13	13	0	0	0	0	0	0	0	0	0	0	0	357
19:00	205	6	0	0	0	0	0	0	0	0	0	0	0	0	211
20:00	158	5	1	0	0	0	0	0	0	0	0	0	0	0	164
21:00	118	1	0	0	0	0	0	0	0	0	0	0	0	0	119
22:00	83	2	1	0	0	0	0	0	0	0	0	0	0	0	86
23:00	68	1	0	0	0	0	0	0	0	0	0	0	0	0	69
Total	4875	360	49	0	0	0	0	0	0	0	0	0	0	0	5284
Percent	92.3%	6.8%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM															
Peak	08:00	09:00	10:00												08:00
Vol.	416	41	5												453
PM															
Peak	17:00	12:00	18:00												17:00
Vol.	463	29	13												477

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



PRECISION
D A T A
INDUSTRIES, LLC

46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdilic.com

196867 E Volume
Site Code: 14777.00

Start		EB		WB		Combin ed		05/01/19	
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	Wed	
12:00	42	149		24	105	66	254		
12:15	36	149		20	93	56	242		
12:30	23	120		21	93	44	213		
12:45	21	143	561	13	84	34	227	936	
01:00	24	142		12	91	36	233		
01:15	8	150		6	108	14	258		
01:30	13	159		9	85	22	244		
01:45	15	163	614	7	81	365	22	94	244 979
02:00	21	193		10	91	31	284		
02:15	10	225		3	86	13	311		
02:30	9	224		4	108	13	332		
02:45	5	205	847	5	92	377	10	67	297 1224
03:00	4	239		1	102	5	341		
03:15	5	225		4	72	9	297		
03:30	5	238		7	84	12	322		
03:45	9	225	927	7	86	344	16	42	311 1271
04:00	7	278		7	94	14	372		
04:15	11	265		11	91	22	356		
04:30	12	289		30	102	42	391		
04:45	22	283	1115	52	113	400	74	152	396 1515
05:00	24	288		67	97	91	385		
05:15	22	302		87	100	109	402		
05:30	37	290		133	100	170	390		
05:45	53	281	1161	147	105	402	200	570	386 1563
06:00	48	261		122	81	170	342		
06:15	62	229		96	111	158	340		
06:30	76	232		103	98	179	330		
06:45	77	182	904	126	103	393	203	710	285 1297
07:00	125	184		137	107	262	291		
07:15	106	181		149	95	255	276		
07:30	99	168		169	116	268	284		
07:45	111	137	670	148	81	399	259	1044	218 1069
08:00	133	108		166	96	299	204		
08:15	161	137		197	71	358	208		
08:30	129	126		185	73	314	199		
08:45	172	111	482	189	73	313	361	1332	184 795
09:00	107	150		189	62	296	212		
09:15	147	142		175	76	322	218		
09:30	144	119		178	64	322	183		
09:45	146	116	527	149	71	273	295	1235	187 800
10:00	165	104		136	75	301	179		
10:15	136	107		129	53	265	160		
10:30	141	70		112	62	253	132		
10:45	144	75	356	116	66	256	260	1079	141 612
11:00	149	68		117	45	266	113		
11:15	132	56		94	41	226	97		
11:30	138	43		106	31	244	74		
11:45	128	34	201	92	24	141	220	956	58 342
Total	3414	8365		4067	4038	7481	12403		
Percent	45.6%	67.4%		54.4%	32.6%				
Day Total		11779			8105		19884		
Peak	09:15	-	04:45	-	08:15	-	06:45	-	08:00
Vol.	602	-	1163	-	760	-	421	-	1332
P.H.F.	0.875	-	0.963	-	0.964	-	0.907	-	0.922

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



PRECISION
DATA
INDUSTRIES, LLC

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

196867 E Volume
Site Code: 14777.00

Start		EB		WB		Combin ed		05/02/19						
Time	A.M.	P.M.		A.M.	P.M.	A.M.	P.M.	Thu						
12:00	36	146		22	122	58	268							
12:15	23	135		24	90	47	225							
12:30	37	151		16	87	53	238							
12:45	27	154	586	15	108	42	262	993						
01:00	20	169		11	106	31	275							
01:15	17	187		9	86	26	273							
01:30	17	184		11	106	28	290							
01:45	15	176	716	5	103	401	20	105	1117					
02:00	10	213		5	80	15	293							
02:15	9	245		9	91	18	336							
02:30	5	192		6	96	11	288							
02:45	7	224	874	5	95	362	12	56	319 1236					
03:00	9	257		12	112	21	369							
03:15	9	246		2	115	11	361							
03:30	7	287		5	102	12	389							
03:45	3	281	1071	6	107	436	9	53	388 1507					
04:00	13	294		14	118	27	412							
04:15	7	259		19	84	26	343							
04:30	16	236		30	96	46	332							
04:45	20	244	1033	50	109	407	70	169	353 1440					
05:00	25	238		70	117	95	355							
05:15	20	224		87	95	107	319							
05:30	28	267		123	111	151	378							
05:45	58	298	1027	141	421	91	414	199	552 389 1441					
06:00	59	318		120	98	179	416							
06:15	57	315		85	88	142	403							
06:30	70	307		112	97	182	404							
06:45	78	178	1118	114	431	76	359	192	695 254 1477					
07:00	131	146		134	87	265	233							
07:15	106	153		157	75	263	228							
07:30	115	139		178	106	293	245							
07:45	130	157	595	173	642	95	363	303	1124 252 958					
08:00	140	123		193	82	333	205							
08:15	127	160		193	69	320	229							
08:30	143	129		179	85	322	214							
08:45	130	120	532	202	767	76	312	332	1307 196 844					
09:00	172	127		213	53	385	180							
09:15	141	131		191	69	332	200							
09:30	152	102		166	63	318	165							
09:45	143	103	463	169	739	56	241	312	1347 159 704					
10:00	141	82		131	59	272	141							
10:15	139	85		141	57	280	142							
10:30	170	70		108	55	278	125							
10:45	138	74	311	101	481	57	228	239	1069 131 539					
11:00	138	65		109	58	247	123							
11:15	127	57		95	48	222	105							
11:30	156	46		131	35	287	81							
11:45	182	42	210	122	457	28	169	304	1060 70 379					
Total	3523	8536		4214	4099	7737	12635							
Percent	45.5%	67.6%		54.5%	32.4%									
Day Total		12059			8313		20372							
Peak	09:00	-	05:45	-	08:15	-	03:15	-	08:30	-	05:45	-	-	-
Vol.	608	-	1238	-	787	-	442	-	1371	-	1612	-	-	-
P.H.F.	0.884		0.973		0.924		0.936		0.890		0.969			

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 E Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	119	3	0	0	0	0	0	0	0	0	0	0	0	0	122
01:00	58	2	0	0	0	0	0	0	0	0	0	0	0	0	60
02:00	44	1	0	0	0	0	0	0	0	0	0	0	0	0	45
03:00	21	2	0	0	0	0	0	0	0	0	0	0	0	0	23
04:00	49	3	0	0	0	0	0	0	0	0	0	0	0	0	52
05:00	127	9	0	0	0	0	0	0	0	0	0	0	0	0	136
06:00	250	12	1	0	0	0	0	0	0	0	0	0	0	0	263
07:00	410	29	2	0	0	0	0	0	0	0	0	0	0	0	441
08:00	561	30	4	0	0	0	0	0	0	0	0	0	0	0	595
09:00	509	35	0	0	0	0	0	0	0	0	0	0	0	0	544
10:00	539	46	1	0	0	0	0	0	0	0	0	0	0	0	586
11:00	505	41	1	0	0	0	0	0	0	0	0	0	0	0	547
12 PM	527	32	2	0	0	0	0	0	0	0	0	0	0	0	561
13:00	584	29	1	0	0	0	0	0	0	0	0	0	0	0	614
14:00	812	35	0	0	0	0	0	0	0	0	0	0	0	0	847
15:00	904	22	1	0	0	0	0	0	0	0	0	0	0	0	927
16:00	1095	20	0	0	0	0	0	0	0	0	0	0	0	0	1115
17:00	1149	12	0	0	0	0	0	0	0	0	0	0	0	0	1161
18:00	896	7	1	0	0	0	0	0	0	0	0	0	0	0	904
19:00	662	7	1	0	0	0	0	0	0	0	0	0	0	0	670
20:00	473	9	0	0	0	0	0	0	0	0	0	0	0	0	482
21:00	522	5	0	0	0	0	0	0	0	0	0	0	0	0	527
22:00	347	9	0	0	0	0	0	0	0	0	0	0	0	0	356
23:00	196	4	1	0	0	0	0	0	0	0	0	0	0	0	201
Total	11359	404	16	0	0	0	0	0	0	0	0	0	0	0	11779
Percent	96.4%	3.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	10:00	08:00												08:00
Vol.	561	46	4												595
PM Peak	17:00	14:00	12:00												17:00
Vol.	1149	35	2												1161

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 E Class
Site Code: 14777.00

EB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	121	2	0	0	0	0	0	0	0	0	0	0	0	0	123
01:00	67	2	0	0	0	0	0	0	0	0	0	0	0	0	69
02:00	30	1	0	0	0	0	0	0	0	0	0	0	0	0	31
03:00	25	3	0	0	0	0	0	0	0	0	0	0	0	0	28
04:00	51	5	0	0	0	0	0	0	0	0	0	0	0	0	56
05:00	120	9	2	0	0	0	0	0	0	0	0	0	0	0	131
06:00	256	8	0	0	0	0	0	0	0	0	0	0	0	0	264
07:00	444	37	1	0	0	0	0	0	0	0	0	0	0	0	482
08:00	496	41	3	0	0	0	0	0	0	0	0	0	0	0	540
09:00	567	41	0	0	0	0	0	0	0	0	0	0	0	0	608
10:00	525	61	2	0	0	0	0	0	0	0	0	0	0	0	588
11:00	553	48	2	0	0	0	0	0	0	0	0	0	0	0	603
12 PM	558	27	1	0	0	0	0	0	0	0	0	0	0	0	586
13:00	680	34	2	0	0	0	0	0	0	0	0	0	0	0	716
14:00	831	41	2	0	0	0	0	0	0	0	0	0	0	0	874
15:00	1041	30	0	0	0	0	0	0	0	0	0	0	0	0	1071
16:00	1003	30	0	0	0	0	0	0	0	0	0	0	0	0	1033
17:00	1013	14	0	0	0	0	0	0	0	0	0	0	0	0	1027
18:00	1109	8	1	0	0	0	0	0	0	0	0	0	0	0	1118
19:00	582	13	0	0	0	0	0	0	0	0	0	0	0	0	595
20:00	524	7	1	0	0	0	0	0	0	0	0	0	0	0	532
21:00	459	4	0	0	0	0	0	0	0	0	0	0	0	0	463
22:00	307	4	0	0	0	0	0	0	0	0	0	0	0	0	311
23:00	208	2	0	0	0	0	0	0	0	0	0	0	0	0	210
Total	11570	472	17	0	0	0	0	0	0	0	0	0	0	0	12059
Percent	95.9%	3.9%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	10:00	08:00												09:00
Vol.	567	61	3												608
PM Peak	18:00	14:00	13:00												18:00
Vol.	1109	41	2												1118

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 E Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/01/1															
9	78	0	0	0	0	0	0	0	0	0	0	0	0	0	78
01:00	33	1	0	0	0	0	0	0	0	0	0	0	0	0	34
02:00	20	2	0	0	0	0	0	0	0	0	0	0	0	0	22
03:00	16	3	0	0	0	0	0	0	0	0	0	0	0	0	19
04:00	94	6	0	0	0	0	0	0	0	0	0	0	0	0	100
05:00	422	9	3	0	0	0	0	0	0	0	0	0	0	0	434
06:00	430	17	0	0	0	0	0	0	0	0	0	0	0	0	447
07:00	579	23	1	0	0	0	0	0	0	0	0	0	0	0	603
08:00	714	22	1	0	0	0	0	0	0	0	0	0	0	0	737
09:00	662	27	2	0	0	0	0	0	0	0	0	0	0	0	691
10:00	463	30	0	0	0	0	0	0	0	0	0	0	0	0	493
11:00	388	20	1	0	0	0	0	0	0	0	0	0	0	0	409
12 PM	351	23	1	0	0	0	0	0	0	0	0	0	0	0	375
13:00	347	17	1	0	0	0	0	0	0	0	0	0	0	0	365
14:00	352	24	1	0	0	0	0	0	0	0	0	0	0	0	377
15:00	327	16	1	0	0	0	0	0	0	0	0	0	0	0	344
16:00	389	11	0	0	0	0	0	0	0	0	0	0	0	0	400
17:00	392	10	0	0	0	0	0	0	0	0	0	0	0	0	402
18:00	390	3	0	0	0	0	0	0	0	0	0	0	0	0	393
19:00	397	2	0	0	0	0	0	0	0	0	0	0	0	0	399
20:00	310	3	0	0	0	0	0	0	0	0	0	0	0	0	313
21:00	271	2	0	0	0	0	0	0	0	0	0	0	0	0	273
22:00	251	4	1	0	0	0	0	0	0	0	0	0	0	0	256
23:00	139	0	2	0	0	0	0	0	0	0	0	0	0	0	141
Total	7815	275	15	0	0	0	0	0	0	0	0	0	0	0	8105
Percent	96.4%	3.4%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	10:00	05:00												08:00
Vol.	714	30	3												737
PM Peak	19:00	14:00	23:00												17:00
Vol.	397	24	2												402

Main Street between Broad Canal Way
and Longfellow Bridge
City, State: Cambridge, MA
Client: VHB/ S. Mandzo-Predzic



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

196867 E Class
Site Code: 14777.00

WB

Start Time	Cars	Medium Heavy	Large Heavy												Total
05/02/1															
9	76	1	0	0	0	0	0	0	0	0	0	0	0	0	77
01:00	36	0	0	0	0	0	0	0	0	0	0	0	0	0	36
02:00	25	0	0	0	0	0	0	0	0	0	0	0	0	0	25
03:00	22	3	0	0	0	0	0	0	0	0	0	0	0	0	25
04:00	112	1	0	0	0	0	0	0	0	0	0	0	0	0	113
05:00	403	16	2	0	0	0	0	0	0	0	0	0	0	0	421
06:00	417	12	2	0	0	0	0	0	0	0	0	0	0	0	431
07:00	618	24	0	0	0	0	0	0	0	0	0	0	0	0	642
08:00	740	25	2	0	0	0	0	0	0	0	0	0	0	0	767
09:00	710	28	1	0	0	0	0	0	0	0	0	0	0	0	739
10:00	457	23	1	0	0	0	0	0	0	0	0	0	0	0	481
11:00	422	34	1	0	0	0	0	0	0	0	0	0	0	0	457
12 PM	380	26	1	0	0	0	0	0	0	0	0	0	0	0	407
13:00	375	24	2	0	0	0	0	0	0	0	0	0	0	0	401
14:00	343	18	1	0	0	0	0	0	0	0	0	0	0	0	362
15:00	417	19	0	0	0	0	0	0	0	0	0	0	0	0	436
16:00	391	16	0	0	0	0	0	0	0	0	0	0	0	0	407
17:00	406	8	0	0	0	0	0	0	0	0	0	0	0	0	414
18:00	353	5	1	0	0	0	0	0	0	0	0	0	0	0	359
19:00	357	6	0	0	0	0	0	0	0	0	0	0	0	0	363
20:00	311	1	0	0	0	0	0	0	0	0	0	0	0	0	312
21:00	241	0	0	0	0	0	0	0	0	0	0	0	0	0	241
22:00	226	2	0	0	0	0	0	0	0	0	0	0	0	0	228
23:00	167	2	0	0	0	0	0	0	0	0	0	0	0	0	169
Total	8005	294	14	0	0	0	0	0	0	0	0	0	0	0	8313
Percent	96.3%	3.5%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	11:00	05:00												08:00
Vol.	740	34	2												767
PM Peak	15:00	12:00	13:00												15:00
Vol.	417	26	2												436

Turning Movement Counts

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	2	1	76	12	3	92	13	0	25	0	38	154	303	0	4	461	593
7:45 AM	4	0	1	0	5	2	83	16	6	107	10	0	23	0	33	128	323	0	1	452	597
Total	6	0	1	0	7	3	159	28	9	199	23	0	48	0	71	282	626	0	5	913	1190
8:00 AM	5	1	2	0	8	4	85	12	4	105	8	0	32	0	40	129	314	1	0	444	597
8:15 AM	3	0	1	0	4	2	80	8	3	93	5	0	30	0	35	126	322	0	1	449	581
8:30 AM	2	1	0	0	3	0	59	13	4	76	13	1	47	0	61	126	303	0	1	430	570
8:45 AM	1	0	1	0	2	0	71	17	4	92	11	0	27	0	38	117	300	0	1	418	550
Total	11	2	4	0	17	6	295	50	15	366	37	1	136	0	174	498	1239	1	3	1741	2298
Grand Total	17	2	5	0	24	9	454	78	24	565	60	1	184	0	245	780	1865	1	8	2654	3488
Approach %	70.8	8.3	20.8	0.0		1.6	80.4	13.8	4.2		24.5	0.4	75.1	0.0		29.4	70.3	0.0	0.3		
Total %	0.5	0.1	0.1	0.0	0.7	0.3	13.0	2.2	0.7	16.2	1.7	0.0	5.3	0.0	7.0	22.4	53.5	0.0	0.2	76.1	
Exiting Leg Total	11					1954					860					663					3488
Cars	17	2	5	0	24	9	413	63	24	509	46	1	178	0	225	757	1803	1	8	2569	3327
% Cars	100.0	100.0	100.0	0.0	100.0	100.0	91.0	80.8	100.0	90.1	76.7	100.0	96.7	0.0	91.8	97.1	96.7	100.0	100.0	96.8	95.4
Exiting Leg Total	11					1878					822					616					3327
Heavy Vehicles	0	0	0	0	0	0	41	15	0	56	14	0	6	0	20	23	62	0	0	85	161
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	9.0	19.2	0.0	9.9	23.3	0.0	3.3	0.0	8.2	2.9	3.3	0.0	0.0	3.2	4.6
Exiting Leg Total	0					76					38					47					161

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

7:30 AM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	2	1	76	12	3	92	13	0	25	0	38	154	303	0	4	461	593
7:45 AM	4	0	1	0	5	2	83	16	6	107	10	0	23	0	33	128	323	0	1	452	597
8:00 AM	5	1	2	0	8	4	85	12	4	105	8	0	32	0	40	129	314	1	0	444	597
8:15 AM	3	0	1	0	4	2	80	8	3	93	5	0	30	0	35	126	322	0	1	449	581
Total Volume	14	1	4	0	19	9	324	48	16	397	36	0	110	0	146	537	1262	1	6	1806	2368
% Approach Total	73.7	5.3	21.1	0.0		2.3	81.6	12.1	4.0		24.7	0.0	75.3	0.0		29.7	69.9	0.1	0.3		
PHF	0.700	0.250	0.500	0.000	0.594	0.563	0.953	0.750	0.667	0.928	0.692	0.000	0.859	0.000	0.913	0.872	0.977	0.250	0.375	0.979	0.992
Cars	14	1	4	0	19	9	295	41	16	361	29	0	105	0	134	522	1224	1	6	1753	2267
Cars %	100.0	100.0	100.0	0.0	100.0	100.0	91.0	85.4	100.0	90.9	80.6	0.0	95.5	0.0	91.8	97.2	97.0	100.0	100.0	97.1	95.7
Heavy Vehicles	0	0	0	0	0	0	29	7	0	36	7	0	5	0	12	15	38	0	0	53	101
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	9.0	14.6	0.0	9.1	19.4	0.0	4.5	0.0	8.2	2.8	3.0	0.0	0.0	2.9	4.3
Cars Enter Leg	14	1	4	0	19	9	295	41	16	361	29	0	105	0	134	522	1224	1	6	1753	2267
Heavy Enter Leg	0	0	0	0	0	0	29	7	0	36	7	0	5	0	12	15	38	0	0	53	101
Total Entering Leg	14	1	4	0	19	9	324	48	16	397	36	0	110	0	146	537	1262	1	6	1806	2368
Cars Exiting Leg	10					1273					564					420					2267
Heavy Exiting Leg	0					45					22					34					101
Total Exiting Leg	10					1318					586					454					2368

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Cars

	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	2	1	70	10	3	84	9	0	22	0	31	151	294	0	4	449	566
7:45 AM	4	0	1	0	5	2	75	14	6	97	9	0	23	0	32	124	317	0	1	442	576
Total	6	0	1	0	7	3	145	24	9	181	18	0	45	0	63	275	611	0	5	891	1142
8:00 AM	5	1	2	0	8	4	78	10	4	96	6	0	31	0	37	123	301	1	0	425	566
8:15 AM	3	0	1	0	4	2	72	7	3	84	5	0	29	0	34	124	312	0	1	437	559
8:30 AM	2	1	0	0	3	0	54	9	4	67	8	1	46	0	55	121	291	0	1	413	538
8:45 AM	1	0	1	0	2	0	64	13	4	81	9	0	27	0	36	114	288	0	1	403	522
Total	11	2	4	0	17	6	268	39	15	328	28	1	133	0	162	482	1192	1	3	1678	2185
Grand Total	17	2	5	0	24	9	413	63	24	509	46	1	178	0	225	757	1803	1	8	2569	3327
Approach %	70.8	8.3	20.8	0.0		1.8	81.1	12.4	4.7		20.4	0.4	79.1	0.0		29.5	70.2	0.0	0.3		
Total %	0.5	0.1	0.2	0.0	0.7	0.3	12.4	1.9	0.7	15.3	1.4	0.0	5.4	0.0	6.8	22.8	54.2	0.0	0.2	77.2	
Exiting Leg Total	11					1878					822					616					3327

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

7:30 AM	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	2	1	70	10	3	84	9	0	22	0	31	151	294	0	4	449	566
7:45 AM	4	0	1	0	5	2	75	14	6	97	9	0	23	0	32	124	317	0	1	442	576
8:00 AM	5	1	2	0	8	4	78	10	4	96	6	0	31	0	37	123	301	1	0	425	566
8:15 AM	3	0	1	0	4	2	72	7	3	84	5	0	29	0	34	124	312	0	1	437	559
Total Volume	14	1	4	0	19	9	295	41	16	361	29	0	105	0	134	522	1224	1	6	1753	2267
% Approach Total	73.7	5.3	21.1	0.0		2.5	81.7	11.4	4.4		21.6	0.0	78.4	0.0		29.8	69.8	0.1	0.3		
PHF	0.700	0.250	0.500	0.000	0.594	0.563	0.946	0.732	0.667	0.930	0.806	0.000	0.847	0.000	0.905	0.864	0.965	0.250	0.375	0.976	0.984
Entering Leg	14	1	4	0	19	9	295	41	16	361	29	0	105	0	134	522	1224	1	6	1753	2267
Exiting Leg					10					1273					564					420	2267
Total					29					1634					698					2173	4534

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
7:30 AM	0	0	0	0	0	0	6	2	0	8	4	0	3	0	7	3	9	0	0	12	27	
7:45 AM	0	0	0	0	0	0	8	2	0	10	1	0	0	0	1	4	6	0	0	10	21	
Total	0	0	0	0	0	0	14	4	0	18	5	0	3	0	8	7	15	0	0	22	48	
8:00 AM	0	0	0	0	0	0	7	2	0	9	2	0	1	0	3	6	13	0	0	19	31	
8:15 AM	0	0	0	0	0	0	8	1	0	9	0	0	1	0	1	2	10	0	0	12	22	
8:30 AM	0	0	0	0	0	0	5	4	0	9	5	0	1	0	6	5	12	0	0	17	32	
8:45 AM	0	0	0	0	0	0	7	4	0	11	2	0	0	0	2	3	12	0	0	15	28	
Total	0	0	0	0	0	0	27	11	0	38	9	0	3	0	12	16	47	0	0	63	113	
Grand Total	0	0	0	0	0	0	41	15	0	56	14	0	6	0	20	23	62	0	0	85	161	
Approach %	0.0	0.0	0.0	0.0		0.0	73.2	26.8	0.0		70.0	0.0	30.0	0.0		27.1	72.9	0.0	0.0			
Total %	0.0	0.0	0.0	0.0	0.0	0.0	25.5	9.3	0.0	34.8	8.7	0.0	3.7	0.0	12.4	14.3	38.5	0.0	0.0	52.8		
Exiting Leg Total	0					76					38					47						161
Buses	0	0	0	0	0	0	19	1	0	20	8	0	4	0	12	1	15	0	0	16	48	
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	46.3	6.7	0.0	35.7	57.1	0.0	66.7	0.0	60.0	4.3	24.2	0.0	0.0	18.8	29.8	
Exiting Leg Total	0					23					2					23						48
Single-Unit Trucks	0	0	0	0	0	0	18	14	0	32	6	0	2	0	8	19	42	0	0	61	101	
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	43.9	93.3	0.0	57.1	42.9	0.0	33.3	0.0	40.0	82.6	67.7	0.0	0.0	71.8	62.7	
Exiting Leg Total	0					48					33					20						101
Articulated Trucks	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	3	5	0	0	8	12	
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	9.8	0.0	0.0	7.1	0.0	0.0	0.0	0.0	0.0	13.0	8.1	0.0	0.0	9.4	7.5	
Exiting Leg Total	0					5					3					4						12

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

8:00 AM	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	0	7	2	0	9	2	0	1	0	3	6	13	0	0	19	31
8:15 AM	0	0	0	0	0	0	8	1	0	9	0	0	1	0	1	2	10	0	0	12	22
8:30 AM	0	0	0	0	0	0	5	4	0	9	5	0	1	0	6	5	12	0	0	17	32
8:45 AM	0	0	0	0	0	0	7	4	0	11	2	0	0	0	2	3	12	0	0	15	28
Total Volume	0	0	0	0	0	0	27	11	0	38	9	0	3	0	12	16	47	0	0	63	113
% Approach Total	0.0	0.0	0.0	0.0		0.0	71.1	28.9	0.0		75.0	0.0	25.0	0.0		25.4	74.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.844	0.688	0.000	0.864	0.450	0.000	0.750	0.000	0.500	0.667	0.904	0.000	0.000	0.829	0.883
Buses	0	0	0	0	0	0	15	1	0	16	5	0	2	0	7	1	12	0	0	13	36
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	55.6	9.1	0.0	42.1	55.6	0.0	66.7	0.0	58.3	6.3	25.5	0.0	0.0	20.6	31.9
Single-Unit Trucks	0	0	0	0	0	0	10	10	0	20	4	0	1	0	5	14	31	0	0	45	70
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	37.0	90.9	0.0	52.6	44.4	0.0	33.3	0.0	41.7	87.5	66.0	0.0	0.0	71.4	61.9
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	4	0	0	5	7
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	7.4	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	6.3	8.5	0.0	0.0	7.9	6.2
Buses	0	0	0	0	0	0	15	1	0	16	5	0	2	0	7	1	12	0	0	13	36
Single-Unit Trucks	0	0	0	0	0	0	10	10	0	20	4	0	1	0	5	14	31	0	0	45	70
Articulated Trucks	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	4	0	0	5	7
Total Entering Leg	0	0	0	0	0	0	27	11	0	38	9	0	3	0	12	16	47	0	0	63	113
Buses	0					17					2					17					36
Single-Unit Trucks	0					35					24					11					70
Articulated Trucks	0					4					1					2					7
Total Exiting Leg	0					56					27					30					113

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Buses

	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	3	0	0	3	2	0	2	0	4	0	0	0	0	0	7
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	3	0	0	3	5
Total	0	0	0	0	0	0	4	0	0	4	3	0	2	0	5	0	3	0	0	3	12
8:00 AM	0	0	0	0	0	0	4	0	0	4	1	0	1	0	2	0	4	0	0	4	10
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	3	0	0	3	8
8:30 AM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	1	3	0	0	4	12
Total	0	0	0	0	0	0	15	1	0	16	5	0	2	0	7	1	12	0	0	13	36
Grand Total	0	0	0	0	0	0	19	1	0	20	8	0	4	0	12	1	15	0	0	16	48
Approach %	0.0	0.0	0.0	0.0		0.0	95.0	5.0	0.0		66.7	0.0	33.3	0.0		6.3	93.8	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	39.6	2.1	0.0	41.7	16.7	0.0	8.3	0.0	25.0	2.1	31.3	0.0	0.0	33.3	
Exiting Leg Total	0					23					2					23					48

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

8:00 AM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	0	4	0	0	4	1	0	1	0	2	0	4	0	0	4	10
8:15 AM	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	3	0	0	3	8
8:30 AM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	2	0	0	2	6
8:45 AM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	1	3	0	0	4	12
Total Volume	0	0	0	0	0	0	15	1	0	16	5	0	2	0	7	1	12	0	0	13	36
% Approach Total	0.0	0.0	0.0	0.0		0.0	93.8	6.3	0.0		71.4	0.0	28.6	0.0		7.7	92.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.571	0.417	0.000	0.500	0.000	0.583	0.250	0.750	0.000	0.000	0.813	0.750
Entering Leg	0	0	0	0	0	0	15	1	0	16	5	0	2	0	7	1	12	0	0	13	36
Exiting Leg	0					17					2					17					36
Total	0					33					9					30					72

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Single-Unit Trucks

	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	3	2	0	5	2	0	1	0	3	3	9	0	0	12	20
7:45 AM	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	2	2	0	0	4	11
Total	0	0	0	0	0	0	8	4	0	12	2	0	1	0	3	5	11	0	0	16	31
8:00 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	6	9	0	0	15	20
8:15 AM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	2	5	0	0	7	12
8:30 AM	0	0	0	0	0	0	4	4	0	8	2	0	1	0	3	4	9	0	0	13	24
8:45 AM	0	0	0	0	0	0	0	3	0	3	1	0	0	0	1	2	8	0	0	10	14
Total	0	0	0	0	0	0	10	10	0	20	4	0	1	0	5	14	31	0	0	45	70
Grand Total	0	0	0	0	0	0	18	14	0	32	6	0	2	0	8	19	42	0	0	61	101
Approach %	0.0	0.0	0.0	0.0		0.0	56.3	43.8	0.0		75.0	0.0	25.0	0.0		31.1	68.9	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	17.8	13.9	0.0	31.7	5.9	0.0	2.0	0.0	7.9	18.8	41.6	0.0	0.0	60.4	
Exiting Leg Total	0					48					33					20					101

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

8:00 AM	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:00 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	6	9	0	0	15	20
8:15 AM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	2	5	0	0	7	12
8:30 AM	0	0	0	0	0	0	4	4	0	8	2	0	1	0	3	4	9	0	0	13	24
8:45 AM	0	0	0	0	0	0	0	3	0	3	1	0	0	0	1	2	8	0	0	10	14
Total Volume	0	0	0	0	0	0	10	10	0	20	4	0	1	0	5	14	31	0	0	45	70
% Approach Total	0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		80.0	0.0	20.0	0.0		31.1	68.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.625	0.000	0.625	0.500	0.000	0.250	0.000	0.417	0.583	0.861	0.000	0.000	0.750	0.729
Entering Leg	0	0	0	0	0	0	10	10	0	20	4	0	1	0	5	14	31	0	0	45	70
Exiting Leg	0					35					24					11					70
Total	0					55					29					56					140

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Articulated Trucks

	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	5
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	5
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
8:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	4	0	0	5	7
Grand Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	3	5	0	0	8	12
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		37.5	62.5	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	25.0	41.7	0.0	0.0	66.7	
Exiting Leg Total	0					5					3					4					12

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

7:45 AM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	5
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	2
Total Volume	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	4	0	0	7	10
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		42.9	57.1	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.375	0.500	0.000	0.000	0.583	0.500
Entering Leg	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3	4	0	0	7	10
Exiting Leg	0					4					3					3					10
Total	0					7					3					10					20

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	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	0	1	1
Total	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
8:00 AM	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	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	0	0	0	0	0	1	5
8:45 AM	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	0	1	1
Total	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	4	0	0	0	0	5	9
Grand Total	0	0	0	0	0	1	1	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	5	0	0	0	0	6	11
Approach %	0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	50.0	0.0	50.0	0.0		50.0	0.0	0.0	0.0	0.0	50.0		16.7	83.3	0.0	0.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	9.1	9.1	0.0	0.0	9.1	0.0	9.1	0.0	18.2	9.1	0.0	0.0	0.0	0.0	9.1	18.2	9.1	45.5	0.0	0.0	0.0	0.0	54.5	
Exiting Leg Total	1							7							3							0							11

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

7:45 AM	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turns	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
8:00 AM	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	0	1	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	
8:30 AM	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	0	0	0	0	0	1	
Total Volume	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	4	0	0	0	0	5	
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	50.0	0.0	50.0	50.0	0.0	0.0	0.0	0.0	50.0	50.0	20.0	80.0	0.0	0.0	0.0	0.0	0.0	
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.000	0.000	0.000	0.000	0.250	0.250	0.250	0.500	0.000	0.000	0.000	0.000	0.625	
Entering Leg	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	2	1	4	0	0	0	0	5	
Exiting Leg	0							6							3							0							
Total	0							8							5							5							

PDI File #: **196867 (1) am**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:00 AM**
 Class:



Pedestrians

	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	9	0	9	0	0	0	0	6	3	9	0	0	0	0	2	2	4	0	0	0	0	1	0	1	23
7:45 AM	0	0	0	0	6	6	12	0	0	0	0	7	5	12	0	0	0	0	3	9	12	0	0	0	0	0	0	0	36
Total	0	0	0	0	15	6	21	0	0	0	0	13	8	21	0	0	0	0	5	11	16	0	0	0	0	1	0	1	59
8:00 AM	0	0	0	0	12	2	14	0	0	0	0	13	2	15	0	0	0	0	2	7	9	0	0	0	0	0	0	0	38
8:15 AM	0	0	0	0	11	3	14	0	0	0	0	12	3	15	0	0	0	0	0	21	21	0	0	0	0	0	0	0	50
8:30 AM	0	0	0	0	9	1	10	0	0	0	0	10	3	13	0	0	0	0	4	3	7	0	0	0	0	0	0	0	30
8:45 AM	0	0	0	0	8	0	8	0	0	0	0	13	2	15	0	0	0	0	3	7	10	0	0	0	0	0	0	0	33
Total	0	0	0	0	40	6	46	0	0	0	0	48	10	58	0	0	0	0	9	38	47	0	0	0	0	0	0	0	151
Grand Total	0	0	0	0	55	12	67	0	0	0	0	61	18	79	0	0	0	0	14	49	63	0	0	0	0	1	0	1	210
Approach %	0	0	0	0	82.1	17.9		0	0	0	0	77.2	22.8		0	0	0	0	22.2	77.8		0	0	0	0	100	0		
Total %	0	0	0	0	26.2	5.71	31.9	0	0	0	0	29	8.57	37.6	0	0	0	0	6.67	23.3	30	0	0	0	0	0.48	0	0.48	
Exiting Leg Total	67							79							63							1							210

Peak Hour Analysis from 07:30 AM to 09:00 AM begins at:

7:45 AM	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:45 AM	0	0	0	0	6	6	12	0	0	0	0	7	5	12	0	0	0	0	3	9	12	0	0	0	0	0	0	0	36
8:00 AM	0	0	0	0	12	2	14	0	0	0	0	13	2	15	0	0	0	0	2	7	9	0	0	0	0	0	0	0	38
8:15 AM	0	0	0	0	11	3	14	0	0	0	0	12	3	15	0	0	0	0	0	21	21	0	0	0	0	0	0	0	50
8:30 AM	0	0	0	0	9	1	10	0	0	0	0	10	3	13	0	0	0	0	4	3	7	0	0	0	0	0	0	0	30
Total Volume	0	0	0	0	38	12	50	0	0	0	0	42	13	55	0	0	0	0	9	40	49	0	0	0	0	0	0	0	154
% Approach Total	0.0	0.0	0.0	0.0	76.0	24.0		0.0	0.0	0.0	0.0	76.4	23.6		0.0	0.0	0.0	0.0	18.4	81.6		0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.792	0.500	0.893	0.000	0.000	0.000	0.000	0.808	0.650	0.917	0.000	0.000	0.000	0.000	0.563	0.476	0.583	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.770
Entering Leg	0	0	0	0	38	12	50	0	0	0	0	42	13	55	0	0	0	0	9	40	49	0	0	0	0	0	0	0	154
Exiting Leg	50							55							49							0							154
Total	100							110							98							0							308

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	2	0	3	1	214	10	2	227	7	0	206	0	213	53	115	2	4	174	617
4:45 PM	0	0	0	0	0	2	227	11	3	243	1	0	212	0	213	72	129	0	7	208	664
Total	1	0	2	0	3	3	441	21	5	470	8	0	418	0	426	125	244	2	11	382	1281
5:00 PM	2	0	1	0	3	1	224	7	4	236	3	0	197	0	200	69	134	0	10	213	652
5:15 PM	3	0	0	0	3	0	188	22	1	211	6	0	202	1	209	66	156	4	2	228	651
5:30 PM	1	0	1	0	2	1	177	14	1	193	7	2	175	0	184	75	123	0	4	202	581
5:45 PM	0	0	6	0	6	2	187	8	1	198	7	0	188	0	195	79	119	0	6	204	603
Total	6	0	8	0	14	4	776	51	7	838	23	2	762	1	788	289	532	4	22	847	2487
6:00 PM	2	0	3	0	5	2	192	11	0	205	5	1	207	0	213	71	130	1	7	209	632
6:15 PM	0	3	0	0	3	1	185	6	1	193	4	6	177	0	187	57	150	0	3	210	593
Total	2	3	3	0	8	3	377	17	1	398	9	7	384	0	400	128	280	1	10	419	1225
Grand Total	9	3	13	0	25	10	1594	89	13	1706	40	9	1564	1	1614	542	1056	7	43	1648	4993
Approach %	36.0	12.0	52.0	0.0		0.6	93.4	5.2	0.8		2.5	0.6	96.9	0.1		32.9	64.1	0.4	2.6		
Total %	0.2	0.1	0.3	0.0	0.5	0.2	31.9	1.8	0.3	34.2	0.8	0.2	31.3	0.0	32.3	10.9	21.1	0.1	0.9	33.0	
Exiting Leg Total	26					1122					635					3210					4993
Cars	9	3	12	0	24	9	1554	83	13	1659	33	9	1550	1	1593	538	1023	7	43	1611	4887
% Cars	100.0	100.0	92.3	0.0	96.0	90.0	97.5	93.3	100.0	97.2	82.5	100.0	99.1	100.0	98.7	99.3	96.9	100.0	100.0	97.8	97.9
Exiting Leg Total	25					1081					625					3156					4887
Heavy Vehicles	0	0	1	0	1	1	40	6	0	47	7	0	14	0	21	4	33	0	0	37	106
% Heavy Vehicles	0.0	0.0	7.7	0.0	4.0	10.0	2.5	6.7	0.0	2.8	17.5	0.0	0.9	0.0	1.3	0.7	3.1	0.0	0.0	2.2	2.1
Exiting Leg Total	1					41					10					54					106

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	2	0	3	1	214	10	2	227	7	0	206	0	213	53	115	2	4	174	617
4:45 PM	0	0	0	0	0	2	227	11	3	243	1	0	212	0	213	72	129	0	7	208	664
5:00 PM	2	0	1	0	3	1	224	7	4	236	3	0	197	0	200	69	134	0	10	213	652
5:15 PM	3	0	0	0	3	0	188	22	1	211	6	0	202	1	209	66	156	4	2	228	651
Total Volume	6	0	3	0	9	4	853	50	10	917	17	0	817	1	835	260	534	6	23	823	2584
% Approach Total	66.7	0.0	33.3	0.0		0.4	93.0	5.5	1.1		2.0	0.0	97.8	0.1		31.6	64.9	0.7	2.8		
PHF	0.500	0.000	0.375	0.000	0.750	0.500	0.939	0.568	0.625	0.943	0.607	0.000	0.963	0.250	0.980	0.903	0.856	0.375	0.575	0.902	0.973
Cars	6	0	2	0	8	3	833	47	10	893	13	0	806	1	820	258	513	6	23	800	2521
Cars %	100.0	0.0	66.7	0.0	88.9	75.0	97.7	94.0	100.0	97.4	76.5	0.0	98.7	100.0	98.2	99.2	96.1	100.0	100.0	97.2	97.6
Heavy Vehicles	0	0	1	0	1	1	20	3	0	24	4	0	11	0	15	2	21	0	0	23	63
Heavy Vehicles %	0.0	0.0	33.3	0.0	11.1	25.0	2.3	6.0	0.0	2.6	23.5	0.0	1.3	0.0	1.8	0.8	3.9	0.0	0.0	2.8	2.4
Cars Enter Leg	6	0	2	0	8	3	833	47	10	893	13	0	806	1	820	258	513	6	23	800	2521
Heavy Enter Leg	0	0	1	0	1	1	20	3	0	24	4	0	11	0	15	2	21	0	0	23	63
Total Entering Leg	6	0	3	0	9	4	853	50	10	917	17	0	817	1	835	260	534	6	23	823	2584
Cars Exiting Leg	9					538					306					1668					2521
Heavy Exiting Leg	1					26					5					31					63
Total Exiting Leg	10					564					311					1699					2584

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Cars

	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	1	0	2	0	3	1	209	9	2	221	5	0	204	0	209	53	108	2	4	167	600
4:45 PM	0	0	0	0	0	1	221	11	3	236	1	0	208	0	209	72	126	0	7	205	650
Total	1	0	2	0	3	2	430	20	5	457	6	0	412	0	418	125	234	2	11	372	1250
5:00 PM	2	0	0	0	2	1	221	6	4	232	2	0	192	0	194	67	127	0	10	204	632
5:15 PM	3	0	0	0	3	0	182	21	1	204	5	0	202	1	208	66	152	4	2	224	639
5:30 PM	1	0	1	0	2	1	171	13	1	186	6	2	174	0	182	74	121	0	4	199	569
5:45 PM	0	0	6	0	6	2	185	8	1	196	6	0	186	0	192	78	116	0	6	200	594
Total	6	0	7	0	13	4	759	48	7	818	19	2	754	1	776	285	516	4	22	827	2434
6:00 PM	2	0	3	0	5	2	187	10	0	199	5	1	207	0	213	71	125	1	7	204	621
6:15 PM	0	3	0	0	3	1	178	5	1	185	3	6	177	0	186	57	148	0	3	208	582
Total	2	3	3	0	8	3	365	15	1	384	8	7	384	0	399	128	273	1	10	412	1203
Grand Total	9	3	12	0	24	9	1554	83	13	1659	33	9	1550	1	1593	538	1023	7	43	1611	4887
Approach %	37.5	12.5	50.0	0.0		0.5	93.7	5.0	0.8		2.1	0.6	97.3	0.1		33.4	63.5	0.4	2.7		
Total %	0.2	0.1	0.2	0.0	0.5	0.2	31.8	1.7	0.3	33.9	0.7	0.2	31.7	0.0	32.6	11.0	20.9	0.1	0.9	33.0	
Exiting Leg Total	25					1081					625					3156					4887

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	2	0	3	1	209	9	2	221	5	0	204	0	209	53	108	2	4	167	600
4:45 PM	0	0	0	0	0	1	221	11	3	236	1	0	208	0	209	72	126	0	7	205	650
5:00 PM	2	0	0	0	2	1	221	6	4	232	2	0	192	0	194	67	127	0	10	204	632
5:15 PM	3	0	0	0	3	0	182	21	1	204	5	0	202	1	208	66	152	4	2	224	639
Total Volume	6	0	2	0	8	3	833	47	10	893	13	0	806	1	820	258	513	6	23	800	2521
% Approach Total	75.0	0.0	25.0	0.0		0.3	93.3	5.3	1.1		1.6	0.0	98.3	0.1		32.3	64.1	0.8	2.9		
PHF	0.500	0.000	0.250	0.000	0.667	0.750	0.942	0.560	0.625	0.946	0.650	0.000	0.969	0.250	0.981	0.896	0.844	0.375	0.575	0.893	0.970
Entering Leg	6	0	2	0	8	3	833	47	10	893	13	0	806	1	820	258	513	6	23	800	2521
Exiting Leg	9					538					306					1668					2521
Total	17					1431					1126					2468					5042

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	5	1	0	6	2	0	2	0	4	0	7	0	0	7	17
4:45 PM	0	0	0	0	0	1	6	0	0	7	0	0	4	0	4	0	3	0	0	3	14
Total	0	0	0	0	0	1	11	1	0	13	2	0	6	0	8	0	10	0	0	10	31
5:00 PM	0	0	1	0	1	0	3	1	0	4	1	0	5	0	6	2	7	0	0	9	20
5:15 PM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	4	0	0	4	12
5:30 PM	0	0	0	0	0	0	6	1	0	7	1	0	1	0	2	1	2	0	0	3	12
5:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	2	0	3	1	3	0	0	4	9
Total	0	0	1	0	1	0	17	3	0	20	4	0	8	0	12	4	16	0	0	20	53
6:00 PM	0	0	0	0	0	0	5	1	0	6	0	0	0	0	0	0	5	0	0	5	11
6:15 PM	0	0	0	0	0	0	7	1	0	8	1	0	0	0	1	0	2	0	0	2	11
Total	0	0	0	0	0	0	12	2	0	14	1	0	0	0	1	0	7	0	0	7	22
Grand Total	0	0	1	0	1	1	40	6	0	47	7	0	14	0	21	4	33	0	0	37	106
Approach %	0.0	0.0	100.0	0.0		2.1	85.1	12.8	0.0		33.3	0.0	66.7	0.0		10.8	89.2	0.0	0.0		
Total %	0.0	0.0	0.9	0.0	0.9	0.9	37.7	5.7	0.0	44.3	6.6	0.0	13.2	0.0	19.8	3.8	31.1	0.0	0.0	34.9	
Exiting Leg Total	1					41					10					54					106
Buses	0	0	0	0	0	0	26	6	0	32	6	0	7	0	13	4	20	0	0	24	69
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	65.0	100.0	0.0	68.1	85.7	0.0	50.0	0.0	61.9	100.0	60.6	0.0	0.0	64.9	65.1
Exiting Leg Total	0					26					10					33					69
Single-Unit Trucks	0	0	1	0	1	1	13	0	0	14	1	0	7	0	8	0	12	0	0	12	35
% Single-Unit	0.0	0.0	100.0	0.0	100.0	100.0	32.5	0.0	0.0	29.8	14.3	0.0	50.0	0.0	38.1	0.0	36.4	0.0	0.0	32.4	33.0
Exiting Leg Total	1					14					0					20					35
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	2.7	1.9
Exiting Leg Total	0					1					0					1					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total				
	from North					from East					from South					from West									
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total					
4:30 PM	0	0	0	0	0	0	5	1	0	6	2	0	2	0	4	0	7	0	0	7	17				
4:45 PM	0	0	0	0	0	1	6	0	0	7	0	0	4	0	4	0	3	0	0	3	14				
5:00 PM	0	0	1	0	1	0	3	1	0	4	1	0	5	0	6	2	7	0	0	9	20				
5:15 PM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	0	4	0	0	4	12				
Total Volume	0	0	1	0	1	1	20	3	0	24	4	0	11	0	15	2	21	0	0	23	63				
% Approach Total	0.0	0.0	100.0	0.0		4.2	83.3	12.5	0.0		26.7	0.0	73.3	0.0		8.7	91.3	0.0	0.0						
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.833	0.750	0.000	0.857	0.500	0.000	0.550	0.000	0.625	0.250	0.750	0.000	0.000	0.639	0.788				
Buses	0	0	0	0	0	0	14	3	0	17	3	0	7	0	10	2	11	0	0	13	40				
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	70.0	100.0	0.0	70.8	75.0	0.0	63.6	0.0	66.7	100.0	52.4	0.0	0.0	56.5	63.5				
Single-Unit Trucks	0	0	1	0	1	1	5	0	0	6	1	0	4	0	5	0	9	0	0	9	21				
Single-Unit %	0.0	0.0	100.0	0.0	100.0	100.0	25.0	0.0	0.0	25.0	25.0	0.0	36.4	0.0	33.3	0.0	42.9	0.0	0.0	39.1	33.3				
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2				
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.3	3.2				
Buses	0	0	0	0	0	0	14	3	0	17	3	0	7	0	10	2	11	0	0	13	40				
Single-Unit Trucks	0	0	1	0	1	1	5	0	0	6	1	0	4	0	5	0	9	0	0	9	21				
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2				
Total Entering Leg	0	0	1	0	1	1	20	3	0	24	4	0	11	0	15	2	21	0	0	23	63				
Buses						0						14						5						21	40
Single-Unit Trucks						1						11						0						9	21
Articulated Trucks						0						1						0						1	2
Total Exiting Leg						1						26						5						31	63

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	4	1	0	5	2	0	1	0	3	0	4	0	0	4	12
4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	3	0	3	0	1	0	0	1	8
Total	0	0	0	0	0	0	8	1	0	9	2	0	4	0	6	0	5	0	0	5	20
5:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	3	0	4	2	4	0	0	6	13
5:15 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	2	0	0	2	7
5:30 PM	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	1	2	0	0	3	9
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	3	0	0	4	5
Total	0	0	0	0	0	0	10	3	0	13	3	0	3	0	6	4	11	0	0	15	34
6:00 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	2	0	0	2	7
6:15 PM	0	0	0	0	0	0	4	1	0	5	1	0	0	0	1	0	2	0	0	2	8
Total	0	0	0	0	0	0	8	2	0	10	1	0	0	0	1	0	4	0	0	4	15
Grand Total	0	0	0	0	0	0	26	6	0	32	6	0	7	0	13	4	20	0	0	24	69
Approach %	0.0	0.0	0.0	0.0		0.0	81.3	18.8	0.0		46.2	0.0	53.8	0.0		16.7	83.3	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	37.7	8.7	0.0	46.4	8.7	0.0	10.1	0.0	18.8	5.8	29.0	0.0	0.0	34.8	
Exiting Leg Total	0					26					10					33					69

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	4	1	0	5	2	0	1	0	3	0	4	0	0	4	12
4:45 PM	0	0	0	0	0	0	4	0	0	4	0	0	3	0	3	0	1	0	0	1	8
5:00 PM	0	0	0	0	0	0	2	1	0	3	1	0	3	0	4	2	4	0	0	6	13
5:15 PM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	2	0	0	2	7
Total Volume	0	0	0	0	0	0	14	3	0	17	3	0	7	0	10	2	11	0	0	13	40
% Approach Total	0.0	0.0	0.0	0.0		0.0	82.4	17.6	0.0		30.0	0.0	70.0	0.0		15.4	84.6	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.875	0.750	0.000	0.850	0.375	0.000	0.583	0.000	0.625	0.250	0.688	0.000	0.000	0.542	0.769
Entering Leg	0	0	0	0	0	0	14	3	0	17	3	0	7	0	10	2	11	0	0	13	40
Exiting Leg	0					14					5					21					40
Total	0					31					15					34					80

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Driveway					Monsignor O'Bren Highway (Route 28)					Third Street					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	3	0	0	3	5
4:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	1	0	0	1	4
Total	0	0	0	0	0	1	2	0	0	3	0	0	2	0	2	0	4	0	0	4	9
5:00 PM	0	0	1	0	1	0	1	0	0	1	0	0	2	0	2	0	3	0	0	3	7
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	0	0	0	0	0	4
Total	0	0	1	0	1	0	7	0	0	7	1	0	5	0	6	0	5	0	0	5	19
6:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
6:15 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	3	0	0	3	7
Grand Total	0	0	1	0	1	1	13	0	0	14	1	0	7	0	8	0	12	0	0	12	35
Approach %	0.0	0.0	100.0	0.0		7.1	92.9	0.0	0.0		12.5	0.0	87.5	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	2.9	0.0	2.9	2.9	37.1	0.0	0.0	40.0	2.9	0.0	20.0	0.0	22.9	0.0	34.3	0.0	0.0	34.3	
Exiting Leg Total	1					14					0					20					35

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	3	0	0	3	5
4:45 PM	0	0	0	0	0	1	1	0	0	2	0	0	1	0	1	0	1	0	0	1	4
5:00 PM	0	0	1	0	1	0	1	0	0	1	0	0	2	0	2	0	3	0	0	3	7
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
Total Volume	0	0	1	0	1	1	5	0	0	6	1	0	4	0	5	0	9	0	0	9	21
% Approach Total	0.0	0.0	100.0	0.0		16.7	83.3	0.0	0.0		20.0	0.0	80.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.250	0.625	0.000	0.000	0.750	0.250	0.000	0.500	0.000	0.625	0.000	0.750	0.000	0.000	0.750	0.750
Entering Leg	0	0	1	0	1	1	5	0	0	6	1	0	4	0	5	0	9	0	0	9	21
Exiting Leg	1					11					0					9					21
Total	2					17					5					18					42

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Articulated Trucks**



	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 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
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	
Exiting Leg Total	0					1					0					1					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Monsignor O'Brien Highway (Route 28)					Third Street					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	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	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Exiting Leg	0					1					0					1					2
Total	0					2					0					2					4

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	0	2	2	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	4
4:45 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
Total	0	0	0	0	0	2	2	0	1	0	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	2	2	0	2	1	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	0	0	1	0	1	0	3	0	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	1	0	6
5:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	1	2	3	0	8	1	0	0	2	11	0	0	0	0	0	0	0	0	0	0	0	1	0	1	15
6:00 PM	0	0	0	0	0	2	2	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:15 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	2	2	0	4	0	0	1	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Grand Total	0	0	0	0	1	6	7	0	13	1	0	1	2	17	0	0	1	0	0	0	1	0	0	0	0	1	0	1	26
Approach %	0.0	0.0	0.0	0.0	14.3	85.7		0.0	76.5	5.9	0.0	5.9	11.8		0.0	0.0	100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		
Total %	0.0	0.0	0.0	0.0	3.8	23.1	26.9	0.0	50.0	3.8	0.0	3.8	7.7	65.4	0.0	0.0	3.8	0.0	0.0	0.0	3.8	0.0	0.0	0.0	3.8	0.0	3.8		
Exiting Leg Total	7							3							1							15							26

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:15 PM	0	0	0	0	0	2	2	0	2	1	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	0	0	1	0	1	0	3	0	0	0	1	4	0	0	0	0	0	0	0	0	0	0	0	1	0	1	6
5:45 PM	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:00 PM	0	0	0	0	0	2	2	0	2	0	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Total Volume	0	0	0	0	1	4	5	0	9	1	0	1	2	13	0	0	0	0	0	0	0	0	0	0	0	1	0	1	19
% Approach Total	0.0	0.0	0.0	0.0	20.0	80.0		0.0	69.2	7.7	0.0	7.7	15.4		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.250	0.500	0.625	0.000	0.750	0.250	0.000	0.250	0.500	0.813	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250		0.792
Entering Leg	0	0	0	0	1	4	5	0	9	1	0	1	2	13	0	0	0	0	0	0	0	0	0	0	0	1	0	1	19
Exiting Leg	5							3							1							10							19
Total	10							16							1							11							38

PDI File #: **196867 (1) pm**
 Location: **N: Driveway S: Third Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total	
4:30 PM	0	0	0	0	0	0	8	0	0	0	0	1	6	7	0	0	0	0	3	2	5	0	0	0	0	1	0	1	21	
4:45 PM	0	0	0	0	0	3	8	11	0	0	0	0	1	4	5	0	0	0	0	7	0	7	0	0	0	0	1	0	1	24
Total	0	0	0	0	0	3	16	19	0	0	0	0	2	10	12	0	0	0	0	10	2	12	0	0	0	0	2	0	2	45
5:00 PM	0	0	0	0	0	1	5	6	0	0	0	0	5	4	9	0	0	0	0	1	2	3	0	0	0	0	1	0	1	19
5:15 PM	0	0	0	0	0	9	8	17	0	0	0	0	8	5	13	0	0	0	0	6	1	7	0	0	0	0	0	0	0	37
5:30 PM	0	0	0	0	0	3	8	11	0	0	0	0	5	12	17	0	0	0	0	7	5	12	0	0	0	0	0	0	0	40
5:45 PM	0	0	0	0	0	3	16	19	0	0	0	0	4	6	10	0	0	0	0	19	3	22	0	0	0	0	1	0	1	52
Total	0	0	0	0	0	16	37	53	0	0	0	0	22	27	49	0	0	0	0	33	11	44	0	0	0	0	2	0	2	148
6:00 PM	0	0	0	0	0	1	12	13	0	0	0	0	6	15	21	0	0	0	0	8	11	19	0	0	0	0	0	0	0	53
6:15 PM	0	0	0	0	0	12	8	20	0	0	0	0	8	8	16	0	0	0	0	6	6	12	0	0	0	0	0	0	0	48
Total	0	0	0	0	0	13	20	33	0	0	0	0	14	23	37	0	0	0	0	14	17	31	0	0	0	0	0	0	0	101
Grand Total	0	0	0	0	0	32	73	105	0	0	0	0	38	60	98	0	0	0	0	57	30	87	0	0	0	0	4	0	4	294
Approach %	0	0	0	0	0	30.5	69.5		0	0	0	0	38.8	61.2		0	0	0	0	65.5	34.5		0	0	0	0	100	0		
Total %	0	0	0	0	0	10.9	24.8	35.7	0	0	0	0	12.9	20.4	33.3	0	0	0	0	19.4	10.2	29.6	0	0	0	0	1.36	0	1.36	
Exiting Leg Total	105							98							87							4							294	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Driveway							Monsignor O'Brien Highway (Route 28)							Third Street							Monsignor O'Brien Highway (Route 28)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:30 PM	0	0	0	0	3	8	11	0	0	0	0	5	12	17	0	0	0	0	7	5	12	0	0	0	0	0	0	0	40
5:45 PM	0	0	0	0	3	16	19	0	0	0	0	4	6	10	0	0	0	0	19	3	22	0	0	0	0	1	0	1	52
6:00 PM	0	0	0	0	1	12	13	0	0	0	0	6	15	21	0	0	0	0	8	11	19	0	0	0	0	0	0	0	53
6:15 PM	0	0	0	0	12	8	20	0	0	0	0	8	8	16	0	0	0	0	6	6	12	0	0	0	0	0	0	0	48
Total Volume	0	0	0	0	19	44	63	0	0	0	0	23	41	64	0	0	0	0	40	25	65	0	0	0	0	1	0	1	193
% Approach Total	0.0	0.0	0.0	0.0	30.2	69.8		0.0	0.0	0.0	0.0	35.9	64.1		0.0	0.0	0.0	0.0	61.5	38.5		0.0	0.0	0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.396	0.688	0.788	0.000	0.000	0.000	0.000	0.719	0.683	0.762	0.000	0.000	0.000	0.000	0.526	0.568	0.739	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.910
Entering Leg	0	0	0	0	19	44	63	0	0	0	0	23	41	64	0	0	0	0	40	25	65	0	0	0	0	1	0	1	193
Exiting Leg	63							64							65							1							193
Total	126							128							130							2							386

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	18	131	12	0	161	8	81	4	0	93	7	23	5	0	35	4	58	14	0	76	365
7:45 AM	24	107	10	0	141	11	84	8	0	103	5	17	12	0	34	11	65	18	0	94	372
Total	42	238	22	0	302	19	165	12	0	196	12	40	17	0	69	15	123	32	0	170	737
8:00 AM	21	109	17	0	147	14	69	6	0	89	7	23	6	0	36	8	78	13	0	99	371
8:15 AM	20	112	14	0	146	10	77	1	0	88	7	25	4	0	36	12	57	5	0	74	344
8:30 AM	20	97	15	0	132	13	53	5	0	71	2	35	6	0	43	14	57	13	0	84	330
8:45 AM	16	102	12	0	130	13	61	10	0	84	4	25	10	0	39	10	44	9	0	63	316
Total	77	420	58	0	555	50	260	22	0	332	20	108	26	0	154	44	236	40	0	320	1361
9:00 AM	20	102	14	0	136	11	65	10	0	86	4	25	7	0	36	13	75	12	0	100	358
9:15 AM	24	106	15	0	145	10	72	7	0	89	6	25	7	0	38	16	49	6	0	71	343
Total	44	208	29	0	281	21	137	17	0	175	10	50	14	0	74	29	124	18	0	171	701
Grand Total	163	866	109	0	1138	90	562	51	0	703	42	198	57	0	297	88	483	90	0	661	2799
Approach %	14.3	76.1	9.6	0.0		12.8	79.9	7.3	0.0		14.1	66.7	19.2	0.0		13.3	73.1	13.6	0.0		
Total %	5.8	30.9	3.9	0.0	40.7	3.2	20.1	1.8	0.0	25.1	1.5	7.1	2.0	0.0	10.6	3.1	17.3	3.2	0.0	23.6	
Exiting Leg Total	378					634					1005					782					2799
Cars	151	847	101	0	1099	85	512	49	0	646	41	190	50	0	281	86	446	72	0	604	2630
% Cars	92.6	97.8	92.7	0.0	96.6	94.4	91.1	96.1	0.0	91.9	97.6	96.0	87.7	0.0	94.6	97.7	92.3	80.0	0.0	91.4	94.0
Exiting Leg Total	347					588					982					713					2630
Heavy Vehicles	12	19	8	0	39	5	50	2	0	57	1	8	7	0	16	2	37	18	0	57	169
% Heavy Vehicles	7.4	2.2	7.3	0.0	3.4	5.6	8.9	3.9	0.0	8.1	2.4	4.0	12.3	0.0	5.4	2.3	7.7	20.0	0.0	8.6	6.0
Exiting Leg Total	31					46					23					69					169

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	18	131	12	0	161	8	81	4	0	93	7	23	5	0	35	4	58	14	0	76	365
7:45 AM	24	107	10	0	141	11	84	8	0	103	5	17	12	0	34	11	65	18	0	94	372
8:00 AM	21	109	17	0	147	14	69	6	0	89	7	23	6	0	36	8	78	13	0	99	371
8:15 AM	20	112	14	0	146	10	77	1	0	88	7	25	4	0	36	12	57	5	0	74	344
Total Volume	83	459	53	0	595	43	311	19	0	373	26	88	27	0	141	35	258	50	0	343	1452
% Approach Total	13.9	77.1	8.9	0.0		11.5	83.4	5.1	0.0		18.4	62.4	19.1	0.0		10.2	75.2	14.6	0.0		
PHF	0.865	0.876	0.779	0.000	0.924	0.768	0.926	0.594	0.000	0.905	0.929	0.880	0.563	0.000	0.979	0.729	0.827	0.694	0.000	0.866	0.976
Cars	77	448	49	0	574	38	281	19	0	338	26	84	25	0	135	35	241	42	0	318	1365
Cars %	92.8	97.6	92.5	0.0	96.5	88.4	90.4	100.0	0.0	90.6	100.0	95.5	92.6	0.0	95.7	100.0	93.4	84.0	0.0	92.7	94.0
Heavy Vehicles	6	11	4	0	21	5	30	0	0	35	0	4	2	0	6	0	17	8	0	25	87
Heavy Vehicles %	7.2	2.4	7.5	0.0	3.5	11.6	9.6	0.0	0.0	9.4	0.0	4.5	7.4	0.0	4.3	0.0	6.6	16.0	0.0	7.3	6.0
Cars Enter Leg	77	448	49	0	574	38	281	19	0	338	26	84	25	0	135	35	241	42	0	318	1365
Heavy Enter Leg	6	11	4	0	21	5	30	0	0	35	0	4	2	0	6	0	17	8	0	25	87
Total Entering Leg	83	459	53	0	595	43	311	19	0	373	26	88	27	0	141	35	258	50	0	343	1452
Cars Exiting Leg	164					316					502					383					1365
Heavy Exiting Leg	17					21					11					38					87
Total Exiting Leg	181					337					513					421					1452

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	18	130	10	0	158	6	75	4	0	85	7	21	3	0	31	4	54	9	0	67	341
7:45 AM	23	104	9	0	136	10	77	8	0	95	5	17	12	0	34	11	62	16	0	89	354
Total	41	234	19	0	294	16	152	12	0	180	12	38	15	0	65	15	116	25	0	156	695
8:00 AM	20	104	16	0	140	12	60	6	0	78	7	22	6	0	35	8	72	12	0	92	345
8:15 AM	16	110	14	0	140	10	69	1	0	80	7	24	4	0	35	12	53	5	0	70	325
8:30 AM	17	95	12	0	124	13	49	5	0	67	1	34	4	0	39	13	52	9	0	74	304
8:45 AM	14	98	12	0	124	13	53	8	0	74	4	25	8	0	37	9	40	7	0	56	291
Total	67	407	54	0	528	48	231	20	0	299	19	105	22	0	146	42	217	33	0	292	1265
9:00 AM	19	101	14	0	134	11	62	10	0	83	4	24	6	0	34	13	68	9	0	90	341
9:15 AM	24	105	14	0	143	10	67	7	0	84	6	23	7	0	36	16	45	5	0	66	329
Total	43	206	28	0	277	21	129	17	0	167	10	47	13	0	70	29	113	14	0	156	670
Grand Total	151	847	101	0	1099	85	512	49	0	646	41	190	50	0	281	86	446	72	0	604	2630
Approach %	13.7	77.1	9.2	0.0		13.2	79.3	7.6	0.0		14.6	67.6	17.8	0.0		14.2	73.8	11.9	0.0		
Total %	5.7	32.2	3.8	0.0	41.8	3.2	19.5	1.9	0.0	24.6	1.6	7.2	1.9	0.0	10.7	3.3	17.0	2.7	0.0	23.0	
Exiting Leg Total	347					588					982					713					2630

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	18	130	10	0	158	6	75	4	0	85	7	21	3	0	31	4	54	9	0	67	341
7:45 AM	23	104	9	0	136	10	77	8	0	95	5	17	12	0	34	11	62	16	0	89	354
8:00 AM	20	104	16	0	140	12	60	6	0	78	7	22	6	0	35	8	72	12	0	92	345
8:15 AM	16	110	14	0	140	10	69	1	0	80	7	24	4	0	35	12	53	5	0	70	325
Total Volume	77	448	49	0	574	38	281	19	0	338	26	84	25	0	135	35	241	42	0	318	1365
% Approach Total	13.4	78.0	8.5	0.0		11.2	83.1	5.6	0.0		19.3	62.2	18.5	0.0		11.0	75.8	13.2	0.0		
PHF	0.837	0.862	0.766	0.000	0.908	0.792	0.912	0.594	0.000	0.889	0.929	0.875	0.521	0.000	0.964	0.729	0.837	0.656	0.000	0.864	0.964
Entering Leg	77	448	49	0	574	38	281	19	0	338	26	84	25	0	135	35	241	42	0	318	1365
Exiting Leg	164					316					502					383					1365
Total	738					654					637					701					2730

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	2	0	3	2	6	0	0	8	0	2	2	0	4	0	4	5	0	9	24
7:45 AM	1	3	1	0	5	1	7	0	0	8	0	0	0	0	0	0	3	2	0	5	18
Total	1	4	3	0	8	3	13	0	0	16	0	2	2	0	4	0	7	7	0	14	42
8:00 AM	1	5	1	0	7	2	9	0	0	11	0	1	0	0	1	0	6	1	0	7	26
8:15 AM	4	2	0	0	6	0	8	0	0	8	0	1	0	0	1	0	4	0	0	4	19
8:30 AM	3	2	3	0	8	0	4	0	0	4	1	1	2	0	4	1	5	4	0	10	26
8:45 AM	2	4	0	0	6	0	8	2	0	10	0	0	2	0	2	1	4	2	0	7	25
Total	10	13	4	0	27	2	29	2	0	33	1	3	4	0	8	2	19	7	0	28	96
9:00 AM	1	1	0	0	2	0	3	0	0	3	0	1	1	0	2	0	7	3	0	10	17
9:15 AM	0	1	1	0	2	0	5	0	0	5	0	2	0	0	2	0	4	1	0	5	14
Total	1	2	1	0	4	0	8	0	0	8	0	3	1	0	4	0	11	4	0	15	31
Grand Total	12	19	8	0	39	5	50	2	0	57	1	8	7	0	16	2	37	18	0	57	169
Approach %	30.8	48.7	20.5	0.0		8.8	87.7	3.5	0.0		6.3	50.0	43.8	0.0		3.5	64.9	31.6	0.0		
Total %	7.1	11.2	4.7	0.0	23.1	3.0	29.6	1.2	0.0	33.7	0.6	4.7	4.1	0.0	9.5	1.2	21.9	10.7	0.0	33.7	
Exiting Leg Total	31					46					23					69					169
Buses	2	1	0	0	3	2	14	0	0	16	1	4	0	0	5	0	3	8	0	11	35
% Buses	16.7	5.3	0.0	0.0	7.7	40.0	28.0	0.0	0.0	28.1	100.0	50.0	0.0	0.0	31.3	0.0	8.1	44.4	0.0	19.3	20.7
Exiting Leg Total	14					4					1					16					35
Single-Unit Trucks	8	18	7	0	33	3	32	2	0	37	0	4	5	0	9	2	30	10	0	42	121
% Single-Unit	66.7	94.7	87.5	0.0	84.6	60.0	64.0	100.0	0.0	64.9	0.0	50.0	71.4	0.0	56.3	100.0	81.1	55.6	0.0	73.7	71.6
Exiting Leg Total	17					37					22					45					121
Articulated Trucks	2	0	1	0	3	0	4	0	0	4	0	0	2	0	2	0	4	0	0	4	13
% Articulated	16.7	0.0	12.5	0.0	7.7	0.0	8.0	0.0	0.0	7.0	0.0	0.0	28.6	0.0	12.5	0.0	10.8	0.0	0.0	7.0	7.7
Exiting Leg Total	0					5					0					8					13

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	1	5	1	0	7	2	9	0	0	11	0	1	0	0	1	0	6	1	0	7	26
8:15 AM	4	2	0	0	6	0	8	0	0	8	0	1	0	0	1	0	4	0	0	4	19
8:30 AM	3	2	3	0	8	0	4	0	0	4	1	1	2	0	4	1	5	4	0	10	26
8:45 AM	2	4	0	0	6	0	8	2	0	10	0	0	2	0	2	1	4	2	0	7	25
Total Volume	10	13	4	0	27	2	29	2	0	33	1	3	4	0	8	2	19	7	0	28	96
% Approach Total	37.0	48.1	14.8	0.0		6.1	87.9	6.1	0.0		12.5	37.5	50.0	0.0		7.1	67.9	25.0	0.0		
PHF	0.625	0.650	0.333	0.000	0.844	0.250	0.806	0.250	0.000	0.750	0.250	0.750	0.500	0.000	0.500	0.500	0.792	0.438	0.000	0.700	0.923
Buses	2	1	0	0	3	0	11	0	0	11	1	2	0	0	3	0	1	4	0	5	22
Buses %	20.0	7.7	0.0	0.0	11.1	0.0	37.9	0.0	0.0	33.3	100.0	66.7	0.0	0.0	37.5	0.0	5.3	57.1	0.0	17.9	22.9
Single-Unit Trucks	6	12	4	0	22	2	15	2	0	19	0	1	3	0	4	2	16	3	0	21	66
Single-Unit %	60.0	92.3	100.0	0.0	81.5	100.0	51.7	100.0	0.0	57.6	0.0	33.3	75.0	0.0	50.0	100.0	84.2	42.9	0.0	75.0	68.8
Articulated Trucks	2	0	0	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8
Articulated %	20.0	0.0	0.0	0.0	7.4	0.0	10.3	0.0	0.0	9.1	0.0	0.0	25.0	0.0	12.5	0.0	10.5	0.0	0.0	7.1	8.3
Buses	2	1	0	0	3	0	11	0	0	11	1	2	0	0	3	0	1	4	0	5	22
Single-Unit Trucks	6	12	4	0	22	2	15	2	0	19	0	1	3	0	4	2	16	3	0	21	66
Articulated Trucks	2	0	0	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8
Total Entering Leg	10	13	4	0	27	2	29	2	0	33	1	3	4	0	8	2	19	7	0	28	96
Buses	6					2					1					13					22
Single-Unit Trucks	6					20					16					24					66
Articulated Trucks	0					2					0					6					8
Total Exiting Leg	12					24					17					43					96

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	2	1	0	0	3	0	1	0	0	1	0	0	1	0	1	5
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	1	0	2	4
Total	0	0	0	0	0	2	3	0	0	5	0	1	0	0	1	0	1	2	0	3	9
8:00 AM	0	0	0	0	0	0	4	0	0	4	0	1	0	0	1	0	1	1	0	2	7
8:15 AM	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	3	0	3	5
8:45 AM	1	1	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
Total	2	1	0	0	3	0	11	0	0	11	1	2	0	0	3	0	1	4	0	5	22
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	2
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	2	0	3	4
Grand Total	2	1	0	0	3	2	14	0	0	16	1	4	0	0	5	0	3	8	0	11	35
Approach %	66.7	33.3	0.0	0.0		12.5	87.5	0.0	0.0		20.0	80.0	0.0	0.0		0.0	27.3	72.7	0.0		
Total %	5.7	2.9	0.0	0.0	8.6	5.7	40.0	0.0	0.0	45.7	2.9	11.4	0.0	0.0	14.3	0.0	8.6	22.9	0.0	31.4	
Exiting Leg Total	14					4					1					16					35

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Cambridge Street					Third Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	0	0	0	0	0	0	4	0	0	4	0	1	0	0	1	0	1	1	0	2	7
8:15 AM	1	0	0	0	1	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	3	0	3	5
8:45 AM	1	1	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
Total Volume	2	1	0	0	3	0	11	0	0	11	1	2	0	0	3	0	1	4	0	5	22
% Approach Total	66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		33.3	66.7	0.0	0.0		0.0	20.0	80.0	0.0		
PHF	0.500	0.250	0.000	0.000	0.375	0.000	0.688	0.000	0.000	0.688	0.250	0.500	0.000	0.000	0.750	0.000	0.250	0.333	0.000	0.417	0.786
Entering Leg	2	1	0	0	3	0	11	0	0	11	1	2	0	0	3	0	1	4	0	5	22
Exiting Leg	6					2					1					13					22
Total	9					13					4					18					44

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	2	0	3	0	4	0	0	4	0	1	2	0	3	0	3	4	0	7	17
7:45 AM	1	3	1	0	5	1	5	0	0	6	0	0	0	0	0	0	2	1	0	3	14
Total	1	4	3	0	8	1	9	0	0	10	0	1	2	0	3	0	5	5	0	10	31
8:00 AM	1	5	1	0	7	2	3	0	0	5	0	0	0	0	0	0	5	0	0	5	17
8:15 AM	2	2	0	0	4	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	13
8:30 AM	2	2	3	0	7	0	2	0	0	2	0	1	1	0	2	1	4	1	0	6	17
8:45 AM	1	3	0	0	4	0	5	2	0	7	0	0	2	0	2	1	3	2	0	6	19
Total	6	12	4	0	22	2	15	2	0	19	0	1	3	0	4	2	16	3	0	21	66
9:00 AM	1	1	0	0	2	0	3	0	0	3	0	1	0	0	1	0	5	2	0	7	13
9:15 AM	0	1	0	0	1	0	5	0	0	5	0	1	0	0	1	0	4	0	0	4	11
Total	1	2	0	0	3	0	8	0	0	8	0	2	0	0	2	0	9	2	0	11	24
Grand Total	8	18	7	0	33	3	32	2	0	37	0	4	5	0	9	2	30	10	0	42	121
Approach %	24.2	54.5	21.2	0.0		8.1	86.5	5.4	0.0		0.0	44.4	55.6	0.0		4.8	71.4	23.8	0.0		
Total %	6.6	14.9	5.8	0.0	27.3	2.5	26.4	1.7	0.0	30.6	0.0	3.3	4.1	0.0	7.4	1.7	24.8	8.3	0.0	34.7	
Exiting Leg Total	17					37					22					45					121

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Cambridge Street					Third Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	1	5	1	0	7	2	3	0	0	5	0	0	0	0	0	0	5	0	0	5	17
8:15 AM	2	2	0	0	4	0	5	0	0	5	0	0	0	0	0	0	4	0	0	4	13
8:30 AM	2	2	3	0	7	0	2	0	0	2	0	1	1	0	2	1	4	1	0	6	17
8:45 AM	1	3	0	0	4	0	5	2	0	7	0	0	2	0	2	1	3	2	0	6	19
Total Volume	6	12	4	0	22	2	15	2	0	19	0	1	3	0	4	2	16	3	0	21	66
% Approach Total	27.3	54.5	18.2	0.0		10.5	78.9	10.5	0.0		0.0	25.0	75.0	0.0		9.5	76.2	14.3	0.0		
PHF	0.750	0.600	0.333	0.000	0.786	0.250	0.750	0.250	0.000	0.679	0.000	0.250	0.375	0.000	0.500	0.500	0.800	0.375	0.000	0.875	0.868
Entering Leg	6	12	4	0	22	2	15	2	0	19	0	1	3	0	4	2	16	3	0	21	66
Exiting Leg	6					20					16					24					66
Total	28					39					20					45					132

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
7:45 AM	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	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	0	1	0	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	2	0	0	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	0	2	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	2
9:15 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	1	3
Grand Total	2	0	1	0	3	0	4	0	0	4	0	0	2	0	2	0	4	0	0	0	4	13
Approach %	66.7	0.0	33.3	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0			
Total %	15.4	0.0	7.7	0.0	23.1	0.0	30.8	0.0	0.0	30.8	0.0	0.0	15.4	0.0	15.4	0.0	30.8	0.0	0.0	30.8		
Exiting Leg Total	0					5					0					8					13	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Cambridge Street					Third Street					Cambridge Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	1	0	0	0	1	0	1	0	0	1	0	0	1	0	1	0	1	0	0	0	1	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total Volume	2	0	0	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8	
% Approach Total	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.500	0.000	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.250	0.000	0.250	0.000	0.500	0.000	0.000	0.500	0.500	
Entering Leg	2	0	0	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8	
Exiting Leg	0					2					0					6					8	
Total	2					5					1					8					16	

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	3	1	0	0	0	0	0	1	2	11	0	0	0	0	13	17
7:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	4	19	0	0	0	0	23	24
Total	0	0	0	0	0	0	0	0	4	0	0	0	0	4	1	0	0	0	0	0	1	6	30	0	0	0	0	36	41
8:00 AM	0	1	0	0	0	0	1	0	3	0	0	0	0	3	1	0	0	0	0	0	1	4	22	1	0	0	0	27	32
8:15 AM	1	0	0	0	0	0	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	1	43	0	0	0	0	44	48
8:30 AM	0	3	0	0	0	0	3	1	4	0	0	0	0	5	0	0	0	0	0	0	0	0	39	0	0	0	0	39	47
8:45 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	1	0	0	0	0	1	2	31	0	0	1	0	34	39
Total	1	4	0	0	0	0	5	1	14	0	0	0	0	15	1	1	0	0	0	0	2	7	135	1	0	1	0	144	166
9:00 AM	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	1	28	0	0	0	0	29	32
9:15 AM	0	1	0	0	0	0	1	0	2	0	0	0	0	2	0	1	0	0	1	0	2	1	15	0	0	0	0	16	21
Total	0	1	0	0	0	0	1	0	5	0	0	0	0	5	0	1	0	0	1	0	2	2	43	0	0	0	0	45	53
Grand Total	1	5	0	0	0	0	6	1	23	0	0	0	0	24	2	2	0	0	1	0	5	15	208	1	0	1	0	225	260
Approach %	16.7	83.3	0.0	0.0	0.0	0.0		4.2	95.8	0.0	0.0	0.0	0.0		40.0	40.0	0.0	0.0	20.0	0.0		6.7	92.4	0.4	0.0	0.4	0.0		
Total %	0.4	1.9	0.0	0.0	0.0	0.0	2.3	0.4	8.8	0.0	0.0	0.0	0.0	9.2	0.8	0.8	0.0	0.0	0.4	0.0	1.9	5.8	80.0	0.4	0.0	0.4	0.0	86.5	
Exiting Leg Total	4							210							21							25							260

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street							Cambridge Street							Third Street							Cambridge Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:00 AM	0	1	0	0	0	0	1	0	3	0	0	0	0	3	1	0	0	0	0	0	0	1	4	22	1	0	0	0	27	32
8:15 AM	1	0	0	0	0	0	1	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	1	43	0	0	0	0	44	48
8:30 AM	0	3	0	0	0	0	3	1	4	0	0	0	0	5	0	0	0	0	0	0	0	0	0	39	0	0	0	0	39	47
8:45 AM	0	0	0	0	0	0	0	0	4	0	0	0	0	4	0	1	0	0	0	0	0	1	2	31	0	0	1	0	34	39
Total Volume	1	4	0	0	0	0	5	1	14	0	0	0	0	15	1	1	0	0	0	0	0	2	7	135	1	0	1	0	144	166
% Approach Total	20.0	80.0	0.0	0.0	0.0	0.0		6.7	93.3	0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0	0.0	0.0		4.9	93.8	0.7	0.0	0.7	0.0			
PHF	0.250	0.333	0.000	0.000	0.000	0.000	0.417	0.250	0.875	0.000	0.000	0.000	0.000	0.750	0.250	0.250	0.000	0.000	0.000	0.000	0.500	0.438	0.785	0.250	0.000	0.250	0.000	0.818		0.865
Entering Leg	1	4	0	0	0	0	5	1	14	0	0	0	0	15	1	1	0	0	0	0	0	2	7	135	1	0	1	0	144	166
Exiting Leg	3							136							11							16							166	
Total	8							151							13							160							332	

PDI File #: **196867 (4) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	34	10	44	0	0	0	0	9	6	15	0	0	0	0	8	10	18	0	0	0	0	8	8	16	93
7:45 AM	0	0	0	0	31	10	41	0	0	0	0	16	4	20	0	0	0	0	7	9	16	0	0	0	0	7	12	19	96
Total	0	0	0	0	65	20	85	0	0	0	0	25	10	35	0	0	0	0	15	19	34	0	0	0	0	15	20	35	189
8:00 AM	0	0	0	0	44	9	53	0	0	0	0	17	10	27	0	0	0	0	12	10	22	0	0	0	0	2	12	14	116
8:15 AM	0	0	0	0	55	9	64	0	0	0	0	14	6	20	0	0	0	0	6	17	23	0	0	0	0	15	11	26	133
8:30 AM	0	0	0	0	49	9	58	0	0	0	0	16	7	23	0	0	0	0	5	17	22	0	0	0	0	8	8	16	119
8:45 AM	0	0	0	0	56	16	72	0	0	0	0	19	13	32	0	0	0	0	5	20	25	0	0	0	0	9	15	24	153
Total	0	0	0	0	204	43	247	0	0	0	0	66	36	102	0	0	0	0	28	64	92	0	0	0	0	34	46	80	521
9:00 AM	0	0	0	0	28	7	35	0	0	0	0	13	3	16	0	0	0	0	6	13	19	0	0	0	0	5	12	17	87
9:15 AM	0	0	0	0	26	8	34	0	0	0	0	14	8	22	0	0	0	0	4	26	30	0	0	0	0	3	11	14	100
Total	0	0	0	0	54	15	69	0	0	0	0	27	11	38	0	0	0	0	10	39	49	0	0	0	0	8	23	31	187
Grand Total	0	0	0	0	323	78	401	0	0	0	0	118	57	175	0	0	0	0	53	122	175	0	0	0	0	57	89	146	897
Approach %	0	0	0	0	80.5	19.5		0	0	0	0	67.4	32.6		0	0	0	0	30.3	69.7		0	0	0	0	39	61		
Total %	0	0	0	0	36	8.7	44.7	0	0	0	0	13.2	6.35	19.5	0	0	0	0	5.91	13.6	19.5	0	0	0	0	6.35	9.92	16.3	
Exiting Leg Total	401							175							175							146							897

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:00 AM	0	0	0	0	44	9	53	0	0	0	0	17	10	27	0	0	0	0	12	10	22	0	0	0	0	2	12	14	116
8:15 AM	0	0	0	0	55	9	64	0	0	0	0	14	6	20	0	0	0	0	6	17	23	0	0	0	0	15	11	26	133
8:30 AM	0	0	0	0	49	9	58	0	0	0	0	16	7	23	0	0	0	0	5	17	22	0	0	0	0	8	8	16	119
8:45 AM	0	0	0	0	56	16	72	0	0	0	0	19	13	32	0	0	0	0	5	20	25	0	0	0	0	9	15	24	153
Total Volume	0	0	0	0	204	43	247	0	0	0	0	66	36	102	0	0	0	0	28	64	92	0	0	0	0	34	46	80	521
% Approach Total	0.0	0.0	0.0	0.0	82.6	17.4		0.0	0.0	0.0	0.0	64.7	35.3		0.0	0.0	0.0	0.0	30.4	69.6		0.0	0.0	0.0	0.0	42.5	57.5		
PHF	0.000	0.000	0.000	0.000	0.911	0.672	0.858	0.000	0.000	0.000	0.000	0.868	0.692	0.797	0.000	0.000	0.000	0.000	0.583	0.800	0.920	0.000	0.000	0.000	0.000	0.567	0.767	0.769	0.851
Entering Leg	0	0	0	0	204	43	247	0	0	0	0	66	36	102	0	0	0	0	28	64	92	0	0	0	0	34	46	80	521
Exiting Leg	247							102							92							80							521
Total	494							204							184							160							1042

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	9	38	9	0	56	48	37	1	0	86	1	75	2	0	78	7	42	32	0	81	301
4:45 PM	12	59	6	0	77	58	45	0	0	103	1	86	4	0	91	7	45	31	0	83	354
Total	21	97	15	0	133	106	82	1	0	189	2	161	6	0	169	14	87	63	0	164	655
5:00 PM	12	55	5	0	72	57	45	4	0	106	0	71	2	0	73	5	57	27	0	89	340
5:15 PM	29	40	0	0	69	50	54	2	0	106	2	88	0	0	90	3	65	27	0	95	360
5:30 PM	19	55	4	0	78	54	36	1	0	91	2	90	1	0	93	2	45	15	0	62	324
5:45 PM	6	76	2	0	84	49	40	2	0	91	1	99	2	0	102	5	54	16	0	75	352
Total	66	226	11	0	303	210	175	9	0	394	5	348	5	0	358	15	221	85	0	321	1376
6:00 PM	18	47	5	0	70	51	40	2	0	93	2	93	1	0	96	8	51	30	0	89	348
6:15 PM	16	40	4	0	60	44	55	4	0	103	5	98	0	0	103	4	55	21	0	80	346
Total	34	87	9	0	130	95	95	6	0	196	7	191	1	0	199	12	106	51	0	169	694
Grand Total	121	410	35	0	566	411	352	16	0	779	14	700	12	0	726	41	414	199	0	654	2725
Approach %	21.4	72.4	6.2	0.0		52.8	45.2	2.1	0.0		1.9	96.4	1.7	0.0		6.3	63.3	30.4	0.0		
Total %	4.4	15.0	1.3	0.0	20.8	15.1	12.9	0.6	0.0	28.6	0.5	25.7	0.4	0.0	26.6	1.5	15.2	7.3	0.0	24.0	
Exiting Leg Total	1310					463					467					485					2725
Cars	113	408	34	0	555	408	335	16	0	759	13	693	12	0	718	41	402	191	0	634	2666
% Cars	93.4	99.5	97.1	0.0	98.1	99.3	95.2	100.0	0.0	97.4	92.9	99.0	100.0	0.0	98.9	100.0	97.1	96.0	0.0	96.9	97.8
Exiting Leg Total	1292					449					465					460					2666
Heavy Vehicles	8	2	1	0	11	3	17	0	0	20	1	7	0	0	8	0	12	8	0	20	59
% Heavy Vehicles	6.6	0.5	2.9	0.0	1.9	0.7	4.8	0.0	0.0	2.6	7.1	1.0	0.0	0.0	1.1	0.0	2.9	4.0	0.0	3.1	2.2
Exiting Leg Total	18					14					2					25					59

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	29	40	0	0	69	50	54	2	0	106	2	88	0	0	90	3	65	27	0	95	360
5:30 PM	19	55	4	0	78	54	36	1	0	91	2	90	1	0	93	2	45	15	0	62	324
5:45 PM	6	76	2	0	84	49	40	2	0	91	1	99	2	0	102	5	54	16	0	75	352
6:00 PM	18	47	5	0	70	51	40	2	0	93	2	93	1	0	96	8	51	30	0	89	348
Total Volume	72	218	11	0	301	204	170	7	0	381	7	370	4	0	381	18	215	88	0	321	1384
% Approach Total	23.9	72.4	3.7	0.0		53.5	44.6	1.8	0.0		1.8	97.1	1.0	0.0		5.6	67.0	27.4	0.0		
PHF	0.621	0.717	0.550	0.000	0.896	0.944	0.787	0.875	0.000	0.899	0.875	0.934	0.500	0.000	0.934	0.563	0.827	0.733	0.000	0.845	0.961
Cars	67	217	11	0	295	202	164	7	0	373	6	366	4	0	376	18	210	86	0	314	1358
Cars %	93.1	99.5	100.0	0.0	98.0	99.0	96.5	100.0	0.0	97.9	85.7	98.9	100.0	0.0	98.7	100.0	97.7	97.7	0.0	97.8	98.1
Heavy Vehicles	5	1	0	0	6	2	6	0	0	8	1	4	0	0	5	0	5	2	0	7	26
Heavy Vehicles %	6.9	0.5	0.0	0.0	2.0	1.0	3.5	0.0	0.0	2.1	14.3	1.1	0.0	0.0	1.3	0.0	2.3	2.3	0.0	2.2	1.9
Cars Enter Leg	67	217	11	0	295	202	164	7	0	373	6	366	4	0	376	18	210	86	0	314	1358
Heavy Enter Leg	5	1	0	0	6	2	6	0	0	8	1	4	0	0	5	0	5	2	0	7	26
Total Entering Leg	72	218	11	0	301	204	170	7	0	381	7	370	4	0	381	18	215	88	0	321	1384
Cars Exiting Leg	654					227					242					235					1358
Heavy Exiting Leg	8					6					1					11					26
Total Exiting Leg	662					233					243					246					1384

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	8	38	9	0	55	47	33	1	0	81	1	74	2	0	77	7	38	31	0	76	289
4:45 PM	12	59	6	0	77	58	43	0	0	101	1	86	4	0	91	7	43	30	0	80	349
Total	20	97	15	0	132	105	76	1	0	182	2	160	6	0	168	14	81	61	0	156	638
5:00 PM	11	54	4	0	69	57	45	4	0	106	0	69	2	0	71	5	57	25	0	87	333
5:15 PM	28	40	0	0	68	48	51	2	0	101	1	88	0	0	89	3	64	27	0	94	352
5:30 PM	17	55	4	0	76	54	35	1	0	90	2	88	1	0	91	2	44	14	0	60	317
5:45 PM	6	75	2	0	83	49	38	2	0	89	1	97	2	0	100	5	53	15	0	73	345
Total	62	224	10	0	296	208	169	9	0	386	4	342	5	0	351	15	218	81	0	314	1347
6:00 PM	16	47	5	0	68	51	40	2	0	93	2	93	1	0	96	8	49	30	0	87	344
6:15 PM	15	40	4	0	59	44	50	4	0	98	5	98	0	0	103	4	54	19	0	77	337
Total	31	87	9	0	127	95	90	6	0	191	7	191	1	0	199	12	103	49	0	164	681
Grand Total	113	408	34	0	555	408	335	16	0	759	13	693	12	0	718	41	402	191	0	634	2666
Approach %	20.4	73.5	6.1	0.0		53.8	44.1	2.1	0.0		1.8	96.5	1.7	0.0		6.5	63.4	30.1	0.0		
Total %	4.2	15.3	1.3	0.0	20.8	15.3	12.6	0.6	0.0	28.5	0.5	26.0	0.5	0.0	26.9	1.5	15.1	7.2	0.0	23.8	
Exiting Leg Total	1292					449					465					460					2666

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	28	40	0	0	68	48	51	2	0	101	1	88	0	0	89	3	64	27	0	94	352
5:30 PM	17	55	4	0	76	54	35	1	0	90	2	88	1	0	91	2	44	14	0	60	317
5:45 PM	6	75	2	0	83	49	38	2	0	89	1	97	2	0	100	5	53	15	0	73	345
6:00 PM	16	47	5	0	68	51	40	2	0	93	2	93	1	0	96	8	49	30	0	87	344
Total Volume	67	217	11	0	295	202	164	7	0	373	6	366	4	0	376	18	210	86	0	314	1358
% Approach Total	22.7	73.6	3.7	0.0		54.2	44.0	1.9	0.0		1.6	97.3	1.1	0.0		5.7	66.9	27.4	0.0		
PHF	0.598	0.723	0.550	0.000	0.889	0.935	0.804	0.875	0.000	0.923	0.750	0.943	0.500	0.000	0.940	0.563	0.820	0.717	0.000	0.835	0.964
Entering Leg	67	217	11	0	295	202	164	7	0	373	6	366	4	0	376	18	210	86	0	314	1358
Exiting Leg	654					227					242					235					1358
Total	949					600					618					549					2716

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	1	4	0	0	5	0	1	0	0	1	0	4	1	0	5	12
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	5
Total	1	0	0	0	1	1	6	0	0	7	0	1	0	0	1	0	6	2	0	8	17
5:00 PM	1	1	1	0	3	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	7
5:15 PM	1	0	0	0	1	2	3	0	0	5	1	0	0	0	1	0	1	0	0	1	8
5:30 PM	2	0	0	0	2	0	1	0	0	1	0	2	0	0	2	0	1	1	0	2	7
5:45 PM	0	1	0	0	1	0	2	0	0	2	0	2	0	0	2	0	1	1	0	2	7
Total	4	2	1	0	7	2	6	0	0	8	1	6	0	0	7	0	3	4	0	7	29
6:00 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4
6:15 PM	1	0	0	0	1	0	5	0	0	5	0	0	0	0	0	0	1	2	0	3	9
Total	3	0	0	0	3	0	5	0	0	5	0	0	0	0	0	0	3	2	0	5	13
Grand Total	8	2	1	0	11	3	17	0	0	20	1	7	0	0	8	0	12	8	0	20	59
Approach %	72.7	18.2	9.1	0.0		15.0	85.0	0.0	0.0		12.5	87.5	0.0	0.0		0.0	60.0	40.0	0.0		
Total %	13.6	3.4	1.7	0.0	18.6	5.1	28.8	0.0	0.0	33.9	1.7	11.9	0.0	0.0	13.6	0.0	20.3	13.6	0.0	33.9	
Exiting Leg Total	18					14					2					25					59
Buses	5	2	0	0	7	1	3	0	0	4	0	3	0	0	3	0	2	8	0	10	24
% Buses	62.5	100.0	0.0	0.0	63.6	33.3	17.6	0.0	0.0	20.0	0.0	42.9	0.0	0.0	37.5	0.0	16.7	100.0	0.0	50.0	40.7
Exiting Leg Total	12					2					2					8					24
Single-Unit Trucks	3	0	1	0	4	2	13	0	0	15	1	4	0	0	5	0	10	0	0	10	34
% Single-Unit	37.5	0.0	100.0	0.0	36.4	66.7	76.5	0.0	0.0	75.0	100.0	57.1	0.0	0.0	62.5	0.0	83.3	0.0	0.0	50.0	57.6
Exiting Leg Total	6					12					0					16					34
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7
Exiting Leg Total	0					0					0					1					1

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	1	4	0	0	5	0	1	0	0	1	0	4	1	0	5	12
4:45 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	1	0	3	5
5:00 PM	1	1	1	0	3	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	7
5:15 PM	1	0	0	0	1	2	3	0	0	5	1	0	0	0	1	0	1	0	0	1	8
Total Volume	3	1	1	0	5	3	9	0	0	12	1	3	0	0	4	0	7	4	0	11	32
% Approach Total	60.0	20.0	20.0	0.0		25.0	75.0	0.0	0.0		25.0	75.0	0.0	0.0		0.0	63.6	36.4	0.0		
PHF	0.750	0.250	0.250	0.000	0.417	0.375	0.563	0.000	0.000	0.600	0.250	0.375	0.000	0.000	0.500	0.000	0.438	0.500	0.000	0.550	0.667
Buses	2	1	0	0	3	1	2	0	0	3	0	3	0	0	3	0	1	4	0	5	14
Buses %	66.7	100.0	0.0	0.0	60.0	33.3	22.2	0.0	0.0	25.0	0.0	100.0	0.0	0.0	75.0	0.0	14.3	100.0	0.0	45.5	43.8
Single-Unit Trucks	1	0	1	0	2	2	6	0	0	8	1	0	0	0	1	0	6	0	0	6	17
Single-Unit %	33.3	0.0	100.0	0.0	40.0	66.7	66.7	0.0	0.0	66.7	100.0	0.0	0.0	0.0	25.0	0.0	85.7	0.0	0.0	54.5	53.1
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
Buses	2	1	0	0	3	1	2	0	0	3	0	3	0	0	3	0	1	4	0	5	14
Single-Unit Trucks	1	0	1	0	2	2	6	0	0	8	1	0	0	0	1	0	6	0	0	6	17
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Entering Leg	3	1	1	0	5	3	9	0	0	12	1	3	0	0	4	0	7	4	0	11	32
Buses	8					1					1					4					14
Single-Unit Trucks	2					8					0					7					17
Articulated Trucks	0					0					0					1					1
Total Exiting Leg	10					9					1					12					32

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	0	0	1	0	1	5
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
Total	1	0	0	0	1	1	2	0	0	3	0	1	0	0	1	0	1	2	0	3	8
5:00 PM	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
5:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	4	0	4	10
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
6:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	2	0	2	4
Total	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	6
Grand Total	5	2	0	0	7	1	3	0	0	4	0	3	0	0	3	0	2	8	0	10	24
Approach %	71.4	28.6	0.0	0.0		25.0	75.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	20.0	80.0	0.0		
Total %	20.8	8.3	0.0	0.0	29.2	4.2	12.5	0.0	0.0	16.7	0.0	12.5	0.0	0.0	12.5	0.0	8.3	33.3	0.0	41.7	
Exiting Leg Total	12					2					2					8					24

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	1	1	0	0	2	0	1	0	0	1	0	0	1	0	1	5
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	3
5:00 PM	1	1	0	0	2	0	0	0	0	0	0	2	0	0	2	0	0	2	0	2	6
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	1	0	0	3	1	2	0	0	3	0	3	0	0	3	0	1	4	0	5	14
% Approach Total	66.7	33.3	0.0	0.0		33.3	66.7	0.0	0.0		0.0	100.0	0.0	0.0		0.0	20.0	80.0	0.0		
PHF	0.500	0.250	0.000	0.000	0.375	0.250	0.500	0.000	0.000	0.375	0.000	0.375	0.000	0.000	0.375	0.000	0.250	0.500	0.000	0.625	0.583
Entering Leg	2	1	0	0	3	1	2	0	0	3	0	3	0	0	3	0	1	4	0	5	14
Exiting Leg	8					1					1					4					14
Total	11					4					4					9					28

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Single-Unit Trucks

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	7
4:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	5	0	0	5	9
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	1	0	0	0	1	2	2	0	0	4	1	0	0	0	1	0	1	0	0	1	7
5:30 PM	1	0	0	0	1	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	5
5:45 PM	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	0	1	0	0	1	5
Total	2	0	1	0	3	2	5	0	0	7	1	4	0	0	5	0	3	0	0	3	18
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
6:15 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	1	0	0	1	5
Total	1	0	0	0	1	0	4	0	0	4	0	0	0	0	0	0	2	0	0	2	7
Grand Total	3	0	1	0	4	2	13	0	0	15	1	4	0	0	5	0	10	0	0	10	34
Approach %	75.0	0.0	25.0	0.0		13.3	86.7	0.0	0.0		20.0	80.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	8.8	0.0	2.9	0.0	11.8	5.9	38.2	0.0	0.0	44.1	2.9	11.8	0.0	0.0	14.7	0.0	29.4	0.0	0.0	29.4	
Exiting Leg Total	6					12					0					16					34

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	1	0	0	0	1	2	2	0	0	4	1	0	0	0	1	0	1	0	0	1	7
5:30 PM	1	0	0	0	1	0	1	0	0	1	0	2	0	0	2	0	1	0	0	1	5
5:45 PM	0	0	0	0	0	0	2	0	0	2	0	2	0	0	2	0	1	0	0	1	5
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Volume	3	0	0	0	3	2	5	0	0	7	1	4	0	0	5	0	4	0	0	4	19
% Approach Total	100.0	0.0	0.0	0.0		28.6	71.4	0.0	0.0		20.0	80.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.750	0.000	0.000	0.000	0.750	0.250	0.625	0.000	0.000	0.438	0.250	0.500	0.000	0.000	0.625	0.000	1.000	0.000	0.000	1.000	0.679
Entering Leg	3	0	0	0	3	2	5	0	0	7	1	4	0	0	5	0	4	0	0	4	19
Exiting Leg	6					5					0					8					19
Total	9					12					5					12					

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Third Street					Cambridge Street					Third Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	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	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0					0					0					1					1

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Cambridge Street					Third Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Exiting Leg	0					0					0					1					1
Total	0					1					0					1					2

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	0	1	1	1	13	0	0	0	0	14	0	0	0	0	1	0	1	0	3	0	0	1	0	4	20
4:45 PM	1	0	0	0	0	0	1	1	10	1	0	0	0	12	0	0	0	0	0	0	0	1	3	0	0	1	0	5	18
Total	1	0	0	0	0	1	2	2	23	1	0	0	0	26	0	0	0	0	1	0	1	1	6	0	0	2	0	9	38
5:00 PM	0	1	1	0	1	0	3	1	15	0	0	0	0	16	0	0	1	0	0	0	1	0	3	1	0	1	0	5	25
5:15 PM	1	1	0	0	0	1	3	4	31	0	0	0	0	35	0	1	0	0	0	0	1	0	4	0	0	0	0	4	43
5:30 PM	0	0	0	0	0	1	1	0	26	1	0	0	0	27	0	2	0	0	0	0	2	0	4	0	0	1	0	5	35
5:45 PM	0	1	0	0	0	1	2	1	46	0	0	0	0	47	0	1	1	0	1	0	3	0	6	0	0	0	0	6	58
Total	1	3	1	0	1	3	9	6	118	1	0	0	0	125	0	4	2	0	1	0	7	0	17	1	0	2	0	20	161
6:00 PM	1	0	0	0	0	0	1	2	19	0	0	0	0	21	0	0	0	0	0	0	0	0	5	0	0	0	0	5	27
6:15 PM	0	0	0	0	0	0	0	0	18	0	0	0	0	18	0	0	1	0	0	0	1	0	6	0	0	0	0	6	25
Total	1	0	0	0	0	0	1	2	37	0	0	0	0	39	0	0	1	0	0	0	1	0	11	0	0	0	0	11	52
Grand Total	3	3	1	0	1	4	12	10	178	2	0	0	0	190	0	4	3	0	2	0	9	1	34	1	0	4	0	40	251
Approach %	25.0	25.0	8.3	0.0	8.3	33.3		5.3	93.7	1.1	0.0	0.0	0.0		0.0	44.4	33.3	0.0	22.2	0.0		2.5	85.0	2.5	0.0	10.0	0.0		
Total %	1.2	1.2	0.4	0.0	0.4	1.6	4.8	4.0	70.9	0.8	0.0	0.0	0.0	75.7	0.0	1.6	1.2	0.0	0.8	0.0	3.6	0.4	13.5	0.4	0.0	1.6	0.0	15.9	
Exiting Leg Total	20							35							8							188							251

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:15 PM	1	1	0	0	0	1	3	4	31	0	0	0	0	35	0	1	0	0	0	0	1	0	4	0	0	0	0	4	43
5:30 PM	0	0	0	0	0	1	1	0	26	1	0	0	0	27	0	2	0	0	0	0	2	0	4	0	0	1	0	5	35
5:45 PM	0	1	0	0	0	1	2	1	46	0	0	0	0	47	0	1	1	0	1	0	3	0	6	0	0	0	0	6	58
6:00 PM	1	0	0	0	0	0	1	2	19	0	0	0	0	21	0	0	0	0	0	0	0	0	5	0	0	0	0	5	27
Total Volume	2	2	0	0	0	3	7	7	122	1	0	0	0	130	0	4	1	0	1	0	6	0	19	0	0	1	0	20	163
% Approach Total	28.6	28.6	0.0	0.0	0.0	42.9		5.4	93.8	0.8	0.0	0.0	0.0		0.0	66.7	16.7	0.0	16.7	0.0		0.0	95.0	0.0	0.0	5.0	0.0		
PHF	0.500	0.500	0.000	0.000	0.000	0.750	0.583	0.438	0.663	0.250	0.000	0.000	0.000	0.691	0.000	0.500	0.250	0.000	0.250	0.000	0.500	0.000	0.792	0.000	0.000	0.250	0.000	0.833	0.703
Entering Leg	2	2	0	0	0	3	7	7	122	1	0	0	0	130	0	4	1	0	1	0	6	0	19	0	0	1	0	20	163
Exiting Leg	14							19							4							126							163
Total	21							149							10							146							326

PDI File #: **196867 (4) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Third Street							Cambridge Street							Third Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	15	35	50	0	0	0	0	2	4	6	0	0	0	0	11	9	20	0	0	0	0	4	7	11	87
4:45 PM	0	0	0	0	22	14	36	0	0	0	0	8	15	23	0	0	0	0	10	6	16	0	0	0	0	6	8	14	89
Total	0	0	0	0	37	49	86	0	0	0	0	10	19	29	0	0	0	0	21	15	36	0	0	0	0	10	15	25	176
5:00 PM	0	0	0	0	12	15	27	0	0	0	0	8	5	13	0	0	0	0	12	9	21	0	0	0	0	2	1	3	64
5:15 PM	0	0	0	0	15	13	28	0	0	0	0	10	11	21	0	0	0	0	16	6	22	0	0	0	0	8	6	14	85
5:30 PM	0	0	0	0	15	23	38	0	0	0	0	6	11	17	0	0	0	0	13	8	21	0	0	0	0	9	8	17	93
5:45 PM	0	0	0	0	32	22	54	0	0	0	0	5	10	15	0	0	0	0	22	14	36	0	0	0	0	5	5	10	115
Total	0	0	0	0	74	73	147	0	0	0	0	29	37	66	0	0	0	0	63	37	100	0	0	0	0	24	20	44	357
6:00 PM	0	0	0	0	21	30	51	0	0	0	0	6	8	14	0	0	0	0	14	11	25	0	0	0	0	6	11	17	107
6:15 PM	0	0	0	0	21	30	51	0	0	0	0	10	12	22	0	0	0	0	20	9	29	0	0	0	0	7	11	18	120
Total	0	0	0	0	42	60	102	0	0	0	0	16	20	36	0	0	0	0	34	20	54	0	0	0	0	13	22	35	227
Grand Total	0	0	0	0	153	182	335	0	0	0	0	55	76	131	0	0	0	0	118	72	190	0	0	0	0	47	57	104	760
Approach %	0	0	0	0	45.7	54.3		0	0	0	0	42	58		0	0	0	0	62.1	37.9		0	0	0	0	45.2	54.8		
Total %	0	0	0	0	20.1	23.9	44.1	0	0	0	0	7.24	10	17.2	0	0	0	0	15.5	9.47	25	0	0	0	0	6.18	7.5	13.7	
Exiting Leg Total	335							131							190							104							760

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Third Street							Cambridge Street							Third Street							Cambridge Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:30 PM	0	0	0	0	15	23	38	0	0	0	0	6	11	17	0	0	0	0	13	8	21	0	0	0	0	9	8	17	93
5:45 PM	0	0	0	0	32	22	54	0	0	0	0	5	10	15	0	0	0	0	22	14	36	0	0	0	0	5	5	10	115
6:00 PM	0	0	0	0	21	30	51	0	0	0	0	6	8	14	0	0	0	0	14	11	25	0	0	0	0	6	11	17	107
6:15 PM	0	0	0	0	21	30	51	0	0	0	0	10	12	22	0	0	0	0	20	9	29	0	0	0	0	7	11	18	120
Total Volume	0	0	0	0	89	105	194	0	0	0	0	27	41	68	0	0	0	0	69	42	111	0	0	0	0	27	35	62	435
% Approach Total	0.0	0.0	0.0	0.0	45.9	54.1		0.0	0.0	0.0	0.0	39.7	60.3		0.0	0.0	0.0	0.0	62.2	37.8		0.0	0.0	0.0	0.0	43.5	56.5		
PHF	0.000	0.000	0.000	0.000	0.695	0.875	0.898	0.000	0.000	0.000	0.000	0.675	0.854	0.773	0.000	0.000	0.000	0.000	0.784	0.750	0.771	0.000	0.000	0.000	0.000	0.750	0.795	0.861	0.906
Entering Leg	0	0	0	0	89	105	194	0	0	0	0	27	41	68	0	0	0	0	69	42	111	0	0	0	0	27	35	62	435
Exiting Leg	194							68							111							62							435
Total	388							136							222							124							870

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	84	50	0	134	30	0	5	0	35	6	62	0	0	68	237
7:45 AM	0	0	0	0	0	0	84	57	0	141	30	0	4	0	34	8	58	0	0	66	241
Total	0	0	0	0	0	0	168	107	0	275	60	0	9	0	69	14	120	0	0	134	478
8:00 AM	1	1	0	0	2	0	80	65	0	145	21	0	6	0	27	8	74	0	0	82	256
8:15 AM	1	0	0	0	1	0	69	70	0	139	44	0	8	0	52	6	64	0	0	70	262
8:30 AM	0	0	0	0	0	0	66	59	0	125	38	0	6	0	44	6	61	0	0	67	236
8:45 AM	0	0	0	0	0	0	79	64	0	143	46	0	7	0	53	10	49	0	0	59	255
Total	2	1	0	0	3	0	294	258	0	552	149	0	27	0	176	30	248	0	0	278	1009
9:00 AM	0	0	2	0	2	0	64	62	0	126	27	0	10	0	37	7	57	0	0	64	229
9:15 AM	0	0	0	0	0	0	72	65	1	138	41	0	5	0	46	10	60	0	0	70	254
Total	0	0	2	0	2	0	136	127	1	264	68	0	15	0	83	17	117	0	0	134	483
Grand Total	2	1	2	0	5	0	598	492	1	1091	277	0	51	0	328	61	485	0	0	546	1970
Approach %	40.0	20.0	40.0	0.0		0.0	54.8	45.1	0.1		84.5	0.0	15.5	0.0		11.2	88.8	0.0	0.0		
Total %	0.1	0.1	0.1	0.0	0.3	0.0	30.4	25.0	0.1	55.4	14.1	0.0	2.6	0.0	16.6	3.1	24.6	0.0	0.0	27.7	
Exiting Leg Total	0					765					554					651					1970
Cars	2	1	2	0	5	0	554	441	1	996	240	0	48	0	288	55	447	0	0	502	1791
% Cars	100.0	100.0	100.0	0.0	100.0	0.0	92.6	89.6	100.0	91.3	86.6	0.0	94.1	0.0	87.8	90.2	92.2	0.0	0.0	91.9	90.9
Exiting Leg Total	0					690					497					604					1791
Heavy Vehicles	0	0	0	0	0	0	44	51	0	95	37	0	3	0	40	6	38	0	0	44	179
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	7.4	10.4	0.0	8.7	13.4	0.0	5.9	0.0	12.2	9.8	7.8	0.0	0.0	8.1	9.1
Exiting Leg Total	0					75					57					47					179

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	1	1	0	0	2	0	80	65	0	145	21	0	6	0	27	8	74	0	0	82	256
8:15 AM	1	0	0	0	1	0	69	70	0	139	44	0	8	0	52	6	64	0	0	70	262
8:30 AM	0	0	0	0	0	0	66	59	0	125	38	0	6	0	44	6	61	0	0	67	236
8:45 AM	0	0	0	0	0	0	79	64	0	143	46	0	7	0	53	10	49	0	0	59	255
Total Volume	2	1	0	0	3	0	294	258	0	552	149	0	27	0	176	30	248	0	0	278	1009
% Approach Total	66.7	33.3	0.0	0.0		0.0	53.3	46.7	0.0		84.7	0.0	15.3	0.0		10.8	89.2	0.0	0.0		
PHF	0.500	0.250	0.000	0.000	0.375	0.000	0.919	0.921	0.000	0.952	0.810	0.000	0.844	0.000	0.830	0.750	0.838	0.000	0.000	0.848	0.963
Cars	2	1	0	0	3	0	270	231	0	501	133	0	25	0	158	28	227	0	0	255	917
Cars %	100.0	100.0	0.0	0.0	100.0	0.0	91.8	89.5	0.0	90.8	89.3	0.0	92.6	0.0	89.8	93.3	91.5	0.0	0.0	91.7	90.9
Heavy Vehicles	0	0	0	0	0	0	24	27	0	51	16	0	2	0	18	2	21	0	0	23	92
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	8.2	10.5	0.0	9.2	10.7	0.0	7.4	0.0	10.2	6.7	8.5	0.0	0.0	8.3	9.1
Cars Enter Leg	2	1	0	0	3	0	270	231	0	501	133	0	25	0	158	28	227	0	0	255	917
Heavy Enter Leg	0	0	0	0	0	0	24	27	0	51	16	0	2	0	18	2	21	0	0	23	92
Total Entering Leg	2	1	0	0	3	0	294	258	0	552	149	0	27	0	176	30	248	0	0	278	1009
Cars Exiting Leg																					
Heavy Exiting Leg																					
Total Exiting Leg																					

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	79	43	0	122	24	0	4	0	28	4	58	0	0	62	212
7:45 AM	0	0	0	0	0	0	78	52	0	130	23	0	4	0	27	8	55	0	0	63	220
Total	0	0	0	0	0	0	157	95	0	252	47	0	8	0	55	12	113	0	0	125	432
8:00 AM	1	1	0	0	2	0	72	61	0	133	17	0	6	0	23	8	68	0	0	76	234
8:15 AM	1	0	0	0	1	0	62	65	0	127	39	0	8	0	47	6	61	0	0	67	242
8:30 AM	0	0	0	0	0	0	63	52	0	115	33	0	5	0	38	6	53	0	0	59	212
8:45 AM	0	0	0	0	0	0	73	53	0	126	44	0	6	0	50	8	45	0	0	53	229
Total	2	1	0	0	3	0	270	231	0	501	133	0	25	0	158	28	227	0	0	255	917
9:00 AM	0	0	2	0	2	0	61	57	0	118	26	0	10	0	36	6	51	0	0	57	213
9:15 AM	0	0	0	0	0	0	66	58	1	125	34	0	5	0	39	9	56	0	0	65	229
Total	0	0	2	0	2	0	127	115	1	243	60	0	15	0	75	15	107	0	0	122	442
Grand Total	2	1	2	0	5	0	554	441	1	996	240	0	48	0	288	55	447	0	0	502	1791
Approach %	40.0	20.0	40.0	0.0		0.0	55.6	44.3	0.1		83.3	0.0	16.7	0.0		11.0	89.0	0.0	0.0		
Total %	0.1	0.1	0.1	0.0	0.3	0.0	30.9	24.6	0.1	55.6	13.4	0.0	2.7	0.0	16.1	3.1	25.0	0.0	0.0	28.0	
Exiting Leg Total	0					690					497					604					1791

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	1	1	0	0	2	0	72	61	0	133	17	0	6	0	23	8	68	0	0	76	234
8:15 AM	1	0	0	0	1	0	62	65	0	127	39	0	8	0	47	6	61	0	0	67	242
8:30 AM	0	0	0	0	0	0	63	52	0	115	33	0	5	0	38	6	53	0	0	59	212
8:45 AM	0	0	0	0	0	0	73	53	0	126	44	0	6	0	50	8	45	0	0	53	229
Total Volume	2	1	0	0	3	0	270	231	0	501	133	0	25	0	158	28	227	0	0	255	917
% Approach Total	66.7	33.3	0.0	0.0		0.0	53.9	46.1	0.0		84.2	0.0	15.8	0.0		11.0	89.0	0.0	0.0		
PHF	0.500	0.250	0.000	0.000	0.375	0.000	0.925	0.888	0.000	0.942	0.756	0.000	0.781	0.000	0.790	0.875	0.835	0.000	0.000	0.839	0.947
Entering Leg	2	1	0	0	3	0	270	231	0	501	133	0	25	0	158	28	227	0	0	255	917
Exiting Leg	0					360					260					297					917
Total	3					861					418					552					1834

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	5	7	0	12	6	0	1	0	7	2	4	0	0	6	25
7:45 AM	0	0	0	0	0	0	6	5	0	11	7	0	0	0	7	0	3	0	0	3	21
Total	0	0	0	0	0	0	11	12	0	23	13	0	1	0	14	2	7	0	0	9	46
8:00 AM	0	0	0	0	0	0	8	4	0	12	4	0	0	0	4	0	6	0	0	6	22
8:15 AM	0	0	0	0	0	0	7	5	0	12	5	0	0	0	5	0	3	0	0	3	20
8:30 AM	0	0	0	0	0	0	3	7	0	10	5	0	1	0	6	0	8	0	0	8	24
8:45 AM	0	0	0	0	0	0	6	11	0	17	2	0	1	0	3	2	4	0	0	6	26
Total	0	0	0	0	0	0	24	27	0	51	16	0	2	0	18	2	21	0	0	23	92
9:00 AM	0	0	0	0	0	0	3	5	0	8	1	0	0	0	1	1	6	0	0	7	16
9:15 AM	0	0	0	0	0	0	6	7	0	13	7	0	0	0	7	1	4	0	0	5	25
Total	0	0	0	0	0	0	9	12	0	21	8	0	0	0	8	2	10	0	0	12	41
Grand Total	0	0	0	0	0	0	44	51	0	95	37	0	3	0	40	6	38	0	0	44	179
Approach %	0.0	0.0	0.0	0.0		0.0	46.3	53.7	0.0		92.5	0.0	7.5	0.0		13.6	86.4	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	24.6	28.5	0.0	53.1	20.7	0.0	1.7	0.0	22.3	3.4	21.2	0.0	0.0	24.6	
Exiting Leg Total	0					75					57					47					179
Buses	0	0	0	0	0	0	13	30	0	43	25	0	1	0	26	0	4	0	0	4	73
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	29.5	58.8	0.0	45.3	67.6	0.0	33.3	0.0	65.0	0.0	10.5	0.0	0.0	9.1	40.8
Exiting Leg Total	0					29					30					14					73
Single-Unit Trucks	0	0	0	0	0	0	30	21	0	51	7	0	2	0	9	5	30	0	0	35	95
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	68.2	41.2	0.0	53.7	18.9	0.0	66.7	0.0	22.5	83.3	78.9	0.0	0.0	79.5	53.1
Exiting Leg Total	0					37					26					32					95
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	5	0	0	0	5	1	4	0	0	5	11
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0	1.1	13.5	0.0	0.0	0.0	12.5	16.7	10.5	0.0	0.0	11.4	6.1
Exiting Leg Total	0					9					1					1					11

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Driveway					Cambridge Street					First Street					Cambridge Street					Total				
	from North					from East					from South					from West									
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total					
8:00 AM	0	0	0	0	0	0	8	4	0	12	4	0	0	0	4	0	6	0	0	6	22				
8:15 AM	0	0	0	0	0	0	7	5	0	12	5	0	0	0	5	0	3	0	0	3	20				
8:30 AM	0	0	0	0	0	0	3	7	0	10	5	0	1	0	6	0	8	0	0	8	24				
8:45 AM	0	0	0	0	0	0	6	11	0	17	2	0	1	0	3	2	4	0	0	6	26				
Total Volume	0	0	0	0	0	0	24	27	0	51	16	0	2	0	18	2	21	0	0	23	92				
% Approach Total	0.0	0.0	0.0	0.0		0.0	47.1	52.9	0.0		88.9	0.0	11.1	0.0		8.7	91.3	0.0	0.0						
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.614	0.000	0.750	0.800	0.000	0.500	0.000	0.750	0.250	0.656	0.000	0.000	0.719	0.885				
Buses	0	0	0	0	0	0	9	14	0	23	12	0	0	0	12	0	3	0	0	3	38				
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	37.5	51.9	0.0	45.1	75.0	0.0	0.0	0.0	66.7	0.0	14.3	0.0	0.0	13.0	41.3				
Single-Unit Trucks	0	0	0	0	0	0	14	13	0	27	2	0	2	0	4	2	16	0	0	18	49				
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	58.3	48.1	0.0	52.9	12.5	0.0	100.0	0.0	22.2	100.0	76.2	0.0	0.0	78.3	53.3				
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2	5				
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	2.0	12.5	0.0	0.0	0.0	11.1	0.0	9.5	0.0	0.0	8.7	5.4				
Buses	0	0	0	0	0	0	9	14	0	23	12	0	0	0	12	0	3	0	0	3	38				
Single-Unit Trucks	0	0	0	0	0	0	14	13	0	27	2	0	2	0	4	2	16	0	0	18	49				
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2	5				
Total Entering Leg	0	0	0	0	0	0	24	27	0	51	16	0	2	0	18	2	21	0	0	23	92				
Buses																									
Single-Unit Trucks																									
Articulated Trucks																									
Total Exiting Leg																									

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	2	3	0	5	5	0	1	0	6	0	0	0	0	0	11
7:45 AM	0	0	0	0	0	0	2	5	0	7	4	0	0	0	4	0	0	0	0	0	11
Total	0	0	0	0	0	0	4	8	0	12	9	0	1	0	10	0	0	0	0	0	22
8:00 AM	0	0	0	0	0	0	4	2	0	6	4	0	0	0	4	0	2	0	0	2	12
8:15 AM	0	0	0	0	0	0	2	4	0	6	2	0	0	0	2	0	0	0	0	0	8
8:30 AM	0	0	0	0	0	0	1	4	0	5	4	0	0	0	4	0	0	0	0	0	9
8:45 AM	0	0	0	0	0	0	2	4	0	6	2	0	0	0	2	0	1	0	0	1	9
Total	0	0	0	0	0	0	9	14	0	23	12	0	0	0	12	0	3	0	0	3	38
9:00 AM	0	0	0	0	0	0	0	3	0	3	1	0	0	0	1	0	1	0	0	1	5
9:15 AM	0	0	0	0	0	0	0	5	0	5	3	0	0	0	3	0	0	0	0	0	8
Total	0	0	0	0	0	0	0	8	0	8	4	0	0	0	4	0	1	0	0	1	13
Grand Total	0	0	0	0	0	0	13	30	0	43	25	0	1	0	26	0	4	0	0	4	73
Approach %	0.0	0.0	0.0	0.0		0.0	30.2	69.8	0.0		96.2	0.0	3.8	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	17.8	41.1	0.0	58.9	34.2	0.0	1.4	0.0	35.6	0.0	5.5	0.0	0.0	5.5	
Exiting Leg Total	0					29					30					14					73

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	2	3	0	5	5	0	1	0	6	0	0	0	0	0	11
7:45 AM	0	0	0	0	0	0	2	5	0	7	4	0	0	0	4	0	0	0	0	0	11
8:00 AM	0	0	0	0	0	0	4	2	0	6	4	0	0	0	4	0	2	0	0	2	12
8:15 AM	0	0	0	0	0	0	2	4	0	6	2	0	0	0	2	0	0	0	0	0	8
Total Volume	0	0	0	0	0	0	10	14	0	24	15	0	1	0	16	0	2	0	0	2	42
% Approach Total	0.0	0.0	0.0	0.0		0.0	41.7	58.3	0.0		93.8	0.0	6.3	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.700	0.000	0.857	0.750	0.000	0.250	0.000	0.667	0.000	0.250	0.000	0.000	0.250	0.875
Entering Leg	0	0	0	0	0	0	10	14	0	24	15	0	1	0	16	0	2	0	0	2	42
Exiting Leg	0					17					14					11					42
Total	0					41					30					13					84

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	3	4	0	7	0	0	0	0	0	1	3	0	0	4	11
7:45 AM	0	0	0	0	0	0	4	0	0	4	2	0	0	0	2	0	3	0	0	3	9
Total	0	0	0	0	0	0	7	4	0	11	2	0	0	0	2	1	6	0	0	7	20
8:00 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	0	4	0	0	4	9
8:15 AM	0	0	0	0	0	0	5	1	0	6	2	0	0	0	2	0	3	0	0	3	11
8:30 AM	0	0	0	0	0	0	2	3	0	5	0	0	1	0	1	0	7	0	0	7	13
8:45 AM	0	0	0	0	0	0	4	7	0	11	0	0	1	0	1	2	2	0	0	4	16
Total	0	0	0	0	0	0	14	13	0	27	2	0	2	0	4	2	16	0	0	18	49
9:00 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	1	4	0	0	5	10
9:15 AM	0	0	0	0	0	0	6	2	0	8	3	0	0	0	3	1	4	0	0	5	16
Total	0	0	0	0	0	0	9	4	0	13	3	0	0	0	3	2	8	0	0	10	26
Grand Total	0	0	0	0	0	0	30	21	0	51	7	0	2	0	9	5	30	0	0	35	95
Approach %	0.0	0.0	0.0	0.0		0.0	58.8	41.2	0.0		77.8	0.0	22.2	0.0		14.3	85.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	31.6	22.1	0.0	53.7	7.4	0.0	2.1	0.0	9.5	5.3	31.6	0.0	0.0	36.8	
Exiting Leg Total	0					37					26					32					95

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	0	0	0	0	0	0	2	3	0	5	0	0	1	0	1	0	7	0	0	7	13
8:45 AM	0	0	0	0	0	0	4	7	0	11	0	0	1	0	1	2	2	0	0	4	16
9:00 AM	0	0	0	0	0	0	3	2	0	5	0	0	0	0	0	1	4	0	0	5	10
9:15 AM	0	0	0	0	0	0	6	2	0	8	3	0	0	0	3	1	4	0	0	5	16
Total Volume	0	0	0	0	0	0	15	14	0	29	3	0	2	0	5	4	17	0	0	21	55
% Approach Total	0.0	0.0	0.0	0.0		0.0	51.7	48.3	0.0		60.0	0.0	40.0	0.0		19.0	81.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.500	0.000	0.659	0.250	0.000	0.500	0.000	0.417	0.500	0.607	0.000	0.000	0.750	0.859
Entering Leg	0	0	0	0	0	0	15	14	0	29	3	0	2	0	5	4	17	0	0	21	55
Exiting Leg	0					20					18					17					55
Total	0					49					23					38					110

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	1	1	0	0	2	4
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	2	0	0	2	5
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
Grand Total	0	0	0	0	0	0	1	0	0	1	5	0	0	0	5	1	4	0	0	5	11
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		20.0	80.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	0.0	9.1	45.5	0.0	0.0	0.0	45.5	9.1	36.4	0.0	0.0	45.5	
Exiting Leg Total	0					9					1					1					11

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	3
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	1	1	0	0	2	6
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.750	0.000	0.000	0.000	0.750	0.250	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	1	1	0	0	2	6
Exiting Leg					0					4					1					1	6
Total					0					5					4					3	12

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Driveway							Cambridge Street							First Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	1	2	3	0	4	1	0	0	0	5	0	0	0	0	1	0	1	1	5	0	0	0	2	8	17
7:45 AM	0	0	0	0	1	0	1	0	3	1	0	0	0	4	2	1	0	0	0	0	3	4	13	0	0	0	0	17	25
Total	0	0	0	0	2	2	4	0	7	2	0	0	0	9	2	1	0	0	1	0	4	5	18	0	0	0	2	25	42
8:00 AM	0	0	0	0	0	1	1	0	2	1	0	0	0	3	3	0	0	0	0	3	6	9	14	0	0	1	1	25	35
8:15 AM	0	0	0	0	4	1	5	0	5	3	0	0	0	8	3	0	0	0	0	1	4	8	31	1	0	3	0	43	60
8:30 AM	0	0	0	0	1	0	1	0	2	6	0	0	0	8	3	0	0	0	0	0	3	3	30	0	0	4	0	37	49
8:45 AM	0	0	0	0	1	5	6	0	1	1	0	0	0	2	1	0	0	0	0	0	1	4	26	0	0	2	1	33	42
Total	0	0	0	0	6	7	13	0	10	11	0	0	0	21	10	0	0	0	0	4	14	24	101	1	0	10	2	138	186
9:00 AM	0	0	0	0	2	1	3	0	1	3	0	0	0	4	1	0	0	0	0	0	1	4	19	0	0	3	1	27	35
9:15 AM	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	2	0	3	3	10	0	0	0	0	13	17
Total	0	0	0	0	2	1	3	0	1	4	0	0	0	5	2	0	0	0	2	0	4	7	29	0	0	3	1	40	52
Grand Total	0	0	0	0	10	10	20	0	18	17	0	0	0	35	14	1	0	0	3	4	22	36	148	1	0	13	5	203	280
Approach %	0.0	0.0	0.0	0.0	50.0	50.0		0.0	51.4	48.6	0.0	0.0	0.0		63.6	4.5	0.0	0.0	13.6	18.2		17.7	72.9	0.5	0.0	6.4	2.5		
Total %	0.0	0.0	0.0	0.0	3.6	3.6	7.1	0.0	6.4	6.1	0.0	0.0	0.0	12.5	5.0	0.4	0.0	0.0	1.1	1.4	7.9	12.9	52.9	0.4	0.0	4.6	1.8	72.5	
Exiting Leg Total	22							162							60							36							280

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Driveway							Cambridge Street							First Street							Cambridge Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	0	1	1	0	2	1	0	0	0	3	3	0	0	0	0	3	6	9	14	0	0	1	1	25	35
8:15 AM	0	0	0	0	4	1	5	0	5	3	0	0	0	8	3	0	0	0	0	1	4	8	31	1	0	3	0	43	60
8:30 AM	0	0	0	0	1	0	1	0	2	6	0	0	0	8	3	0	0	0	0	0	3	3	30	0	0	4	0	37	49
8:45 AM	0	0	0	0	1	5	6	0	1	1	0	0	0	2	1	0	0	0	0	0	1	4	26	0	0	2	1	33	42
Total Volume	0	0	0	0	6	7	13	0	10	11	0	0	0	21	10	0	0	0	0	4	14	24	101	1	0	10	2	138	186
% Approach Total	0.0	0.0	0.0	0.0	46.2	53.8		0.0	47.6	52.4	0.0	0.0	0.0		71.4	0.0	0.0	0.0	0.0	28.6		17.4	73.2	0.7	0.0	7.2	1.4		
PHF	0.000	0.000	0.000	0.000	0.375	0.350	0.542	0.000	0.500	0.458	0.000	0.000	0.000	0.656	0.833	0.000	0.000	0.000	0.000	0.333	0.583	0.667	0.815	0.250	0.000	0.625	0.500	0.802	0.775
Entering Leg	0	0	0	0	6	7	13	0	10	11	0	0	0	21	10	0	0	0	0	4	14	24	101	1	0	10	2	138	186
Exiting Leg	14							111							39							22							186
Total	27							132							53							160							372

PDI File #: **196867 (5) am**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Driveway							Cambridge Street							First Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	4	26	30	0	0	0	0	52	6	58	0	0	0	0	4	6	10	0	0	0	0	7	20	27	125
7:45 AM	0	0	0	0	10	12	22	0	0	0	0	34	6	40	0	0	0	0	7	0	7	0	0	0	0	7	8	15	84
Total	0	0	0	0	14	38	52	0	0	0	0	86	12	98	0	0	0	0	11	6	17	0	0	0	0	14	28	42	209
8:00 AM	0	0	0	0	8	55	63	0	0	0	0	92	5	97	0	0	0	0	4	4	8	0	0	0	0	8	52	60	228
8:15 AM	0	0	0	0	9	40	49	0	0	0	0	88	6	94	0	0	0	0	5	3	8	0	0	0	0	6	37	43	194
8:30 AM	0	0	0	0	11	42	53	0	0	0	0	110	7	117	0	0	0	0	6	4	10	0	0	0	0	8	39	47	227
8:45 AM	0	0	0	0	16	55	71	0	0	0	0	153	11	164	0	0	0	0	9	3	12	0	0	0	0	3	50	53	300
Total	0	0	0	0	44	192	236	0	0	0	0	443	29	472	0	0	0	0	24	14	38	0	0	0	0	25	178	203	949
9:00 AM	0	0	0	0	5	25	30	0	0	0	0	75	4	79	0	0	0	0	3	3	6	0	0	0	0	9	20	29	144
9:15 AM	0	0	0	0	3	55	58	0	0	0	0	186	5	191	0	0	0	0	11	3	14	0	0	0	0	6	44	50	313
Total	0	0	0	0	8	80	88	0	0	0	0	261	9	270	0	0	0	0	14	6	20	0	0	0	0	15	64	79	457
Grand Total	0	0	0	0	66	310	376	0	0	0	0	790	50	840	0	0	0	0	49	26	75	0	0	0	0	54	270	324	1615
Approach %	0	0	0	0	17.6	82.4		0	0	0	0	94	5.95		0	0	0	0	65.3	34.7		0	0	0	0	16.7	83.3		
Total %	0	0	0	0	4.09	19.2	23.3	0	0	0	0	48.9	3.1	52	0	0	0	0	3.03	1.61	4.64	0	0	0	0	3.34	16.7	20.1	
Exiting Leg Total	376							840							75							324							1615

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Driveway							Cambridge Street							First Street							Cambridge Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:30 AM	0	0	0	0	11	42	53	0	0	0	0	110	7	117	0	0	0	0	6	4	10	0	0	0	0	8	39	47	227
8:45 AM	0	0	0	0	16	55	71	0	0	0	0	153	11	164	0	0	0	0	9	3	12	0	0	0	0	3	50	53	300
9:00 AM	0	0	0	0	5	25	30	0	0	0	0	75	4	79	0	0	0	0	3	3	6	0	0	0	0	9	20	29	144
9:15 AM	0	0	0	0	3	55	58	0	0	0	0	186	5	191	0	0	0	0	11	3	14	0	0	0	0	6	44	50	313
Total Volume	0	0	0	0	35	177	212	0	0	0	0	524	27	551	0	0	0	0	29	13	42	0	0	0	0	26	153	179	984
% Approach Total	0.0	0.0	0.0	0.0	16.5	83.5		0.0	0.0	0.0	0.0	95.1	4.9		0.0	0.0	0.0	0.0	69.0	31.0		0.0	0.0	0.0	0.0	14.5	85.5		
PHF	0.000	0.000	0.000	0.000	0.547	0.805	0.746	0.000	0.000	0.000	0.000	0.704	0.614	0.721	0.000	0.000	0.000	0.000	0.659	0.813	0.750	0.000	0.000	0.000	0.000	0.722	0.765	0.844	0.786
Entering Leg	0	0	0	0	35	177	212	0	0	0	0	524	27	551	0	0	0	0	29	13	42	0	0	0	0	26	153	179	984
Exiting Leg	212							551							42							179							984
Total	424							1102							84							358							1968

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	0	38	23	1	62	155	0	15	0	170	10	48	0	0	58	291
4:45 PM	1	0	0	0	1	0	37	20	1	58	155	0	21	0	176	4	57	0	0	61	296
Total	1	0	1	0	2	0	75	43	2	120	310	0	36	0	346	14	105	0	0	119	587
5:00 PM	0	0	0	0	0	0	36	25	0	61	157	0	21	0	178	5	62	0	0	67	306
5:15 PM	0	1	1	0	2	0	40	36	0	76	160	0	8	0	168	4	72	0	0	76	322
5:30 PM	1	0	1	0	2	0	37	32	0	69	105	0	8	0	113	2	53	0	0	55	239
5:45 PM	1	0	1	0	2	0	44	18	0	62	138	0	14	0	152	3	75	0	0	78	294
Total	2	1	3	0	6	0	157	111	0	268	560	0	51	0	611	14	262	0	0	276	1161
6:00 PM	0	0	1	0	1	0	36	19	0	55	155	0	11	0	166	6	61	0	0	67	289
6:15 PM	1	1	0	0	2	2	48	23	0	73	147	0	23	0	170	5	51	0	0	56	301
Total	1	1	1	0	3	2	84	42	0	128	302	0	34	0	336	11	112	0	0	123	590
Grand Total	4	2	5	0	11	2	316	196	2	516	1172	0	121	0	1293	39	479	0	0	518	2338
Approach %	36.4	18.2	45.5	0.0		0.4	61.2	38.0	0.4		90.6	0.0	9.4	0.0		7.5	92.5	0.0	0.0		
Total %	0.2	0.1	0.2	0.0	0.5	0.1	13.5	8.4	0.1	22.1	50.1	0.0	5.2	0.0	55.3	1.7	20.5	0.0	0.0	22.2	
Exiting Leg Total	2					1658					237					441					2338
Cars	4	2	5	0	11	2	304	179	2	487	1134	0	118	0	1252	37	470	0	0	507	2257
% Cars	100.0	100.0	100.0	0.0	100.0	100.0	96.2	91.3	100.0	94.4	96.8	0.0	97.5	0.0	96.8	94.9	98.1	0.0	0.0	97.9	96.5
Exiting Leg Total	2					1611					218					426					2257
Heavy Vehicles	0	0	0	0	0	0	12	17	0	29	38	0	3	0	41	2	9	0	0	11	81
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	3.8	8.7	0.0	5.6	3.2	0.0	2.5	0.0	3.2	5.1	1.9	0.0	0.0	2.1	3.5
Exiting Leg Total	0					47					19					15					81

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	0	38	23	1	62	155	0	15	0	170	10	48	0	0	58	291
4:45 PM	1	0	0	0	1	0	37	20	1	58	155	0	21	0	176	4	57	0	0	61	296
5:00 PM	0	0	0	0	0	0	36	25	0	61	157	0	21	0	178	5	62	0	0	67	306
5:15 PM	0	1	1	0	2	0	40	36	0	76	160	0	8	0	168	4	72	0	0	76	322
Total Volume	1	1	2	0	4	0	151	104	2	257	627	0	65	0	692	23	239	0	0	262	1215
% Approach Total	25.0	25.0	50.0	0.0		0.0	58.8	40.5	0.8		90.6	0.0	9.4	0.0		8.8	91.2	0.0	0.0		
PHF	0.250	0.250	0.500	0.000	0.500	0.000	0.944	0.722	0.500	0.845	0.980	0.000	0.774	0.000	0.972	0.575	0.830	0.000	0.000	0.862	0.943
Cars	1	1	2	0	4	0	144	95	2	241	608	0	63	0	671	22	234	0	0	256	1172
Cars %	100.0	100.0	100.0	0.0	100.0	0.0	95.4	91.3	100.0	93.8	97.0	0.0	96.9	0.0	97.0	95.7	97.9	0.0	0.0	97.7	96.5
Heavy Vehicles	0	0	0	0	0	0	7	9	0	16	19	0	2	0	21	1	5	0	0	6	43
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	4.6	8.7	0.0	6.2	3.0	0.0	3.1	0.0	3.0	4.3	2.1	0.0	0.0	2.3	3.5
Cars Enter Leg	1	1	2	0	4	0	144	95	2	241	608	0	63	0	671	22	234	0	0	256	1172
Heavy Enter Leg	0	0	0	0	0	0	7	9	0	16	19	0	2	0	21	1	5	0	0	6	43
Total Entering Leg	1	1	2	0	4	0	151	104	2	257	627	0	65	0	692	23	239	0	0	262	1215
Cars Exiting Leg																					
Heavy Exiting Leg																					
Total Exiting Leg																					

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	0	35	20	1	56	153	0	15	0	168	9	46	0	0	55	280
4:45 PM	1	0	0	0	1	0	37	19	1	57	145	0	19	0	164	4	54	0	0	58	280
Total	1	0	1	0	2	0	72	39	2	113	298	0	34	0	332	13	100	0	0	113	560
5:00 PM	0	0	0	0	0	0	34	22	0	56	153	0	21	0	174	5	62	0	0	67	297
5:15 PM	0	1	1	0	2	0	38	34	0	72	157	0	8	0	165	4	72	0	0	76	315
5:30 PM	1	0	1	0	2	0	37	31	0	68	101	0	8	0	109	2	52	0	0	54	233
5:45 PM	1	0	1	0	2	0	43	16	0	59	131	0	14	0	145	2	75	0	0	77	283
Total	2	1	3	0	6	0	152	103	0	255	542	0	51	0	593	13	261	0	0	274	1128
6:00 PM	0	0	1	0	1	0	36	18	0	54	153	0	11	0	164	6	59	0	0	65	284
6:15 PM	1	1	0	0	2	2	44	19	0	65	141	0	22	0	163	5	50	0	0	55	285
Total	1	1	1	0	3	2	80	37	0	119	294	0	33	0	327	11	109	0	0	120	569
Grand Total	4	2	5	0	11	2	304	179	2	487	1134	0	118	0	1252	37	470	0	0	507	2257
Approach %	36.4	18.2	45.5	0.0		0.4	62.4	36.8	0.4		90.6	0.0	9.4	0.0		7.3	92.7	0.0	0.0		
Total %	0.2	0.1	0.2	0.0	0.5	0.1	13.5	7.9	0.1	21.6	50.2	0.0	5.2	0.0	55.5	1.6	20.8	0.0	0.0	22.5	
Exiting Leg Total	2					1611					218					426					2257

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	0	35	20	1	56	153	0	15	0	168	9	46	0	0	55	280
4:45 PM	1	0	0	0	1	0	37	19	1	57	145	0	19	0	164	4	54	0	0	58	280
5:00 PM	0	0	0	0	0	0	34	22	0	56	153	0	21	0	174	5	62	0	0	67	297
5:15 PM	0	1	1	0	2	0	38	34	0	72	157	0	8	0	165	4	72	0	0	76	315
Total Volume	1	1	2	0	4	0	144	95	2	241	608	0	63	0	671	22	234	0	0	256	1172
% Approach Total	25.0	25.0	50.0	0.0		0.0	59.8	39.4	0.8		90.6	0.0	9.4	0.0		8.6	91.4	0.0	0.0		
PHF	0.250	0.250	0.500	0.000	0.500	0.000	0.947	0.699	0.500	0.837	0.968	0.000	0.750	0.000	0.964	0.611	0.813	0.000	0.000	0.842	0.930
Entering Leg	1	1	2	0	4	0	144	95	2	241	608	0	63	0	671	22	234	0	0	256	1172
Exiting Leg	0					846					118					208					1172
Total	4					1087					789					464					2344

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	3	3	0	6	2	0	0	0	2	1	2	0	0	3	11
4:45 PM	0	0	0	0	0	0	0	1	0	1	10	0	2	0	12	0	3	0	0	3	16
Total	0	0	0	0	0	0	3	4	0	7	12	0	2	0	14	1	5	0	0	6	27
5:00 PM	0	0	0	0	0	0	2	3	0	5	4	0	0	0	4	0	0	0	0	0	9
5:15 PM	0	0	0	0	0	0	2	2	0	4	3	0	0	0	3	0	0	0	0	0	7
5:30 PM	0	0	0	0	0	0	0	1	0	1	4	0	0	0	4	0	1	0	0	1	6
5:45 PM	0	0	0	0	0	0	1	2	0	3	7	0	0	0	7	1	0	0	0	1	11
Total	0	0	0	0	0	0	5	8	0	13	18	0	0	0	18	1	1	0	0	2	33
6:00 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	2	0	0	2	5
6:15 PM	0	0	0	0	0	0	4	4	0	8	6	0	1	0	7	0	1	0	0	1	16
Total	0	0	0	0	0	0	4	5	0	9	8	0	1	0	9	0	3	0	0	3	21
Grand Total	0	0	0	0	0	0	12	17	0	29	38	0	3	0	41	2	9	0	0	11	81
Approach %	0.0	0.0	0.0	0.0		0.0	41.4	58.6	0.0		92.7	0.0	7.3	0.0		18.2	81.8	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	14.8	21.0	0.0	35.8	46.9	0.0	3.7	0.0	50.6	2.5	11.1	0.0	0.0	13.6	
Exiting Leg Total	0					47					19					15					81
Buses	0	0	0	0	0	0	2	16	0	18	27	0	1	0	28	0	2	0	0	2	48
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	16.7	94.1	0.0	62.1	71.1	0.0	33.3	0.0	68.3	0.0	22.2	0.0	0.0	18.2	59.3
Exiting Leg Total	0					29					16					3					48
Single-Unit Trucks	0	0	0	0	0	0	9	1	0	10	10	0	2	0	12	2	7	0	0	9	31
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	75.0	5.9	0.0	34.5	26.3	0.0	66.7	0.0	29.3	100.0	77.8	0.0	0.0	81.8	38.3
Exiting Leg Total	0					17					3					11					31
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	0.0	3.4	2.6	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	2.5
Exiting Leg Total	0					1					0					1					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	3	3	0	6	2	0	0	0	2	1	2	0	0	3	11
4:45 PM	0	0	0	0	0	0	0	1	0	1	10	0	2	0	12	0	3	0	0	3	16
5:00 PM	0	0	0	0	0	0	2	3	0	5	4	0	0	0	4	0	0	0	0	0	9
5:15 PM	0	0	0	0	0	0	2	2	0	4	3	0	0	0	3	0	0	0	0	0	7
Total Volume	0	0	0	0	0	0	7	9	0	16	19	0	2	0	21	1	5	0	0	6	43
% Approach Total	0.0	0.0	0.0	0.0		0.0	43.8	56.3	0.0		90.5	0.0	9.5	0.0		16.7	83.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.750	0.000	0.667	0.475	0.000	0.250	0.000	0.438	0.250	0.417	0.000	0.000	0.500	0.672
Buses	0	0	0	0	0	0	1	8	0	9	12	0	1	0	13	0	1	0	0	1	23
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	14.3	88.9	0.0	56.3	63.2	0.0	50.0	0.0	61.9	0.0	20.0	0.0	0.0	16.7	53.5
Single-Unit Trucks	0	0	0	0	0	0	5	1	0	6	6	0	1	0	7	1	4	0	0	5	18
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	71.4	11.1	0.0	37.5	31.6	0.0	50.0	0.0	33.3	100.0	80.0	0.0	0.0	83.3	41.9
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	14.3	0.0	0.0	6.3	5.3	0.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	4.7
Buses	0	0	0	0	0	0	1	8	0	9	12	0	1	0	13	0	1	0	0	1	23
Single-Unit Trucks	0	0	0	0	0	0	5	1	0	6	6	0	1	0	7	1	4	0	0	5	18
Articulated Trucks	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Entering Leg	0	0	0	0	0	0	7	9	0	16	19	0	2	0	21	1	5	0	0	6	43
Buses	0					13					8					2					23
Single-Unit Trucks	0					10					2					6					18
Articulated Trucks	0					1					0					1					2
Total Exiting Leg	0					24					10					9					43

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	0	1	0	1	5	0	1	0	6	0	1	0	0	1	8
Total	0	0	0	0	0	0	1	3	0	4	6	0	1	0	7	0	1	0	0	1	12
5:00 PM	0	0	0	0	0	0	0	3	0	3	4	0	0	0	4	0	0	0	0	0	7
5:15 PM	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	2	0	2	7	0	0	0	7	0	0	0	0	0	9
Total	0	0	0	0	0	0	0	8	0	8	15	0	0	0	15	0	0	0	0	0	23
6:00 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	1	0	0	1	4
6:15 PM	0	0	0	0	0	0	1	4	0	5	4	0	0	0	4	0	0	0	0	0	9
Total	0	0	0	0	0	0	1	5	0	6	6	0	0	0	6	0	1	0	0	1	13
Grand Total	0	0	0	0	0	0	2	16	0	18	27	0	1	0	28	0	2	0	0	2	48
Approach %	0.0	0.0	0.0	0.0		0.0	11.1	88.9	0.0		96.4	0.0	3.6	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	4.2	33.3	0.0	37.5	56.3	0.0	2.1	0.0	58.3	0.0	4.2	0.0	0.0	4.2	
Exiting Leg Total	0					29					16					3					48

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	2	0	2	7	0	0	0	7	0	0	0	0	0	9
6:00 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	1	0	0	1	4
6:15 PM	0	0	0	0	0	0	1	4	0	5	4	0	0	0	4	0	0	0	0	0	9
Total Volume	0	0	0	0	0	0	1	8	0	9	15	0	0	0	15	0	1	0	0	1	25
% Approach Total	0.0	0.0	0.0	0.0		0.0	11.1	88.9	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.450	0.536	0.000	0.000	0.000	0.536	0.000	0.250	0.000	0.000	0.250	0.694
Entering Leg	0	0	0	0	0	0	1	8	0	9	15	0	0	0	15	0	1	0	0	1	25
Exiting Leg	0					16					8					1					25
Total	0					25					23					2					50

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Single-Unit Trucks

	Driveway					Cambridge Street					First Street					Cambridge Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	2	0	0	3	6
4:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	1	0	6	0	2	0	0	2	8
Total	0	0	0	0	0	0	2	1	0	3	5	0	1	0	6	1	4	0	0	5	14
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	3
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
Total	0	0	0	0	0	0	4	0	0	4	3	0	0	0	3	1	1	0	0	2	9
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
6:15 PM	0	0	0	0	0	0	3	0	0	3	2	0	1	0	3	0	1	0	0	1	7
Total	0	0	0	0	0	0	3	0	0	3	2	0	1	0	3	0	2	0	0	2	8
Grand Total	0	0	0	0	0	0	9	1	0	10	10	0	2	0	12	2	7	0	0	9	31
Approach %	0.0	0.0	0.0	0.0		0.0	90.0	10.0	0.0		83.3	0.0	16.7	0.0		22.2	77.8	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	29.0	3.2	0.0	32.3	32.3	0.0	6.5	0.0	38.7	6.5	22.6	0.0	0.0	29.0	
Exiting Leg Total	0					17					3					11					31

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	1	2	0	0	3	6
4:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	1	0	6	0	2	0	0	2	8
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	5	1	0	6	6	0	1	0	7	1	4	0	0	5	18
% Approach Total	0.0	0.0	0.0	0.0		0.0	83.3	16.7	0.0		85.7	0.0	14.3	0.0		20.0	80.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.000	0.500	0.300	0.000	0.250	0.000	0.292	0.250	0.500	0.000	0.000	0.417	0.563
Entering Leg	0	0	0	0	0	0	5	1	0	6	6	0	1	0	7	1	4	0	0	5	18
Exiting Leg	0					10					2					6					18
Total	0					16					9					11					36

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Driveway					Cambridge Street					First Street					Cambridge Street					Total		
	from North					from East					from South					from West							
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total			
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	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	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	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	50.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0			
Exiting Leg Total	0					1					0					1					2		

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Driveway					Cambridge Street					First Street					Cambridge Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	
Total Volume	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	1	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0			0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250		0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1		0	0	0	0	0	2
Exiting Leg					0					1					0						1	2
Total					0					2					1						1	4

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Driveway								Cambridge Street								First Street								Cambridge Street								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
4:30 PM	1	0	0	0	0	0	1	2	0	11	0	0	1	0	12	4	0	3	0	0	1	8	1	1	0	0	0	0	2	24			
4:45 PM	0	0	0	0	0	0	0	0	0	9	0	0	0	0	9	2	0	4	0	0	0	6	0	3	0	0	0	0	3	18			
Total	1	0	0	0	0	0	1	2	0	20	0	0	1	0	21	6	0	7	0	0	1	14	1	4	0	0	0	0	5	42			
5:00 PM	0	0	1	0	0	0	0	1	0	12	1	0	0	0	13	0	1	6	0	0	0	7	0	2	0	0	0	0	2	23			
5:15 PM	0	0	0	0	0	0	0	0	0	23	1	0	0	0	24	4	0	3	0	0	0	7	0	4	0	0	0	0	4	35			
5:30 PM	0	0	0	0	2	10	12	0	15	1	0	0	0	16	4	0	5	0	0	0	9	0	1	1	0	2	0	4	41				
5:45 PM	2	1	0	0	0	3	6	0	31	1	0	1	2	35	2	0	10	0	0	0	12	0	6	0	0	0	1	7	60				
Total	2	1	1	0	2	13	19	0	81	4	0	1	2	88	10	1	24	0	0	0	35	0	13	1	0	2	1	17	159				
6:00 PM	0	0	0	0	0	0	0	0	0	15	1	0	1	0	17	2	0	3	0	2	1	8	0	3	0	0	0	0	3	28			
6:15 PM	0	0	0	0	1	0	1	0	0	13	1	0	0	0	14	2	1	3	0	1	2	9	2	2	0	0	0	0	4	28			
Total	0	0	0	0	1	0	1	0	0	28	2	0	1	0	31	4	1	6	0	3	3	17	2	5	0	0	0	0	7	56			
Grand Total	3	1	1	0	3	14	22	0	129	6	0	3	2	140	20	2	37	0	3	4	66	3	22	1	0	2	1	29	257				
Approach %	13.6	4.5	4.5	0.0	13.6	63.6		0.0	92.1	4.3	0.0	2.1	1.4		30.3	3.0	56.1	0.0	4.5	6.1		10.3	75.9	3.4	0.0	6.9	3.4						
Total %	1.2	0.4	0.4	0.0	1.2	5.4	8.6	0.0	50.2	2.3	0.0	1.2	0.8	54.5	7.8	0.8	14.4	0.0	1.2	1.6	25.7	1.2	8.6	0.4	0.0	0.8	0.4	11.3					
Exiting Leg Total	20								48								17								172								257

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Driveway							Cambridge Street							First Street							Cambridge Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:15 PM	0	0	0	0	0	0	0	0	23	1	0	0	0	24	4	0	3	0	0	0	7	0	4	0	0	0	0	4	35
5:30 PM	0	0	0	0	2	10	12	0	15	1	0	0	0	16	4	0	5	0	0	0	9	0	1	1	0	2	0	4	41
5:45 PM	2	1	0	0	0	3	6	0	31	1	0	1	2	35	2	0	10	0	0	0	12	0	6	0	0	0	1	7	60
6:00 PM	0	0	0	0	0	0	0	0	15	1	0	1	0	17	2	0	3	0	2	1	8	0	3	0	0	0	0	3	28
Total Volume	2	1	0	0	2	13	18	0	84	4	0	2	2	92	12	0	21	0	2	1	36	0	14	1	0	2	1	18	164
% Approach Total	11.1	5.6	0.0	0.0	11.1	72.2		0.0	91.3	4.3	0.0	2.2	2.2		33.3	0.0	58.3	0.0	5.6	2.8		0.0	77.8	5.6	0.0	11.1	5.6		
PHF	0.250	0.250	0.000	0.000	0.250	0.325	0.375	0.000	0.677	1.000	0.000	0.500	0.250	0.657	0.750	0.000	0.525	0.000	0.250	0.250	0.750	0.000	0.583	0.250	0.000	0.250	0.250	0.643	0.683
Entering Leg	2	1	0	0	2	13	18	0	84	4	0	2	2	92	12	0	21	0	2	1	36	0	14	1	0	2	1	18	164
Exiting Leg	16							30							8							110							164
Total	34							122							44							128							328

PDI File #: **196867 (5) pm**
 Location: **N: Driveway S: First Street**
 Location: **E: Cambridge Street W: Cambridge Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Driveway							Cambridge Street							First Street							Cambridge Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	5	21	26	0	0	0	0	21	88	109	0	0	0	0	9	2	11	0	0	0	0	35	7	42	188
4:45 PM	0	0	0	0	12	14	26	0	0	0	0	71	92	163	0	0	0	0	2	6	8	0	0	0	0	45	9	54	251
Total	0	0	0	0	17	35	52	0	0	0	0	92	180	272	0	0	0	0	11	8	19	0	0	0	0	80	16	96	439
5:00 PM	0	0	0	0	14	13	27	0	0	0	0	57	101	158	0	0	0	0	3	7	10	0	0	0	0	79	8	87	282
5:15 PM	0	0	0	0	22	8	30	0	0	0	0	53	118	171	0	0	0	0	9	3	12	0	0	0	0	69	7	76	289
5:30 PM	0	0	0	0	12	87	99	0	0	0	0	62	84	146	0	0	0	0	13	1	14	0	0	0	0	67	8	75	334
5:45 PM	0	0	0	0	19	67	86	0	0	0	0	49	93	142	0	0	0	0	25	6	31	0	0	0	0	66	8	74	333
Total	0	0	0	0	67	175	242	0	0	0	0	221	396	617	0	0	0	0	50	17	67	0	0	0	0	281	31	312	1238
6:00 PM	0	0	0	0	12	71	83	0	0	0	0	46	85	131	0	0	0	0	16	4	20	0	0	0	0	40	9	49	283
6:15 PM	0	0	0	0	18	48	66	0	0	0	0	43	96	139	0	0	0	0	17	6	23	0	0	0	0	53	11	64	292
Total	0	0	0	0	30	119	149	0	0	0	0	89	181	270	0	0	0	0	33	10	43	0	0	0	0	93	20	113	575
Grand Total	0	0	0	0	114	329	443	0	0	0	0	402	757	1159	0	0	0	0	94	35	129	0	0	0	0	454	67	521	2252
Approach %	0	0	0	0	25.7	74.3		0	0	0	0	34.7	65.3		0	0	0	0	72.9	27.1		0	0	0	0	87.1	12.9		
Total %	0	0	0	0	5.06	14.6	19.7	0	0	0	0	17.9	33.6	51.5	0	0	0	0	4.17	1.55	5.73	0	0	0	0	20.2	2.98	23.1	
Exiting Leg Total	443							1159							129							521							2252

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Driveway							Cambridge Street							First Street							Cambridge Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:30 PM	0	0	0	0	12	87	99	0	0	0	0	62	84	146	0	0	0	0	13	1	14	0	0	0	0	67	8	75	334
5:45 PM	0	0	0	0	19	67	86	0	0	0	0	49	93	142	0	0	0	0	25	6	31	0	0	0	0	66	8	74	333
6:00 PM	0	0	0	0	12	71	83	0	0	0	0	46	85	131	0	0	0	0	16	4	20	0	0	0	0	40	9	49	283
6:15 PM	0	0	0	0	18	48	66	0	0	0	0	43	96	139	0	0	0	0	17	6	23	0	0	0	0	53	11	64	292
Total Volume	0	0	0	0	61	273	334	0	0	0	0	200	358	558	0	0	0	0	71	17	88	0	0	0	0	226	36	262	1242
% Approach Total	0.0	0.0	0.0	0.0	18.3	81.7		0.0	0.0	0.0	0.0	35.8	64.2		0.0	0.0	0.0	0.0	80.7	19.3		0.0	0.0	0.0	0.0	86.3	13.7		
PHF	0.000	0.000	0.000	0.000	0.803	0.784	0.843	0.000	0.000	0.000	0.000	0.806	0.932	0.955	0.000	0.000	0.000	0.000	0.710	0.708	0.710	0.000	0.000	0.000	0.000	0.843	0.818	0.873	0.930
Entering Leg	0	0	0	0	61	273	334	0	0	0	0	200	358	558	0	0	0	0	71	17	88	0	0	0	0	226	36	262	1242
Exiting Leg	334							558							88							262							1242
Total	668							1116							176							524							2484

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	12	0	14	5	0	31	0	64	0	90	0	154	68	6	6	0	0	80	0	0	0	0	0	0	0	14	222	13	2	251	516
7:45 AM	7	0	10	8	0	25	1	71	0	95	0	167	65	7	8	0	0	80	1	0	0	0	0	1	0	20	242	8	5	275	548
Total	19	0	24	13	0	56	1	135	0	185	0	321	133	13	14	0	0	160	1	0	0	0	0	1	0	34	464	21	7	526	1064
8:00 AM	10	0	7	0	0	17	3	69	0	92	0	164	68	8	10	0	0	86	1	0	0	1	0	2	0	21	248	15	0	284	553
8:15 AM	5	0	6	5	0	16	0	74	0	91	0	165	76	12	8	0	1	97	0	0	0	0	0	0	0	27	247	11	1	286	564
8:30 AM	8	0	9	7	0	24	0	52	0	89	0	141	62	12	13	0	0	87	0	0	0	1	0	1	0	24	219	24	0	267	520
8:45 AM	7	0	9	6	0	22	2	55	0	96	0	153	65	15	7	0	0	87	0	0	0	0	0	0	0	21	181	36	0	238	500
Total	30	0	31	18	0	79	5	250	0	368	0	623	271	47	38	0	1	357	1	0	0	2	0	3	0	93	895	86	1	1075	2137
9:00 AM	14	0	5	6	0	25	1	67	0	96	0	164	57	12	10	0	0	79	0	0	0	0	0	0	0	20	239	23	2	284	552
9:15 AM	13	0	3	5	0	21	1	69	0	109	0	179	68	17	7	0	0	92	0	0	0	0	0	0	0	20	254	11	2	287	579
Total	27	0	8	11	0	46	2	136	0	205	0	343	125	29	17	0	0	171	0	0	0	0	0	0	0	40	493	34	4	571	1131
Grand Total	76	0	63	42	0	181	8	521	0	758	0	1287	529	89	69	0	1	688	2	0	0	2	0	4	0	167	1852	141	12	2172	4332
Approach %	42.0	0.0	34.8	23.2	0.0		0.6	40.5	0.0	58.9	0.0		76.9	12.9	10.0	0.0	0.1		50.0	0.0	0.0	50.0	0.0		0.0	7.7	85.3	6.5	0.6		
Total %	1.8	0.0	1.5	1.0	0.0	4.2	0.2	12.0	0.0	17.5	0.0	29.7	12.2	2.1	1.6	0.0	0.0	15.9	0.0	0.0	0.0	0.0	0.1		0.0	3.9	42.8	3.3	0.3	50.1	
Exiting Leg Total	238						2423						991						0						680						4332

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:45 AM	7	0	10	8	0	25	1	71	0	95	0	167	65	7	8	0	0	80	1	0	0	0	0	1	0	20	242	8	5	275	548
8:00 AM	10	0	7	0	0	17	3	69	0	92	0	164	68	8	10	0	0	86	1	0	0	1	0	2	0	21	248	15	0	284	553
8:15 AM	5	0	6	5	0	16	0	74	0	91	0	165	76	12	8	0	1	97	0	0	0	0	0	0	0	27	247	11	1	286	564
8:30 AM	8	0	9	7	0	24	0	52	0	89	0	141	62	12	13	0	0	87	0	0	0	1	0	1	0	24	219	24	0	267	520
Total Volume	30	0	32	20	0	82	4	266	0	367	0	637	271	39	39	0	1	350	2	0	0	2	0	4	0	92	956	58	6	1112	2185
% Approach Total	36.6	0.0	39.0	24.4	0.0		0.6	41.8	0.0	57.6	0.0		77.4	11.1	11.1	0.0	0.3		50.0	0.0	0.0	50.0	0.0		0.0	8.3	86.0	5.2	0.5		
PHF	0.750	0.000	0.800	0.625	0.000	0.820	0.333	0.899	0.000	0.966	0.000	0.954	0.891	0.813	0.750	0.000	0.250	0.902	0.500	0.000	0.000	0.500	0.000	0.500	0.000	0.852	0.964	0.604	0.300	0.972	0.969
Entering Leg	30	0	32	20	0	82	4	266	0	367	0	637	271	39	39	0	1	350	2	0	0	2	0	4	0	92	956	58	6	1112	2185
Exiting Leg	101						1247						494						0						343						2185
Total	183						1884						844						4						1455						4370

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
Articulated %	0.0	0.0	11.1	100.0	0.0	18.8	0.0	6.3	0.0	0.0	0.0	3.4	17.4	0.0	20.0	0.0	0.0	13.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.1	0.0	0.0	10.6	8.7
Buses	0	0	8	0	0	8	0	2	0	8	0	10	6	6	0	0	0	12	2	3	0	10	0	15	0	0	6	0	0	6	51	
Single-Unit Trucks	5	0	0	0	0	5	0	28	0	18	0	46	13	2	4	0	0	19	0	0	0	0	0	0	0	9	20	7	0	36	106	
Articulated Trucks	0	0	1	2	0	3	0	2	0	0	0	2	4	0	1	0	0	5	0	0	0	0	0	0	0	0	5	0	0	5	15	
Total Entering Leg	5	0	9	2	0	16	0	32	0	26	0	58	23	8	5	0	0	36	2	3	0	10	0	15	0	9	31	7	0	47	172	
Buses						6						15						18						0						12	51	
Single-Unit Trucks						9						33						27						0						37	106	
Articulated Trucks						0						11						1						0						3	15	
Total Exiting Leg						15						59						46						0						52	172	

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	1	0	0	1	0	1	0	2	0	3	2	1	0	0	0	3	1	0	0	1	0	2	0	0	0	0	0	0	9
7:45 AM	0	0	4	0	0	4	0	0	0	2	0	2	2	3	0	0	0	5	1	0	0	2	0	3	0	0	1	0	0	1	15
Total	0	0	5	0	0	5	0	1	0	4	0	5	4	4	0	0	0	8	2	0	0	3	0	5	0	0	1	0	0	1	24
8:00 AM	0	0	1	0	0	1	0	1	0	4	0	5	1	5	0	0	0	6	1	0	0	3	0	4	0	0	0	0	0	0	16
8:15 AM	0	0	2	0	0	2	0	0	0	4	0	4	1	1	0	0	0	2	0	0	0	4	0	4	0	0	1	0	0	1	13
8:30 AM	0	0	1	0	0	1	0	0	0	3	0	3	1	3	0	0	0	4	1	0	0	2	0	3	0	0	1	0	0	1	12
8:45 AM	0	0	2	0	0	2	0	0	0	2	0	2	2	0	0	0	0	2	1	0	0	4	0	5	0	0	1	0	0	1	12
Total	0	0	6	0	0	6	0	1	0	13	0	14	5	9	0	0	0	14	3	0	0	13	0	16	0	0	3	0	0	3	53
9:00 AM	0	0	2	0	0	2	0	1	0	1	0	2	2	1	0	0	0	3	0	2	0	1	0	3	0	0	3	0	0	3	13
9:15 AM	0	0	3	0	0	3	0	1	0	2	0	3	1	2	0	0	0	3	0	1	0	3	0	4	0	0	1	0	0	1	14
Total	0	0	5	0	0	5	0	2	0	3	0	5	3	3	0	0	0	6	0	3	0	4	0	7	0	0	4	0	0	4	27
Grand Total	0	0	16	0	0	16	0	4	0	20	0	24	12	16	0	0	0	28	5	3	0	20	0	28	0	0	8	0	0	8	104
Approach %	0.0	0.0	100.0	0.0	0.0		0.0	16.7	0.0	83.3	0.0		42.9	57.1	0.0	0.0	0.0		17.9	10.7	0.0	71.4	0.0		0.0	0.0	100.0	0.0	0.0		
Total %	0.0	0.0	15.4	0.0	0.0	15.4	0.0	3.8	0.0	19.2	0.0	23.1	11.5	15.4	0.0	0.0	0.0	26.9	4.8	2.9	0.0	19.2	0.0	26.9	0.0	0.0	7.7	0.0	0.0	7.7	
Exiting Leg Total	16						23						41						0						24						104

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:45 AM	0	0	4	0	0	4	0	0	0	2	0	2	2	3	0	0	0	5	1	0	0	2	0	3	0	0	1	0	0	1	15
8:00 AM	0	0	1	0	0	1	0	1	0	4	0	5	1	5	0	0	0	6	1	0	0	3	0	4	0	0	0	0	0	0	16
8:15 AM	0	0	2	0	0	2	0	0	0	4	0	4	1	1	0	0	0	2	0	0	0	4	0	4	0	0	1	0	0	1	13
8:30 AM	0	0	1	0	0	1	0	0	0	3	0	3	1	3	0	0	0	4	1	0	0	2	0	3	0	0	1	0	0	1	12
Total Volume	0	0	8	0	0	8	0	1	0	13	0	14	5	12	0	0	0	17	3	0	0	11	0	14	0	0	3	0	0	3	56
% Approach Total	0.0	0.0	100.0	0.0	0.0		0.0	7.1	0.0	92.9	0.0		29.4	70.6	0.0	0.0	0.0		21.4	0.0	0.0	78.6	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.250	0.000	0.813	0.000	0.700	0.625	0.600	0.000	0.000	0.000	0.708	0.750	0.000	0.000	0.688	0.000	0.875	0.000	0.000	0.750	0.000	0.000	0.750	0.875
Entering Leg	0	0	8	0	0	8	0	1	0	13	0	14	5	12	0	0	0	17	3	0	0	11	0	14	0	0	3	0	0	3	56
Exiting Leg	12						8						24						0						12						56
Total	20						22						41						14						15						112

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	0	1	0	0	1	0	5	0	4	0	9	3	0	0	0	0	3	0	0	0	0	0	0	0	4	4	0	0	8	21
7:45 AM	1	0	0	0	0	1	0	3	0	4	0	7	3	0	2	0	0	5	0	0	0	0	0	0	0	0	3	0	0	3	16
Total	1	0	1	0	0	2	0	8	0	8	0	16	6	0	2	0	0	8	0	0	0	0	0	0	0	4	7	0	0	11	37
8:00 AM	0	0	1	0	0	1	0	2	0	3	0	5	4	0	0	0	0	4	0	0	0	0	0	0	0	1	5	2	0	8	18
8:15 AM	0	0	1	0	0	1	0	7	0	4	0	11	4	0	1	0	0	5	0	0	0	0	0	0	0	1	2	1	0	4	21
8:30 AM	0	0	0	0	0	0	0	5	0	4	0	9	6	0	1	0	0	7	0	0	0	0	0	0	0	1	4	2	0	7	23
8:45 AM	1	0	0	0	0	1	0	3	0	6	0	9	1	0	0	0	0	1	0	0	0	0	0	0	0	5	3	2	0	10	21
Total	1	0	2	0	0	3	0	17	0	17	0	34	15	0	2	0	0	17	0	0	0	0	0	0	0	8	14	7	0	29	83
9:00 AM	2	0	0	0	0	2	0	14	0	3	0	17	3	1	0	0	0	4	0	0	0	0	0	0	0	1	9	1	0	11	34
9:15 AM	2	0	0	0	0	2	0	6	0	5	0	11	3	1	3	0	0	7	0	0	0	0	0	0	0	2	4	2	0	8	28
Total	4	0	0	0	0	4	0	20	0	8	0	28	6	2	3	0	0	11	0	0	0	0	0	0	0	3	13	3	0	19	62
Grand Total	6	0	3	0	0	9	0	45	0	33	0	78	27	2	7	0	0	36	0	0	0	0	0	0	0	15	34	10	0	59	182
Approach %	66.7	0.0	33.3	0.0	0.0		0.0	57.7	0.0	42.3	0.0		75.0	5.6	19.4	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	25.4	57.6	16.9	0.0		
Total %	3.3	0.0	1.6	0.0	0.0	4.9	0.0	24.7	0.0	18.1	0.0	42.9	14.8	1.1	3.8	0.0	0.0	19.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	18.7	5.5	0.0	32.4	
Exiting Leg Total	12						61						51						0						58						182

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	Total
8:30 AM	0	0	0	0	0	0	0	5	0	4	0	9	6	0	1	0	0	7	0	0	0	0	0	0	0	1	4	2	0	7	23
8:45 AM	1	0	0	0	0	1	0	3	0	6	0	9	1	0	0	0	0	1	0	0	0	0	0	0	0	5	3	2	0	10	21
9:00 AM	2	0	0	0	0	2	0	14	0	3	0	17	3	1	0	0	0	4	0	0	0	0	0	0	0	1	9	1	0	11	34
9:15 AM	2	0	0	0	0	2	0	6	0	5	0	11	3	1	3	0	0	7	0	0	0	0	0	0	0	2	4	2	0	8	28
Total Volume	5	0	0	0	0	5	0	28	0	18	0	46	13	2	4	0	0	19	0	0	0	0	0	0	0	9	20	7	0	36	106
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	60.9	0.0	39.1	0.0		68.4	10.5	21.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	25.0	55.6	19.4	0.0		
PHF	0.625	0.000	0.000	0.000	0.000	0.625	0.000	0.500	0.000	0.750	0.000	0.676	0.542	0.500	0.333	0.000	0.000	0.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.450	0.556	0.875	0.000	0.818	0.779
Entering Leg	5	0	0	0	0	5	0	28	0	18	0	46	13	2	4	0	0	19	0	0	0	0	0	0	0	9	20	7	0	36	106
Exiting Leg	9						33						27						0						37						106
Total	14						79						46						0						73						212

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
7:30 AM	0	0	0	4	0	4	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7	
7:45 AM	1	0	0	5	0	6	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8	
Total	1	0	0	9	0	10	0	2	0	0	0	2	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	15	
8:00 AM	0	0	0	1	0	1	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	4	
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	1	4	
8:45 AM	0	0	1	2	0	3	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	
Total	0	0	1	3	0	4	0	4	0	1	0	5	3	0	1	0	0	4	0	0	0	0	0	0	0	0	3	0	0	3	16	
9:00 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	0	0	3	0	0	3	4	
9:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	3	
Total	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	4	0	0	4	7	
Grand Total	1	0	1	12	0	14	0	7	0	1	0	8	8	0	1	0	0	9	0	0	0	0	0	0	0	0	7	0	0	7	38	
Approach %	7.1	0.0	7.1	85.7	0.0		0.0	87.5	0.0	12.5	0.0		88.9	0.0	11.1	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0			
Total %	2.6	0.0	2.6	31.6	0.0	36.8	0.0	18.4	0.0	2.6	0.0	21.1	21.1	0.0	2.6	0.0	0.0	23.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.4	0.0	0.0	18.4	
Exiting Leg Total	0						27						2						0						9						38	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	4	0	4	0	1	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	7
7:45 AM	1	0	0	5	0	6	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8
8:00 AM	0	0	0	1	0	1	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	4
Total Volume	1	0	0	10	0	11	0	5	0	1	0	6	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	2	0	0	23
% Approach Total	9.1	0.0	0.0	90.9	0.0		0.0	83.3	0.0	16.7	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.500	0.000	0.458	0.000	0.625	0.000	0.250	0.000	0.500	0.500	0.000	0.000	0.000	0.500		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.719	
Entering Leg	1	0	0	10	0	11	0	5	0	1	0	6	4	0	0	0	0	4	0	0	0	0	0	0	0	0	2	0	0	2	23
Exiting Leg	0						16						1						0						6						23
Total	11						22						5						0						8						46

PDI File #: **196867 (2) am**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	East Street								Monsignor O'Brien Highway (Route 28)								Cambridge Street								Bus Station Exit								Monsignor O'Brien Highway (Route 28)								Total
	from North								from East								from South								from Southwest								from West								
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	0	3	4	7	0	0	0	0	0	6	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	4	20	24	0	0	0	0	0	8	19	27	65
7:45 AM	0	0	0	0	0	2	2	4	0	0	0	0	0	3	2	5	0	0	0	0	0	0	0	0	0	0	0	0	0	10	15	25	0	0	0	0	0	10	15	25	59
Total	0	0	0	0	0	5	6	11	0	0	0	0	0	9	3	12	0	0	0	0	0	0	0	0	0	0	0	0	14	35	49	0	0	0	0	0	18	34	52	124	
8:00 AM	0	0	0	0	0	2	7	9	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	9	27	36	0	0	0	0	0	17	29	46	98	
8:15 AM	0	0	0	0	0	7	2	9	0	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	5	39	44	0	0	0	0	0	15	35	50	110	
8:30 AM	0	0	0	0	0	6	4	10	0	0	0	0	0	9	1	10	0	0	0	0	0	0	0	0	0	0	0	0	13	32	45	0	0	0	0	0	49	31	80	145	
8:45 AM	0	0	0	0	0	11	4	15	0	0	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	0	17	20	37	0	0	0	0	0	40	31	71	129		
Total	0	0	0	0	0	26	17	43	0	0	0	0	0	22	8	30	0	0	0	0	0	0	0	0	0	0	0	44	118	162	0	0	0	0	0	121	126	247	482		
9:00 AM	0	0	0	0	0	4	3	7	0	0	0	0	0	6	2	8	0	0	0	0	0	0	0	0	0	0	0	7	16	23	0	0	0	0	0	12	16	28	66		
9:15 AM	0	0	0	0	0	4	8	12	0	0	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	0	6	16	22	0	0	0	0	0	22	17	39	77		
Total	0	0	0	0	0	8	11	19	0	0	0	0	0	10	2	12	0	0	0	0	0	0	0	0	0	0	0	13	32	45	0	0	0	0	0	34	33	67	143		
Grand Total	0	0	0	0	0	39	34	73	0	0	0	0	0	41	13	54	0	0	0	0	0	0	0	0	0	0	0	71	185	256	0	0	0	0	0	173	193	366	749		
Approach %	0	0	0	0	0	53.4	46.6		0	0	0	0	0	75.9	24.1		0	0	0	0	0	0	0	0	0	0	0	27.7	72.3		0	0	0	0	0	47.3	52.7				
Total %	0	0	0	0	0	5.21	4.54	9.75	0	0	0	0	0	5.47	1.74	7.21	0	0	0	0	0	0	0	0	0	0	0	9.48	24.7	34.2	0	0	0	0	0	23.1	25.8	48.9			
Exiting Leg Total	73								54								0								256								366								749

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	East Street								Monsignor O'Brien Highway (Route 28)								Cambridge Street								Bus Station Exit								Monsignor O'Brien Highway (Route 28)								
	from North								from East								from South								from Southwest								from West								
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:00 AM	0	0	0	0	0	2	7	9	0	0	0	0	0	7	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	9	27	36	0	0	0	0	0	17	29	46	98
8:15 AM	0	0	0	0	0	7	2	9	0	0	0	0	0	4	3	7	0	0	0	0	0	0	0	0	0	0	0	0	5	39	44	0	0	0	0	0	15	35	50	110	
8:30 AM	0	0	0	0	0	6	4	10	0	0	0	0	0	9	1	10	0	0	0	0	0	0	0	0	0	0	0	0	13	32	45	0	0	0	0	0	49	31	80	145	
8:45 AM	0	0	0	0	0	11	4	15	0	0	0	0	0	2	4	6	0	0	0	0	0	0	0	0	0	0	0	0	17	20	37	0	0	0	0	0	40	31	71	129	
Total Volume	0	0	0	0	0	26	17	43	0	0	0	0	0	22	8	30	0	0	0	0	0	0	0	0	0	0	0	0	44	118	162	0	0	0	0	0	121	126	247	482	
% Approach Total	0.0	0.0	0.0	0.0	0.0	60.5	39.5		0.0	0.0	0.0	0.0	0.0	73.3	26.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.2	72.8		0.0	0.0	0.0	0.0	0.0	49.0	51.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.591	0.607	0.717	0.000	0.000	0.000	0.000	0.000	0.611	0.500	0.750	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.647	0.756	0.900	0.000	0.000	0.000	0.000	0.000	0.617	0.900	0.772	0.831		
Entering Leg	0	0	0	0	0	26	17	43	0	0	0	0	0	22	8	30	0	0	0	0	0	0	0	0	0	0	0	0	44	118	162	0	0	0	0	0	121	126	247	482	
Exiting Leg	43								30								0								162								247								482
Total	86								60								0								324								494								964

PDI File #: **196867 (2) pm**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
4:30 PM	14	0	9	5	0	28	1	154	0	41	0	196	117	10	73	0	0	200	0	0	0	0	0	0	0	11	101	13	1	126	550
4:45 PM	15	0	10	8	0	33	1	146	0	49	0	196	136	9	58	0	0	203	0	0	0	0	0	0	0	6	116	17	2	141	573
Total	29	0	19	13	0	61	2	300	0	90	0	392	253	19	131	0	0	403	0	0	0	0	0	0	0	17	217	30	3	267	1123
5:00 PM	14	0	7	4	0	25	3	186	0	44	0	233	153	9	51	0	0	213	0	1	0	0	0	1	0	7	118	19	2	146	618
5:15 PM	15	0	10	5	0	30	4	140	0	54	0	198	149	23	54	0	0	226	0	0	0	1	0	1	0	9	142	27	1	179	634
5:30 PM	20	0	8	5	0	33	3	122	0	46	0	171	101	27	28	0	0	156	0	0	0	0	0	0	0	15	101	36	1	153	513
5:45 PM	21	0	7	1	0	29	3	147	0	51	0	201	151	26	42	0	0	219	0	0	0	0	0	0	0	4	100	36	4	144	593
Total	70	0	32	15	0	117	13	595	0	195	0	803	554	85	175	0	0	814	0	1	0	1	0	2	0	35	461	118	8	622	2358
6:00 PM	22	0	9	2	0	33	4	125	0	40	0	169	138	19	56	0	0	213	1	0	1	1	0	3	1	6	132	18	0	157	575
6:15 PM	16	0	7	8	0	31	0	128	0	50	0	178	133	13	43	0	0	189	0	0	0	0	0	0	0	7	134	16	3	160	558
Total	38	0	16	10	0	64	4	253	0	90	0	347	271	32	99	0	0	402	1	0	1	1	0	3	1	13	266	34	3	317	1133
Grand Total	137	0	67	38	0	242	19	1148	0	375	0	1542	1078	136	405	0	0	1619	1	1	1	2	0	5	1	65	944	182	14	1206	4614
Approach %	56.6	0.0	27.7	15.7	0.0		1.2	74.4	0.0	24.3	0.0		66.6	8.4	25.0	0.0	0.0		20.0	20.0	20.0	40.0	0.0		0.1	5.4	78.3	15.1	1.2		
Total %	3.0	0.0	1.5	0.8	0.0	5.2	0.4	24.9	0.0	8.1	0.0	33.4	23.4	2.9	8.8	0.0	0.0	35.1	0.0	0.0	0.0	0.0	0.1		0.0	1.4	20.5	3.9	0.3	26.1	
Exiting Leg Total						338					2061						508						1						1706		4614

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
4:30 PM	14	0	9	5	0	28	1	154	0	41	0	196	117	10	73	0	0	200	0	0	0	0	0	0	0	0	11	101	13	1	126	550
4:45 PM	15	0	10	8	0	33	1	146	0	49	0	196	136	9	58	0	0	203	0	0	0	0	0	0	0	0	6	116	17	2	141	573
5:00 PM	14	0	7	4	0	25	3	186	0	44	0	233	153	9	51	0	0	213	0	1	0	0	0	0	1	0	7	118	19	2	146	618
5:15 PM	15	0	10	5	0	30	4	140	0	54	0	198	149	23	54	0	0	226	0	0	0	1	0	1	0	0	9	142	27	1	179	634
Total Volume	58	0	36	22	0	116	9	626	0	188	0	823	555	51	236	0	0	842	0	1	0	1	0	2	0	33	477	76	6	592	2375	
% Approach Total	50.0	0.0	31.0	19.0	0.0		1.1	76.1	0.0	22.8	0.0		65.9	6.1	28.0	0.0	0.0		0.0	50.0	0.0	50.0	0.0		0.0	5.6	80.6	12.8	1.0			
PHF	0.967	0.000	0.900	0.688	0.000	0.879	0.563	0.841	0.000	0.870	0.000	0.883	0.907	0.554	0.808	0.000	0.000	0.931	0.000	0.250	0.000	0.250	0.000	0.500	0.000	0.750	0.840	0.704	0.750	0.827	0.937	
Entering Leg	58	0	36	22	0	116	9	626	0	188	0	823	555	51	236	0	0	842	0	1	0	1	0	2	0	33	477	76	6	592	2375	
Exiting Leg						136						1055						257					0							927	2375	
Total						252						1878						1099					2							1519	4750	

PDI File #: **196867 (2) pm**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	20.0	0.0	11.8	7.1	0.0	0.0	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.1	
Buses	0	0	8	0	0	8	0	7	0	1	0	8	6	7	0	0	0	13	0	0	0	10	0	10	0	0	2	0	0	2	41	
Single-Unit Trucks	0	0	2	0	0	2	1	3	0	3	0	7	7	1	2	0	0	10	0	0	0	0	0	0	0	1	8	1	0	10	29	
Articulated Trucks	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	
Total Entering Leg	0	0	10	0	0	10	1	11	0	5	0	17	14	8	2	0	0	24	0	0	0	10	0	10	0	0	1	10	1	0	12	73
Buses						7						8					9							0						17	41	
Single-Unit Trucks						3						15					6							0						5	29	
Articulated Trucks						0						1					1							0						1	3	
Total Exiting Leg						10						24					16							0						23	73	

PDI File #: **196867 (2) pm**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	3	0	0	3	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	3	0	3	0	0	0	0	0	0	8
4:45 PM	0	0	1	0	0	1	0	2	0	0	0	2	2	3	0	0	0	5	0	0	0	2	0	2	0	0	1	0	0	1	11
Total	0	0	4	0	0	4	0	3	0	0	0	3	3	3	0	0	0	6	0	0	0	5	0	5	0	0	1	0	0	1	19
5:00 PM	0	0	2	0	0	2	0	1	0	1	0	2	3	2	0	0	0	5	0	0	0	3	0	3	0	0	1	0	0	1	13
5:15 PM	0	0	2	0	0	2	0	3	0	0	0	3	0	2	0	0	0	2	0	0	0	2	0	2	0	0	0	0	0	0	9
5:30 PM	0	0	1	0	0	1	0	1	0	0	0	1	0	2	0	0	0	2	0	0	1	4	0	5	0	0	1	0	0	1	10
5:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	4	2	0	0	0	6	0	0	0	0	0	0	0	0	1	0	0	1	9
Total	0	0	7	0	0	7	0	5	0	1	0	6	7	8	0	0	0	15	0	0	1	9	0	10	0	0	3	0	0	3	41
6:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	2	1	0	0	4	0	0	0	4	0	4	0	0	0	0	0	0	9
6:15 PM	0	0	3	0	0	3	1	2	0	2	0	5	2	2	0	0	0	4	0	0	0	3	0	3	0	1	1	0	0	2	17
Total	0	0	4	0	0	4	1	2	0	2	0	5	3	4	1	0	0	8	0	0	0	7	0	7	0	1	1	0	0	2	26
Grand Total	0	0	15	0	0	15	1	10	0	3	0	14	13	15	1	0	0	29	0	0	1	21	0	22	0	1	5	0	0	6	86
Approach %	0.0	0.0	100.0	0.0	0.0		7.1	71.4	0.0	21.4	0.0		44.8	51.7	3.4	0.0	0.0		0.0	0.0	4.5	95.5	0.0		0.0	16.7	83.3	0.0	0.0		
Total %	0.0	0.0	17.4	0.0	0.0	17.4	1.2	11.6	0.0	3.5	0.0	16.3	15.1	17.4	1.2	0.0	0.0	33.7	0.0	0.0	1.2	24.4	0.0	25.6	0.0	1.2	5.8	0.0	0.0	7.0	
Exiting Leg Total	17						18						19						0						32						86

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Righ	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
5:30 PM	0	0	1	0	0	1	0	1	0	0	0	1	0	2	0	0	0	2	0	0	1	4	0	5	0	0	1	0	0	1	10
5:45 PM	0	0	2	0	0	2	0	0	0	0	0	0	4	2	0	0	0	6	0	0	0	0	0	0	0	0	0	1	0	1	9
6:00 PM	0	0	1	0	0	1	0	0	0	0	0	0	1	2	1	0	0	4	0	0	0	4	0	4	0	0	0	0	0	0	9
6:15 PM	0	0	3	0	0	3	1	2	0	2	0	5	2	2	0	0	0	4	0	0	0	3	0	3	0	1	1	0	0	2	17
Total Volume	0	0	7	0	0	7	1	3	0	2	0	6	7	8	1	0	0	16	0	0	1	11	0	12	0	1	3	0	0	4	45
% Approach Total	0.0	0.0	100.0	0.0	0.0		16.7	50.0	0.0	33.3	0.0		43.8	50.0	6.3	0.0	0.0		0.0	0.0	8.3	91.7	0.0		0.0	25.0	75.0	0.0	0.0		
PHF	0.000	0.000	0.583	0.000	0.000	0.583	0.250	0.375	0.000	0.250	0.000	0.300	0.438	1.000	0.250	0.000	0.000	0.667	0.000	0.000	0.250	0.688	0.000	0.600	0.000	0.250	0.750	0.000	0.000	0.500	0.662
Entering Leg	0	0	7	0	0	7	1	3	0	2	0	6	7	8	1	0	0	16	0	0	1	11	0	12	0	1	3	0	0	4	45
Exiting Leg	10						10						10						0						15						45
Total	17						16						26						12						19						90

PDI File #: **196867 (2) pm**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total		
	from North						from East						from South						from Southwest						from West								
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total			
4:30 PM	0	0	2	0	0	2	0	1	0	1	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	2	8	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	1	2	0	0	7	0	0	0	0	0	0	0	0	0	2	0	0	2	9	
Total	0	0	2	0	0	2	0	1	0	1	0	2	6	1	2	0	0	9	0	0	0	0	0	0	0	0	0	4	0	0	4	17	
5:00 PM	0	0	0	0	0	0	1	2	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	9		
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	2	3	
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	1	2	0	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	4	
5:45 PM	0	0	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	
Total	0	0	0	0	0	0	1	5	0	3	0	9	3	0	1	0	0	4	0	0	0	0	0	0	0	0	0	1	4	1	0	6	19
6:00 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	0	0	0	0	0	0	0	1	
6:15 PM	3	0	0	0	0	3	0	1	0	3	0	4	1	0	2	0	0	3	0	0	0	0	0	0	0	0	0	1	0	0	1	11	
Total	3	0	0	0	0	3	0	1	0	3	0	4	1	0	3	0	0	4	0	0	0	0	0	0	0	0	0	1	0	0	1	12	
Grand Total	3	0	2	0	0	5	1	7	0	7	0	15	10	1	6	0	0	17	0	0	0	0	0	0	0	0	1	9	1	0	11	48	
Approach %	60.0	0.0	40.0	0.0	0.0		6.7	46.7	0.0	46.7	0.0		58.8	5.9	35.3	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	9.1	81.8	9.1	0.0				
Total %	6.3	0.0	4.2	0.0	0.0	10.4	2.1	14.6	0.0	14.6	0.0	31.3	20.8	2.1	12.5	0.0	0.0	35.4	0.0	0.0	0.0	0.0	0.0	0.0		0.0	2.1	18.8	2.1	0.0	22.9		
Exiting Leg Total	3						19						10						0						16						48		

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
4:30 PM	0	0	2	0	0	2	0	1	0	1	0	2	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	0	0	2	8
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	1	2	0	0	7	0	0	0	0	0	0	0	0	2	0	0	2	9	
5:00 PM	0	0	0	0	0	0	1	2	0	2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	9	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	0	2	3
Total Volume	0	0	2	0	0	2	1	3	0	3	0	7	7	1	2	0	0	10	0	0	0	0	0	0	0	0	1	8	1	0	10	29
% Approach Total	0.0	0.0	100.0	0.0	0.0		14.3	42.9	0.0	42.9	0.0		70.0	10.0	20.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	10.0	80.0	10.0	0.0			
PHF	0.000	0.000	0.250	0.000	0.000	0.250	0.250	0.375	0.000	0.375	0.000	0.350	0.438	0.250	0.250	0.000	0.000	0.357	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.250	0.000	0.625	0.806	
Entering Leg	0	0	2	0	0	2	1	3	0	3	0	7	7	1	2	0	0	10	0	0	0	0	0	0	0	0	1	8	1	0	10	29
Exiting Leg	3						15						6						0						5						29	
Total	5						22						16						0						15						58	

PDI File #: **196867 (2) pm**
 Location: **N: East Street S: Cambridge Street**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28) SW: Bus Station Exit**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	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	1
4:45 PM	0	0	0	0	0	0	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
Total	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2
5:00 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	0	0	0	0	0	0
5:15 PM	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	0	0	0	0	1
5:30 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	0	0	0	0	0	0
5:45 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	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 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	0	0	0	0	0	0
6:15 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	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	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Approach %	0.0	0.0	0.0	0.0	0.0		0.0	50.0	0.0	50.0	0.0		100.0	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	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	0.0	66.7	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	0						1						1						0						1						3

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	East Street						Monsignor O'Brien Highway (Route 28)						Cambridge Street						Bus Station Exit						Monsignor O'Brien Highway (Route 28)							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
4:30 PM	0	0	0	0	0	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	1
4:45 PM	0	0	0	0	0	0	0	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
5:00 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	0	0	0	0	0	0	
5:15 PM	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	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	50.0	0.0	50.0	0.0		100.0	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		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.500	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	
Entering Leg	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3
Exiting Leg	0						1						1						0						1						3	
Total	0						3						2						0						1						6	

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	53	171	66	0	290	88	112	115	0	315	53	82	25	0	160	89	180	44	0	313	1078
7:45 AM	63	189	53	0	305	86	109	129	0	324	59	78	17	0	154	113	173	56	1	343	1126
Total	116	360	119	0	595	174	221	244	0	639	112	160	42	0	314	202	353	100	1	656	2204
8:00 AM	45	210	59	0	314	79	122	110	0	311	46	89	26	0	161	120	171	38	0	329	1115
8:15 AM	44	172	69	0	285	85	122	121	0	328	56	90	16	0	162	112	173	55	1	341	1116
8:30 AM	39	202	45	0	286	74	96	119	0	289	54	73	18	0	145	102	157	47	0	306	1026
8:45 AM	44	182	61	0	287	74	95	137	0	306	72	74	21	0	167	88	150	29	0	267	1027
Total	172	766	234	0	1172	312	435	487	0	1234	228	326	81	0	635	422	651	169	1	1243	4284
9:00 AM	47	193	58	0	298	92	113	124	0	329	72	81	27	0	180	110	162	40	0	312	1119
9:15 AM	54	172	64	0	290	70	116	129	0	315	59	88	36	0	183	124	169	47	0	340	1128
Total	101	365	122	0	588	162	229	253	0	644	131	169	63	0	363	234	331	87	0	652	2247
Grand Total	389	1491	475	0	2355	648	885	984	0	2517	471	655	186	0	1312	858	1335	356	2	2551	8735
Approach %	16.5	63.3	20.2	0.0		25.7	35.2	39.1	0.0		35.9	49.9	14.2	0.0		33.6	52.3	14.0	0.1		
Total %	4.5	17.1	5.4	0.0	27.0	7.4	10.1	11.3	0.0	28.8	5.4	7.5	2.1	0.0	15.0	9.8	15.3	4.1	0.0	29.2	
Exiting Leg Total	1659					2281					3333					1462					8735
Cars	345	1412	467	0	2224	629	828	943	0	2400	409	620	179	0	1208	846	1272	327	2	2447	8279
% Cars	88.7	94.7	98.3	0.0	94.4	97.1	93.6	95.8	0.0	95.4	86.8	94.7	96.2	0.0	92.1	98.6	95.3	91.9	100.0	95.9	94.8
Exiting Leg Total	1576					2148					3201					1354					8279
Heavy Vehicles	44	79	8	0	131	19	57	41	0	117	62	35	7	0	104	12	63	29	0	104	456
% Heavy Vehicles	11.3	5.3	1.7	0.0	5.6	2.9	6.4	4.2	0.0	4.6	13.2	5.3	3.8	0.0	7.9	1.4	4.7	8.1	0.0	4.1	5.2
Exiting Leg Total	83					133					132					108					456

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	53	171	66	0	290	88	112	115	0	315	53	82	25	0	160	89	180	44	0	313	1078
7:45 AM	63	189	53	0	305	86	109	129	0	324	59	78	17	0	154	113	173	56	1	343	1126
8:00 AM	45	210	59	0	314	79	122	110	0	311	46	89	26	0	161	120	171	38	0	329	1115
8:15 AM	44	172	69	0	285	85	122	121	0	328	56	90	16	0	162	112	173	55	1	341	1116
Total Volume	205	742	247	0	1194	338	465	475	0	1278	214	339	84	0	637	434	697	193	2	1326	4435
% Approach Total	17.2	62.1	20.7	0.0		26.4	36.4	37.2	0.0		33.6	53.2	13.2	0.0		32.7	52.6	14.6	0.2		
PHF	0.813	0.883	0.895	0.000	0.951	0.960	0.953	0.921	0.000	0.974	0.907	0.942	0.808	0.000	0.983	0.904	0.968	0.862	0.500	0.966	0.985
Cars	189	698	243	0	1130	331	435	444	0	1210	183	321	79	0	583	426	668	181	2	1277	4200
Cars %	92.2	94.1	98.4	0.0	94.6	97.9	93.5	93.5	0.0	94.7	85.5	94.7	94.0	0.0	91.5	98.2	95.8	93.8	100.0	96.3	94.7
Heavy Vehicles	16	44	4	0	64	7	30	31	0	68	31	18	5	0	54	8	29	12	0	49	235
Heavy Vehicles %	7.8	5.9	1.6	0.0	5.4	2.1	6.5	6.5	0.0	5.3	14.5	5.3	6.0	0.0	8.5	1.8	4.2	6.2	0.0	3.7	5.3
Cars Enter Leg	189	698	243	0	1130	331	435	444	0	1210	183	321	79	0	583	426	668	181	2	1277	4200
Heavy Enter Leg	16	44	4	0	64	7	30	31	0	68	31	18	5	0	54	8	29	12	0	49	235
Total Entering Leg	205	742	247	0	1194	338	465	475	0	1278	214	339	84	0	637	434	697	193	2	1326	4435
Cars Exiting Leg	833					1094					1568					705					4200
Heavy Exiting Leg	37					64					83					51					235
Total Exiting Leg	870					1158					1651					756					4435

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	47	157	66	0	270	87	107	102	0	296	44	75	23	0	142	88	173	41	0	302	1010
7:45 AM	60	182	51	0	293	84	103	122	0	309	52	76	17	0	145	112	161	53	1	327	1074
Total	107	339	117	0	563	171	210	224	0	605	96	151	40	0	287	200	334	94	1	629	2084
8:00 AM	43	202	58	0	303	77	114	100	0	291	37	84	24	0	145	116	166	37	0	319	1058
8:15 AM	39	157	68	0	264	83	111	120	0	314	50	86	15	0	151	110	168	50	1	329	1058
8:30 AM	33	195	44	0	272	73	94	119	0	286	41	71	17	0	129	102	148	42	0	292	979
8:45 AM	39	172	60	0	271	70	87	137	0	294	65	69	21	0	155	87	143	28	0	258	978
Total	154	726	230	0	1110	303	406	476	0	1185	193	310	77	0	580	415	625	157	1	1198	4073
9:00 AM	39	181	56	0	276	87	104	122	0	313	65	74	27	0	166	109	149	34	0	292	1047
9:15 AM	45	166	64	0	275	68	108	121	0	297	55	85	35	0	175	122	164	42	0	328	1075
Total	84	347	120	0	551	155	212	243	0	610	120	159	62	0	341	231	313	76	0	620	2122
Grand Total	345	1412	467	0	2224	629	828	943	0	2400	409	620	179	0	1208	846	1272	327	2	2447	8279
Approach %	15.5	63.5	21.0	0.0		26.2	34.5	39.3	0.0		33.9	51.3	14.8	0.0		34.6	52.0	13.4	0.1		
Total %	4.2	17.1	5.6	0.0	26.9	7.6	10.0	11.4	0.0	29.0	4.9	7.5	2.2	0.0	14.6	10.2	15.4	3.9	0.0	29.6	
Exiting Leg Total	1576					2148					3201					1354					8279

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	47	157	66	0	270	87	107	102	0	296	44	75	23	0	142	88	173	41	0	302	1010
7:45 AM	60	182	51	0	293	84	103	122	0	309	52	76	17	0	145	112	161	53	1	327	1074
8:00 AM	43	202	58	0	303	77	114	100	0	291	37	84	24	0	145	116	166	37	0	319	1058
8:15 AM	39	157	68	0	264	83	111	120	0	314	50	86	15	0	151	110	168	50	1	329	1058
Total Volume	189	698	243	0	1130	331	435	444	0	1210	183	321	79	0	583	426	668	181	2	1277	4200
% Approach Total	16.7	61.8	21.5	0.0		27.4	36.0	36.7	0.0		31.4	55.1	13.6	0.0		33.4	52.3	14.2	0.2		
PHF	0.788	0.864	0.893	0.000	0.932	0.951	0.954	0.910	0.000	0.963	0.880	0.933	0.823	0.000	0.965	0.918	0.965	0.854	0.500	0.970	0.978
Entering Leg	189	698	243	0	1130	331	435	444	0	1210	183	321	79	0	583	426	668	181	2	1277	4200
Exiting Leg	833					1094					1568					705					4200
Total	1963					2304					2151					1982					8400

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Land Boulevard (Gilmore Bridge)					Monsignor O'Bren Highway (Route 28)					Land Boulevard					Monsignor O'Bren Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	6	14	0	0	20	1	5	13	0	19	9	7	2	0	18	1	7	3	0	11	68
7:45 AM	3	7	2	0	12	2	6	7	0	15	7	2	0	0	9	1	12	3	0	16	52
Total	9	21	2	0	32	3	11	20	0	34	16	9	2	0	27	2	19	6	0	27	120
8:00 AM	2	8	1	0	11	2	8	10	0	20	9	5	2	0	16	4	5	1	0	10	57
8:15 AM	5	15	1	0	21	2	11	1	0	14	6	4	1	0	11	2	5	5	0	12	58
8:30 AM	6	7	1	0	14	1	2	0	0	3	13	2	1	0	16	0	9	5	0	14	47
8:45 AM	5	10	1	0	16	4	8	0	0	12	7	5	0	0	12	1	7	1	0	9	49
Total	18	40	4	0	62	9	29	11	0	49	35	16	4	0	55	7	26	12	0	45	211
9:00 AM	8	12	2	0	22	5	9	2	0	16	7	7	0	0	14	1	13	6	0	20	72
9:15 AM	9	6	0	0	15	2	8	8	0	18	4	3	1	0	8	2	5	5	0	12	53
Total	17	18	2	0	37	7	17	10	0	34	11	10	1	0	22	3	18	11	0	32	125
Grand Total	44	79	8	0	131	19	57	41	0	117	62	35	7	0	104	12	63	29	0	104	456
Approach %	33.6	60.3	6.1	0.0		16.2	48.7	35.0	0.0		59.6	33.7	6.7	0.0		11.5	60.6	27.9	0.0		
Total %	9.6	17.3	1.8	0.0	28.7	4.2	12.5	9.0	0.0	25.7	13.6	7.7	1.5	0.0	22.8	2.6	13.8	6.4	0.0	22.8	
Exiting Leg Total	83					133					132					108					456
Buses	8	11	1	0	20	4	15	4	0	23	11	3	0	0	14	0	18	3	0	21	78
% Buses	18.2	13.9	12.5	0.0	15.3	21.1	26.3	9.8	0.0	19.7	17.7	8.6	0.0	0.0	13.5	0.0	28.6	10.3	0.0	20.2	17.1
Exiting Leg Total	10					30					15					23					78
Single-Unit Trucks	32	56	6	0	94	7	37	32	0	76	34	27	7	0	68	12	27	18	0	57	295
% Single-Unit	72.7	70.9	75.0	0.0	71.8	36.8	64.9	78.0	0.0	65.0	54.8	77.1	100.0	0.0	65.4	100.0	42.9	62.1	0.0	54.8	64.7
Exiting Leg Total	52					67					100					76					295
Articulated Trucks	4	12	1	0	17	8	5	5	0	18	17	5	0	0	22	0	18	8	0	26	83
% Articulated	9.1	15.2	12.5	0.0	13.0	42.1	8.8	12.2	0.0	15.4	27.4	14.3	0.0	0.0	21.2	0.0	28.6	27.6	0.0	25.0	18.2
Exiting Leg Total	21					36					17					9					83

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	6	14	0	0	20	1	5	13	0	19	9	7	2	0	18	1	7	3	0	11	68
7:45 AM	3	7	2	0	12	2	6	7	0	15	7	2	0	0	9	1	12	3	0	16	52
8:00 AM	2	8	1	0	11	2	8	10	0	20	9	5	2	0	16	4	5	1	0	10	57
8:15 AM	5	15	1	0	21	2	11	1	0	14	6	4	1	0	11	2	5	5	0	12	58
Total Volume	16	44	4	0	64	7	30	31	0	68	31	18	5	0	54	8	29	12	0	49	235
% Approach Total	25.0	68.8	6.3	0.0		10.3	44.1	45.6	0.0		57.4	33.3	9.3	0.0		16.3	59.2	24.5	0.0		
PHF	0.667	0.733	0.500	0.000	0.762	0.875	0.682	0.596	0.000	0.850	0.861	0.643	0.625	0.000	0.750	0.500	0.604	0.600	0.000	0.766	0.864
Buses	4	8	0	0	12	1	7	3	0	11	8	0	0	0	8	0	6	0	0	6	37
Buses %	25.0	18.2	0.0	0.0	18.8	14.3	23.3	9.7	0.0	16.2	25.8	0.0	0.0	0.0	14.8	0.0	20.7	0.0	0.0	12.2	15.7
Single-Unit Trucks	9	29	4	0	42	4	18	23	0	45	13	13	5	0	31	8	11	8	0	27	145
Single-Unit %	56.3	65.9	100.0	0.0	65.6	57.1	60.0	74.2	0.0	66.2	41.9	72.2	100.0	0.0	57.4	100.0	37.9	66.7	0.0	55.1	61.7
Articulated Trucks	3	7	0	0	10	2	5	5	0	12	10	5	0	0	15	0	12	4	0	16	53
Articulated %	18.8	15.9	0.0	0.0	15.6	28.6	16.7	16.1	0.0	17.6	32.3	27.8	0.0	0.0	27.8	0.0	41.4	33.3	0.0	32.7	22.6
Buses	4	8	0	0	12	1	7	3	0	11	8	0	0	0	8	0	6	0	0	6	37
Single-Unit Trucks	9	29	4	0	42	4	18	23	0	45	13	13	5	0	31	8	11	8	0	27	145
Articulated Trucks	3	7	0	0	10	2	5	5	0	12	10	5	0	0	15	0	12	4	0	16	53
Total Entering Leg	16	44	4	0	64	7	30	31	0	68	31	18	5	0	54	8	29	12	0	49	235
Buses	1					14					11					11					37
Single-Unit Trucks	25					28					60					32					145
Articulated Trucks	11					22					12					8					53
Total Exiting Leg	37					64					83					51					235

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	2	0	0	4	1	1	2	0	4	2	0	0	0	2	0	1	0	0	1	11
7:45 AM	0	1	0	0	1	0	2	1	0	3	3	0	0	0	3	0	2	0	0	2	9
Total	2	3	0	0	5	1	3	3	0	7	5	0	0	0	5	0	3	0	0	3	20
8:00 AM	1	1	0	0	2	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	7
8:15 AM	1	4	0	0	5	0	2	0	0	2	2	0	0	0	2	0	1	0	0	1	10
8:30 AM	2	3	0	0	5	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	8
8:45 AM	0	0	1	0	1	1	2	0	0	3	2	2	0	0	4	0	3	0	0	3	11
Total	4	8	1	0	13	1	7	0	0	8	5	2	0	0	7	0	8	0	0	8	36
9:00 AM	0	0	0	0	0	0	2	1	0	3	1	1	0	0	2	0	5	2	0	7	12
9:15 AM	2	0	0	0	2	2	3	0	0	5	0	0	0	0	0	0	2	1	0	3	10
Total	2	0	0	0	2	2	5	1	0	8	1	1	0	0	2	0	7	3	0	10	22
Grand Total	8	11	1	0	20	4	15	4	0	23	11	3	0	0	14	0	18	3	0	21	78
Approach %	40.0	55.0	5.0	0.0		17.4	65.2	17.4	0.0		78.6	21.4	0.0	0.0		0.0	85.7	14.3	0.0		
Total %	10.3	14.1	1.3	0.0	25.6	5.1	19.2	5.1	0.0	29.5	14.1	3.8	0.0	0.0	17.9	0.0	23.1	3.8	0.0	26.9	
Exiting Leg Total	10					30					15					23					78

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:15 AM	1	4	0	0	5	0	2	0	0	2	2	0	0	0	2	0	1	0	0	1	10
8:30 AM	2	3	0	0	5	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	8
8:45 AM	0	0	1	0	1	1	2	0	0	3	2	2	0	0	4	0	3	0	0	3	11
9:00 AM	0	0	0	0	0	0	2	1	0	3	1	1	0	0	2	0	5	2	0	7	12
Total Volume	3	7	1	0	11	1	7	1	0	9	5	3	0	0	8	0	11	2	0	13	41
% Approach Total	27.3	63.6	9.1	0.0		11.1	77.8	11.1	0.0		62.5	37.5	0.0	0.0		0.0	84.6	15.4	0.0		
PHF	0.375	0.438	0.250	0.000	0.550	0.250	0.875	0.250	0.000	0.750	0.625	0.375	0.000	0.000	0.500	0.000	0.550	0.250	0.000	0.464	0.854
Entering Leg	3	7	1	0	11	1	7	1	0	9	5	3	0	0	8	0	11	2	0	13	41
Exiting Leg	6					17					8					10					41
Total	17					26					16					23					82

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)						Total
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	3	8	0	0	11	0	3	8	0	11	3	3	2	0	8	1	3	2	0	6	36	
7:45 AM	3	6	2	0	11	2	3	6	0	11	2	2	0	0	4	1	4	1	0	6	32	
Total	6	14	2	0	22	2	6	14	0	22	5	5	2	0	12	2	7	3	0	12	68	
8:00 AM	0	7	1	0	8	1	4	8	0	13	4	5	2	0	11	4	2	1	0	7	39	
8:15 AM	3	8	1	0	12	1	8	1	0	10	4	3	1	0	8	2	2	4	0	8	38	
8:30 AM	4	4	1	0	9	1	1	0	0	2	9	2	1	0	12	0	6	4	0	10	33	
8:45 AM	5	6	0	0	11	1	6	0	0	7	5	3	0	0	8	1	2	1	0	4	30	
Total	12	25	3	0	40	4	19	9	0	32	22	13	4	0	39	7	12	10	0	29	140	
9:00 AM	8	12	1	0	21	1	7	1	0	9	4	6	0	0	10	1	5	3	0	9	49	
9:15 AM	6	5	0	0	11	0	5	8	0	13	3	3	1	0	7	2	3	2	0	7	38	
Total	14	17	1	0	32	1	12	9	0	22	7	9	1	0	17	3	8	5	0	16	87	
Grand Total	32	56	6	0	94	7	37	32	0	76	34	27	7	0	68	12	27	18	0	57	295	
Approach %	34.0	59.6	6.4	0.0		9.2	48.7	42.1	0.0		50.0	39.7	10.3	0.0		21.1	47.4	31.6	0.0			
Total %	10.8	19.0	2.0	0.0	31.9	2.4	12.5	10.8	0.0	25.8	11.5	9.2	2.4	0.0	23.1	4.1	9.2	6.1	0.0	19.3		
Exiting Leg Total	52					67					100					76					295	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:15 AM	3	8	1	0	12	1	8	1	0	10	4	3	1	0	8	2	2	4	0	8	38
8:30 AM	4	4	1	0	9	1	1	0	0	2	9	2	1	0	12	0	6	4	0	10	33
8:45 AM	5	6	0	0	11	1	6	0	0	7	5	3	0	0	8	1	2	1	0	4	30
9:00 AM	8	12	1	0	21	1	7	1	0	9	4	6	0	0	10	1	5	3	0	9	49
Total Volume	20	30	3	0	53	4	22	2	0	28	22	14	2	0	38	4	15	12	0	31	150
% Approach Total	37.7	56.6	5.7	0.0		14.3	78.6	7.1	0.0		57.9	36.8	5.3	0.0		12.9	48.4	38.7	0.0		
PHF	0.625	0.625	0.750	0.000	0.631	1.000	0.688	0.500	0.000	0.700	0.611	0.583	0.500	0.000	0.792	0.500	0.625	0.750	0.000	0.775	0.765
Entering Leg	20	30	3	0	53	4	22	2	0	28	22	14	2	0	38	4	15	12	0	31	150
Exiting Leg					30					40					36					44	150
Total					83					68					74					75	300

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	4	0	0	5	0	1	3	0	4	4	4	0	0	8	0	3	1	0	4	21
7:45 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	6	2	0	8	11
Total	1	4	0	0	5	0	2	3	0	5	6	4	0	0	10	0	9	3	0	12	32
8:00 AM	1	0	0	0	1	1	2	2	0	5	4	0	0	0	4	0	1	0	0	1	11
8:15 AM	1	3	0	0	4	1	1	0	0	2	0	1	0	0	1	0	2	1	0	3	10
8:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	4	0	1	1	0	2	6
8:45 AM	0	4	0	0	4	2	0	0	0	2	0	0	0	0	0	0	2	0	0	2	8
Total	2	7	0	0	9	4	3	2	0	9	8	1	0	0	9	0	6	2	0	8	35
9:00 AM	0	0	1	0	1	4	0	0	0	4	2	0	0	0	2	0	3	1	0	4	11
9:15 AM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	2	0	2	5
Total	1	1	1	0	3	4	0	0	0	4	3	0	0	0	3	0	3	3	0	6	16
Grand Total	4	12	1	0	17	8	5	5	0	18	17	5	0	0	22	0	18	8	0	26	83
Approach %	23.5	70.6	5.9	0.0		44.4	27.8	27.8	0.0		77.3	22.7	0.0	0.0		0.0	69.2	30.8	0.0		
Total %	4.8	14.5	1.2	0.0	20.5	9.6	6.0	6.0	0.0	21.7	20.5	6.0	0.0	0.0	26.5	0.0	21.7	9.6	0.0	31.3	
Exiting Leg Total	21					36					17					9					83

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	4	0	0	5	0	1	3	0	4	4	4	0	0	8	0	3	1	0	4	21
7:45 AM	0	0	0	0	0	0	1	0	0	1	2	0	0	2	0	6	2	0	8	11	
8:00 AM	1	0	0	0	1	1	2	2	0	5	4	0	0	4	0	1	0	0	1	11	
8:15 AM	1	3	0	0	4	1	1	0	0	2	0	1	0	1	0	2	1	0	3	10	
Total Volume	3	7	0	0	10	2	5	5	0	12	10	5	0	0	15	0	12	4	0	16	53
% Approach Total	30.0	70.0	0.0	0.0		16.7	41.7	41.7	0.0		66.7	33.3	0.0	0.0		0.0	75.0	25.0	0.0		
PHF	0.750	0.438	0.000	0.000	0.500	0.500	0.625	0.417	0.000	0.600	0.625	0.313	0.000	0.000	0.469	0.000	0.500	0.500	0.000	0.500	0.631
Entering Leg	3	7	0	0	10	2	5	5	0	12	10	5	0	0	15	0	12	4	0	16	53
Exiting Leg	11					22					12					8					53
Total	21					34					27					24					106

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)							Land Boulevard							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	0	1	1	1	1	0	0	0	0	2	0	0	0	0	1	3	4	0	5	0	0	0	0	2	7
7:45 AM	0	2	1	0	0	0	3	0	1	0	0	0	0	1	0	0	0	0	2	4	6	0	9	0	0	0	0	3	12
Total	0	2	1	0	0	1	4	1	2	0	0	0	0	3	0	0	0	0	3	7	10	0	14	0	0	0	0	5	19
8:00 AM	0	3	0	0	0	0	3	0	0	1	0	0	0	1	0	0	0	0	0	3	3	1	11	0	0	0	0	6	18
8:15 AM	0	1	1	0	0	1	3	0	0	0	0	0	0	0	1	0	0	0	1	2	4	1	19	0	0	1	5	26	
8:30 AM	1	1	1	0	0	0	3	0	0	2	0	0	0	2	0	1	0	0	1	1	3	2	16	0	0	0	0	18	
8:45 AM	0	2	0	0	1	1	4	1	1	2	0	0	0	4	0	0	0	0	1	5	6	0	10	0	0	2	1	13	
Total	1	7	2	0	1	2	13	1	1	5	0	0	0	7	1	1	0	0	3	11	16	4	56	0	0	3	12	75	
9:00 AM	0	0	0	0	1	0	1	0	2	1	0	0	0	3	0	0	0	0	0	1	1	0	6	0	0	0	0	6	
9:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	1	0	8	0	0	0	2	10	
Total	0	0	0	0	1	0	1	0	3	1	0	0	0	4	0	0	0	0	1	1	2	0	14	0	0	0	2	16	
Grand Total	1	9	3	0	2	3	18	2	6	6	0	0	0	14	1	1	0	0	7	19	28	4	84	0	0	3	19	110	
Approach %	5.6	50.0	16.7	0.0	11.1	16.7		14.3	42.9	42.9	0.0	0.0	0.0		3.6	3.6	0.0	0.0	25.0	67.9		3.6	76.4	0.0	0.0	2.7	17.3		
Total %	0.6	5.3	1.8	0.0	1.2	1.8	10.6	1.2	3.5	3.5	0.0	0.0	0.0	8.2	0.6	0.6	0.0	0.0	4.1	11.2	16.5	2.4	49.4	0.0	0.0	1.8	11.2	64.7	
Exiting Leg Total	8							88							45							29							170

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)							Land Boulevard							Monsignor O'Brien Highway (Route 28)								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:00 AM	0	3	0	0	0	0	3	0	0	1	0	0	0	1	0	0	0	0	0	3	3	1	11	0	0	0	0	6	18	25
8:15 AM	0	1	1	0	0	0	1	3	0	0	0	0	0	0	1	0	0	0	1	2	4	1	19	0	0	0	1	5	26	33
8:30 AM	1	1	1	0	0	0	3	3	0	0	2	0	0	0	2	0	1	0	0	1	1	3	2	16	0	0	0	0	18	26
8:45 AM	0	2	0	0	0	1	1	4	1	1	2	0	0	0	4	0	0	0	0	1	5	6	0	10	0	0	2	1	13	27
Total Volume	1	7	2	0	1	2	13	1	1	5	0	0	0	7	1	1	0	0	3	11	16	4	56	0	0	3	12	75	111	
% Approach Total	7.7	53.8	15.4	0.0	7.7	15.4		14.3	14.3	71.4	0.0	0.0	0.0		6.3	6.3	0.0	0.0	18.8	68.8		5.3	74.7	0.0	0.0	4.0	16.0			
PHF	0.250	0.583	0.500	0.000	0.250	0.500	0.813	0.250	0.250	0.625	0.000	0.000	0.000	0.438	0.250	0.250	0.000	0.000	0.750	0.550	0.667	0.500	0.737	0.000	0.000	0.375	0.500	0.721	0.841	
Entering Leg	1	7	2	0	1	2	13	1	1	5	0	0	0	7	1	1	0	0	3	11	16	4	56	0	0	3	12	75	111	
Exiting Leg	5							59							30							17							111	
Total	18							66							46							92							222	

PDI File #: **196867 (3) am**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Land Boulevard (Gilmore Bridge)								Monsignor O'Brien Highway (Route 28)								Land Boulevard								Monsignor O'Brien Highway (Route 28)								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
7:30 AM	0	0	0	0	4	4	8	0	0	0	0	0	0	0	0	0	0	0	9	13	22	0	0	0	0	3	26	29	59				
7:45 AM	0	0	0	0	7	4	11	0	0	0	0	0	0	0	0	0	0	0	13	10	23	0	0	0	0	0	42	42	76				
Total	0	0	0	0	11	8	19	0	0	0	0	0	0	0	0	0	0	0	22	23	45	0	0	0	0	3	68	71	135				
8:00 AM	0	0	0	0	9	3	12	0	0	0	0	0	0	0	0	0	0	0	13	17	30	0	0	0	0	1	33	34	76				
8:15 AM	0	0	0	0	15	2	17	0	0	0	0	0	0	0	0	0	0	0	16	19	35	0	0	0	0	2	39	41	93				
8:30 AM	0	0	0	0	36	4	40	0	0	0	0	0	0	0	0	0	0	0	5	22	27	0	0	0	0	6	44	50	117				
8:45 AM	0	0	0	0	42	0	42	0	0	0	0	0	0	0	0	0	0	0	13	20	33	0	0	0	0	2	58	60	135				
Total	0	0	0	0	102	9	111	0	0	0	0	0	0	0	0	0	0	0	47	78	125	0	0	0	0	11	174	185	421				
9:00 AM	0	0	0	0	6	3	9	0	0	0	0	0	0	0	0	0	0	0	5	7	12	0	0	0	0	6	26	32	53				
9:15 AM	0	0	0	0	11	1	12	0	0	0	0	1	0	1	0	0	0	0	11	5	16	0	0	0	0	4	18	22	51				
Total	0	0	0	0	17	4	21	0	0	0	0	1	0	1	0	0	0	0	16	12	28	0	0	0	0	10	44	54	104				
Grand Total	0	0	0	0	130	21	151	0	0	0	0	1	0	1	0	0	0	0	85	113	198	0	0	0	0	24	286	310	660				
Approach %	0	0	0	0	86.1	13.9		0	0	0	0	100	0		0	0	0	0	42.9	57.1		0	0	0	0	7.74	92.3						
Total %	0	0	0	0	19.7	3.18	22.9	0	0	0	0	0.15	0	0.15	0	0	0	0	12.9	17.1	30	0	0	0	0	3.64	43.3	47					
Exiting Leg Total	151							1							198							310							660				

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)								Land Boulevard								Monsignor O'Brien Highway (Route 28)								
	from North							from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total			
8:00 AM	0	0	0	0	9	3	12	0	0	0	0	0	0	0	0	0	0	0	13	17	30	0	0	0	0	1	33	34	76			
8:15 AM	0	0	0	0	15	2	17	0	0	0	0	0	0	0	0	0	0	0	16	19	35	0	0	0	0	2	39	41	93			
8:30 AM	0	0	0	0	36	4	40	0	0	0	0	0	0	0	0	0	0	0	5	22	27	0	0	0	0	6	44	50	117			
8:45 AM	0	0	0	0	42	0	42	0	0	0	0	0	0	0	0	0	0	0	13	20	33	0	0	0	0	2	58	60	135			
Total Volume	0	0	0	0	102	9	111	0	0	0	0	0	0	0	0	0	0	0	47	78	125	0	0	0	0	11	174	185	421			
% Approach Total	0.0	0.0	0.0	0.0	91.9	8.1		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	37.6	62.4		0.0	0.0	0.0	0.0	5.9	94.1					
PHF	0.000	0.000	0.000	0.000	0.607	0.563	0.661	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.734	0.886	0.893	0.000	0.000	0.000	0.000	0.458	0.750	0.771	0.780			
Entering Leg	0	0	0	0	102	9	111	0	0	0	0	0	0	0	0	0	0	0	47	78	125	0	0	0	0	11	174	185	421			
Exiting Leg	111							0								125								185								421
Total	222							0								250								370								842

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	24	95	22	0	141	71	121	71	0	263	39	151	54	0	244	42	83	99	1	225	873
4:45 PM	39	102	20	0	161	84	139	69	0	292	30	125	54	0	209	59	77	92	0	228	890
Total	63	197	42	0	302	155	260	140	0	555	69	276	108	0	453	101	160	191	1	453	1763
5:00 PM	45	84	20	1	150	82	156	57	0	295	53	133	42	0	228	55	94	126	1	276	949
5:15 PM	41	89	31	0	161	79	106	59	0	244	59	132	56	0	247	57	79	107	0	243	895
5:30 PM	39	92	23	0	154	96	131	70	0	297	53	126	24	0	203	36	101	120	4	261	915
5:45 PM	42	88	44	0	174	98	116	57	0	271	78	159	34	0	271	43	102	134	1	280	996
Total	167	353	118	1	639	355	509	243	0	1107	243	550	156	0	949	191	376	487	6	1060	3755
6:00 PM	30	68	30	0	128	88	117	57	0	262	78	107	22	0	207	45	102	125	3	275	872
6:15 PM	39	90	50	0	179	86	122	54	1	263	86	161	33	0	280	48	109	104	2	263	985
Total	69	158	80	0	307	174	239	111	1	525	164	268	55	0	487	93	211	229	5	538	1857
Grand Total	299	708	240	1	1248	684	1008	494	1	2187	476	1094	319	0	1889	385	747	907	12	2051	7375
Approach %	24.0	56.7	19.2	0.1		31.3	46.1	22.6	0.0		25.2	57.9	16.9	0.0		18.8	36.4	44.2	0.6		
Total %	4.1	9.6	3.3	0.0	16.9	9.3	13.7	6.7	0.0	29.7	6.5	14.8	4.3	0.0	25.6	5.2	10.1	12.3	0.2	27.8	
Exiting Leg Total	2686					1464					1587					1638					7375
Cars	291	697	236	1	1225	681	987	478	1	2147	472	1076	317	0	1865	380	721	895	12	2008	7245
% Cars	97.3	98.4	98.3	100.0	98.2	99.6	97.9	96.8	100.0	98.2	99.2	98.4	99.4	0.0	98.7	98.7	96.5	98.7	100.0	97.9	98.2
Exiting Leg Total	2653					1430					1555					1607					7245
Heavy Vehicles	8	11	4	0	23	3	21	16	0	40	4	18	2	0	24	5	26	12	0	43	130
% Heavy Vehicles	2.7	1.6	1.7	0.0	1.8	0.4	2.1	3.2	0.0	1.8	0.8	1.6	0.6	0.0	1.3	1.3	3.5	1.3	0.0	2.1	1.8
Exiting Leg Total	33					34					32					31					130

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	39	92	23	0	154	96	131	70	0	297	53	126	24	0	203	36	101	120	4	261	915
5:45 PM	42	88	44	0	174	98	116	57	0	271	78	159	34	0	271	43	102	134	1	280	996
6:00 PM	30	68	30	0	128	88	117	57	0	262	78	107	22	0	207	45	102	125	3	275	872
6:15 PM	39	90	50	0	179	86	122	54	1	263	86	161	33	0	280	48	109	104	2	263	985
Total Volume	150	338	147	0	635	368	486	238	1	1093	295	553	113	0	961	172	414	483	10	1079	3768
% Approach Total	23.6	53.2	23.1	0.0		33.7	44.5	21.8	0.1		30.7	57.5	11.8	0.0		15.9	38.4	44.8	0.9		
PHF	0.893	0.918	0.735	0.000	0.887	0.939	0.927	0.850	0.250	0.920	0.858	0.859	0.831	0.000	0.858	0.896	0.950	0.901	0.625	0.963	0.946
Cars	147	334	145	0	626	365	478	231	1	1075	293	545	111	0	949	171	403	481	10	1065	3715
Cars %	98.0	98.8	98.6	0.0	98.6	99.2	98.4	97.1	100.0	98.4	99.3	98.6	98.2	0.0	98.8	99.4	97.3	99.6	100.0	98.7	98.6
Heavy Vehicles	3	4	2	0	9	3	8	7	0	18	2	8	2	0	12	1	11	2	0	14	53
Heavy Vehicles %	2.0	1.2	1.4	0.0	1.4	0.8	1.6	2.9	0.0	1.6	0.7	1.4	1.8	0.0	1.2	0.6	2.7	0.4	0.0	1.3	1.4
Cars Enter Leg	147	334	145	0	626	365	478	231	1	1075	293	545	111	0	949	171	403	481	10	1065	3715
Heavy Enter Leg	3	4	2	0	9	3	8	7	0	18	2	8	2	0	12	1	11	2	0	14	53
Total Entering Leg	150	338	147	0	635	368	486	238	1	1093	295	553	113	0	961	172	414	483	10	1079	3768
Cars Exiting Leg	1391					842					736					746					3715
Heavy Exiting Leg	13					15					12					13					53
Total Exiting Leg	1404					857					748					759					3768

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	24	91	21	0	136	71	118	68	0	257	39	146	54	0	239	42	77	96	1	216	848
4:45 PM	37	101	19	0	157	84	137	68	0	289	29	122	54	0	205	58	73	88	0	219	870
Total	61	192	40	0	293	155	255	136	0	546	68	268	108	0	444	100	150	184	1	435	1718
5:00 PM	43	83	20	1	147	82	151	54	0	287	53	132	42	0	227	52	91	125	1	269	930
5:15 PM	40	88	31	0	159	79	103	57	0	239	58	131	56	0	245	57	77	105	0	239	882
5:30 PM	38	91	22	0	151	94	130	69	0	293	53	125	23	0	201	35	100	119	4	258	903
5:45 PM	41	87	44	0	172	97	115	55	0	267	76	157	33	0	266	43	98	133	1	275	980
Total	162	349	117	1	629	352	499	235	0	1086	240	545	154	0	939	187	366	482	6	1041	3695
6:00 PM	30	68	29	0	127	88	116	55	0	259	78	104	22	0	204	45	101	125	3	274	864
6:15 PM	38	88	50	0	176	86	117	52	1	256	86	159	33	0	278	48	104	104	2	258	968
Total	68	156	79	0	303	174	233	107	1	515	164	263	55	0	482	93	205	229	5	532	1832
Grand Total	291	697	236	1	1225	681	987	478	1	2147	472	1076	317	0	1865	380	721	895	12	2008	7245
Approach %	23.8	56.9	19.3	0.1		31.7	46.0	22.3	0.0		25.3	57.7	17.0	0.0		18.9	35.9	44.6	0.6		
Total %	4.0	9.6	3.3	0.0	16.9	9.4	13.6	6.6	0.0	29.6	6.5	14.9	4.4	0.0	25.7	5.2	10.0	12.4	0.2	27.7	
Exiting Leg Total	2653					1430					1555					1607					7245

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	38	91	22	0	151	94	130	69	0	293	53	125	23	0	201	35	100	119	4	258	903
5:45 PM	41	87	44	0	172	97	115	55	0	267	76	157	33	0	266	43	98	133	1	275	980
6:00 PM	30	68	29	0	127	88	116	55	0	259	78	104	22	0	204	45	101	125	3	274	864
6:15 PM	38	88	50	0	176	86	117	52	1	256	86	159	33	0	278	48	104	104	2	258	968
Total Volume	147	334	145	0	626	365	478	231	1	1075	293	545	111	0	949	171	403	481	10	1065	3715
% Approach Total	23.5	53.4	23.2	0.0		34.0	44.5	21.5	0.1		30.9	57.4	11.7	0.0		16.1	37.8	45.2	0.9		
PHF	0.896	0.918	0.725	0.000	0.889	0.941	0.919	0.837	0.250	0.917	0.852	0.857	0.841	0.000	0.853	0.891	0.969	0.904	0.625	0.968	0.948
Entering Leg	147	334	145	0	626	365	478	231	1	1075	293	545	111	0	949	171	403	481	10	1065	3715
Exiting Leg	1391					842					736					746					3715
Total	2017					1917					1685					1811					7430

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	4	1	0	5	0	3	3	0	6	0	5	0	0	5	0	6	3	0	9	25
4:45 PM	2	1	1	0	4	0	2	1	0	3	1	3	0	0	4	1	4	4	0	9	20
Total	2	5	2	0	9	0	5	4	0	9	1	8	0	0	9	1	10	7	0	18	45
5:00 PM	2	1	0	0	3	0	5	3	0	8	0	1	0	0	1	3	3	1	0	7	19
5:15 PM	1	1	0	0	2	0	3	2	0	5	1	1	0	0	2	0	2	2	0	4	13
5:30 PM	1	1	1	0	3	2	1	1	0	4	0	1	1	0	2	1	1	1	0	3	12
5:45 PM	1	1	0	0	2	1	1	2	0	4	2	2	1	0	5	0	4	1	0	5	16
Total	5	4	1	0	10	3	10	8	0	21	3	5	2	0	10	4	10	5	0	19	60
6:00 PM	0	0	1	0	1	0	1	2	0	3	0	3	0	0	3	0	1	0	0	1	8
6:15 PM	1	2	0	0	3	0	5	2	0	7	0	2	0	0	2	0	5	0	0	5	17
Total	1	2	1	0	4	0	6	4	0	10	0	5	0	0	5	0	6	0	0	6	25
Grand Total	8	11	4	0	23	3	21	16	0	40	4	18	2	0	24	5	26	12	0	43	130
Approach %	34.8	47.8	17.4	0.0		7.5	52.5	40.0	0.0		16.7	75.0	8.3	0.0		11.6	60.5	27.9	0.0		
Total %	6.2	8.5	3.1	0.0	17.7	2.3	16.2	12.3	0.0	30.8	3.1	13.8	1.5	0.0	18.5	3.8	20.0	9.2	0.0	33.1	
Exiting Leg Total	33					34					32					31					130
Buses	2	5	3	0	10	3	11	13	0	27	0	7	0	0	7	3	13	3	0	19	63
% Buses	25.0	45.5	75.0	0.0	43.5	100.0	52.4	81.3	0.0	67.5	0.0	38.9	0.0	0.0	29.2	60.0	50.0	25.0	0.0	44.2	48.5
Exiting Leg Total	13					16					21					13					63
Single-Unit Trucks	4	5	1	0	10	0	10	3	0	13	2	10	1	0	13	2	11	9	0	22	58
% Single-Unit	50.0	45.5	25.0	0.0	43.5	0.0	47.6	18.8	0.0	32.5	50.0	55.6	50.0	0.0	54.2	40.0	42.3	75.0	0.0	51.2	44.6
Exiting Leg Total	19					14					10					15					58
Articulated Trucks	2	1	0	0	3	0	0	0	0	0	2	1	1	0	4	0	2	0	0	2	9
% Articulated	25.0	9.1	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	50.0	5.6	50.0	0.0	16.7	0.0	7.7	0.0	0.0	4.7	6.9
Exiting Leg Total	1					4					1					3					9

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	4	1	0	5	0	3	3	0	6	0	5	0	0	5	0	6	3	0	9	25
4:45 PM	2	1	1	0	4	0	2	1	0	3	1	3	0	0	4	1	4	4	0	9	20
5:00 PM	2	1	0	0	3	0	5	3	0	8	0	1	0	0	1	3	3	1	0	7	19
5:15 PM	1	1	0	0	2	0	3	2	0	5	1	1	0	0	2	0	2	2	0	4	13
Total Volume	5	7	2	0	14	0	13	9	0	22	2	10	0	0	12	4	15	10	0	29	77
% Approach Total	35.7	50.0	14.3	0.0		0.0	59.1	40.9	0.0		16.7	83.3	0.0	0.0		13.8	51.7	34.5	0.0		
PHF	0.625	0.438	0.500	0.000	0.700	0.000	0.650	0.750	0.000	0.688	0.500	0.500	0.000	0.000	0.600	0.333	0.625	0.625	0.000	0.806	0.770
Buses	1	3	1	0	5	0	7	7	0	14	0	3	0	0	3	3	5	1	0	9	31
Buses %	20.0	42.9	50.0	0.0	35.7	0.0	53.8	77.8	0.0	63.6	0.0	30.0	0.0	0.0	25.0	75.0	33.3	10.0	0.0	31.0	40.3
Single-Unit Trucks	2	3	1	0	6	0	6	2	0	8	1	7	0	0	8	1	8	9	0	18	40
Single-Unit %	40.0	42.9	50.0	0.0	42.9	0.0	46.2	22.2	0.0	36.4	50.0	70.0	0.0	0.0	66.7	25.0	53.3	90.0	0.0	62.1	51.9
Articulated Trucks	2	1	0	0	3	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	6
Articulated %	40.0	14.3	0.0	0.0	21.4	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	0.0	8.3	0.0	13.3	0.0	0.0	6.9	7.8
Buses	1	3	1	0	5	0	7	7	0	14	0	3	0	0	3	3	5	1	0	9	31
Single-Unit Trucks	2	3	1	0	6	0	6	2	0	8	1	7	0	0	8	1	8	9	0	18	40
Articulated Trucks	2	1	0	0	3	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	6
Total Entering Leg	5	7	2	0	14	0	13	9	0	22	2	10	0	0	12	4	15	10	0	29	77
Buses	4					6					13					8					31
Single-Unit Trucks	16					10					6					8					40
Articulated Trucks	0					3					1					2					6
Total Exiting Leg	20					19					20					18					77

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	2	0	0	2	0	1	3	0	4	0	1	0	0	1	0	1	0	0	1	8
4:45 PM	1	1	1	0	3	0	2	0	0	2	0	1	0	0	1	1	2	0	0	3	9
Total	1	3	1	0	5	0	3	3	0	6	0	2	0	0	2	1	3	0	0	4	17
5:00 PM	0	0	0	0	0	0	1	3	0	4	0	0	0	0	0	2	1	0	0	3	7
5:15 PM	0	0	0	0	0	0	3	1	0	4	0	1	0	0	1	0	1	1	0	2	7
5:30 PM	1	0	1	0	2	2	0	1	0	3	0	1	0	0	1	0	0	1	0	1	7
5:45 PM	0	1	0	0	1	1	0	2	0	3	0	2	0	0	2	0	4	1	0	5	11
Total	1	1	1	0	3	3	4	7	0	14	0	4	0	0	4	2	6	3	0	11	32
6:00 PM	0	0	1	0	1	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	5
6:15 PM	0	1	0	0	1	0	3	1	0	4	0	1	0	0	1	0	3	0	0	3	9
Total	0	1	1	0	2	0	4	3	0	7	0	1	0	0	1	0	4	0	0	4	14
Grand Total	2	5	3	0	10	3	11	13	0	27	0	7	0	0	7	3	13	3	0	19	63
Approach %	20.0	50.0	30.0	0.0		11.1	40.7	48.1	0.0		0.0	100.0	0.0	0.0		15.8	68.4	15.8	0.0		
Total %	3.2	7.9	4.8	0.0	15.9	4.8	17.5	20.6	0.0	42.9	0.0	11.1	0.0	0.0	11.1	4.8	20.6	4.8	0.0	30.2	
Exiting Leg Total	13					16					21					13					63

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	0	0	0	0	0	0	1	3	0	4	0	0	0	0	0	2	1	0	0	3	7
5:15 PM	0	0	0	0	0	0	3	1	0	4	0	1	0	0	1	0	1	1	0	2	7
5:30 PM	1	0	1	0	2	2	0	1	0	3	0	1	0	0	1	0	0	1	0	1	7
5:45 PM	0	1	0	0	1	1	0	2	0	3	0	2	0	0	2	0	4	1	0	5	11
Total Volume	1	1	1	0	3	3	4	7	0	14	0	4	0	0	4	2	6	3	0	11	32
% Approach Total	33.3	33.3	33.3	0.0		21.4	28.6	50.0	0.0		0.0	100.0	0.0	0.0		18.2	54.5	27.3	0.0		
PHF	0.250	0.250	0.250	0.000	0.375	0.375	0.333	0.583	0.000	0.875	0.000	0.500	0.000	0.000	0.500	0.250	0.375	0.750	0.000	0.550	0.727
Entering Leg	1	1	1	0	3	3	4	7	0	14	0	4	0	0	4	2	6	3	0	11	32
Exiting Leg	10					7					10					5					32
Total	13					21					14					16					64

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	2	1	0	3	0	2	0	0	2	0	4	0	0	4	0	4	3	0	7	16
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	2	0	0	3	0	1	4	0	5	9
Total	0	2	1	0	3	0	2	1	0	3	1	6	0	0	7	0	5	7	0	12	25
5:00 PM	2	1	0	0	3	0	4	0	0	4	0	1	0	0	1	1	2	1	0	4	12
5:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	3
5:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	1	1	0	0	2	5
5:45 PM	1	0	0	0	1	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	3
Total	3	2	0	0	5	0	6	1	0	7	1	1	1	0	3	2	4	2	0	8	23
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
6:15 PM	1	1	0	0	2	0	2	1	0	3	0	1	0	0	1	0	2	0	0	2	8
Total	1	1	0	0	2	0	2	1	0	3	0	3	0	0	3	0	2	0	0	2	10
Grand Total	4	5	1	0	10	0	10	3	0	13	2	10	1	0	13	2	11	9	0	22	58
Approach %	40.0	50.0	10.0	0.0		0.0	76.9	23.1	0.0		15.4	76.9	7.7	0.0		9.1	50.0	40.9	0.0		
Total %	6.9	8.6	1.7	0.0	17.2	0.0	17.2	5.2	0.0	22.4	3.4	17.2	1.7	0.0	22.4	3.4	19.0	15.5	0.0	37.9	
Exiting Leg Total	19					14					10					15					58

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	2	1	0	3	0	2	0	0	2	0	4	0	0	4	0	4	3	0	7	16
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	2	0	0	3	0	1	4	0	5	9
5:00 PM	2	1	0	0	3	0	4	0	0	4	0	1	0	0	1	1	2	1	0	4	12
5:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	2	3
Total Volume	2	3	1	0	6	0	6	2	0	8	1	7	0	0	8	1	8	9	0	18	40
% Approach Total	33.3	50.0	16.7	0.0		0.0	75.0	25.0	0.0		12.5	87.5	0.0	0.0		5.6	44.4	50.0	0.0		
PHF	0.250	0.375	0.250	0.000	0.500	0.000	0.375	0.500	0.000	0.500	0.250	0.438	0.000	0.000	0.500	0.250	0.500	0.563	0.000	0.643	0.625
Entering Leg	2	3	1	0	6	0	6	2	0	8	1	7	0	0	8	1	8	9	0	18	40
Exiting Leg	16					10					6					8					40
Total	22					18					14					26					80

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Bren Highway (Route 28) W: Monsignor O'Bren Highway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
4:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	2
Total	1	1	0	0	2	0	0	0	0	0	2	0	1	0	3	0	0	0	0	0	0	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
6:15 PM	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	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1
Grand Total	2	1	0	0	3	0	0	0	0	0	2	1	1	0	4	0	2	0	0	2	9	
Approach %	66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		50.0	25.0	25.0	0.0		0.0	100.0	0.0	0.0			
Total %	22.2	11.1	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	22.2	11.1	11.1	0.0	44.4	0.0	22.2	0.0	0.0	22.2		
Exiting Leg Total	1					4					1					3						9

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard (Gilmore Bridge)					Monsignor O'Brien Highway (Route 28)					Land Boulevard					Monsignor O'Brien Highway (Route 28)					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
4:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	1	0	0	2	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0
Total Volume	2	1	0	0	3	0	0	0	0	0	1	0	0	0	0	1	0	2	0	0	2
% Approach Total	66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.500	0.250	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.500	0.000	0.000	0.500	0.500
Entering Leg	2	1	0	0	3	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	6
Exiting Leg	0					3					1					2					6
Total	3					3					2					4					12

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)							Land Boulevard							Monsignor O'Brien Highway (Route 28)							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
4:30 PM	0	3	0	0	0	0	3	6	3	4	0	0	0	0	7	0	0	0	0	0	1	1	0	4	1	0	2	1	8	22
4:45 PM	0	0	0	0	0	0	0	0	2	3	0	0	0	0	5	0	0	0	0	1	1	2	0	1	0	0	0	0	1	8
Total	0	3	0	0	0	0	3	6	5	7	0	0	0	0	12	0	0	0	0	1	2	3	0	5	1	0	2	1	9	30
5:00 PM	0	0	1	0	3	1	5	10	1	4	1	0	0	0	6	1	0	0	0	0	2	3	2	1	0	0	3	1	7	21
5:15 PM	1	0	0	0	0	0	1	2	0	10	0	0	0	0	10	1	1	0	0	6	0	8	0	3	1	0	3	0	7	26
5:30 PM	0	0	1	0	1	2	4	8	1	8	1	0	0	0	10	0	0	0	0	0	1	1	0	1	1	0	2	0	4	19
5:45 PM	0	0	1	0	0	2	3	6	1	7	0	0	0	0	8	0	1	1	0	1	1	4	0	1	1	0	1	2	5	20
Total	1	0	3	0	4	5	13	26	3	29	2	0	0	0	34	2	2	1	0	7	4	16	2	6	3	0	9	3	23	86
6:00 PM	0	0	0	0	0	1	1	2	0	5	2	0	0	0	7	1	0	0	0	0	1	2	0	6	0	0	0	0	6	16
6:15 PM	0	0	0	0	0	2	2	4	0	5	0	0	0	0	5	0	0	0	0	1	0	1	0	2	0	0	1	1	4	12
Total	0	0	0	0	0	3	3	6	0	10	2	0	0	0	12	1	0	0	0	1	1	3	0	8	0	0	1	1	10	28
Grand Total	1	3	3	0	4	11	22	32	8	46	4	0	0	0	58	3	2	1	0	9	7	22	2	19	4	0	12	5	42	144
Approach %	4.5	13.6	13.6	0.0	18.2	50.0			13.8	79.3	6.9	0.0	0.0	0.0		13.6	9.1	4.5	0.0	40.9	31.8		4.8	45.2	9.5	0.0	28.6	11.9		
Total %	0.7	2.1	2.1	0.0	2.8	7.6	15.3		5.6	31.9	2.8	0.0	0.0	0.0	40.3	2.1	1.4	0.7	0.0	6.3	4.9	15.3	1.4	13.2	2.8	0.0	8.3	3.5	29.2	
Exiting Leg Total	29							25							25							65							144	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)								Land Boulevard								Monsignor O'Brien Highway (Route 28)								Total
	from North							from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total				
5:00 PM	0	0	1	0	3	1	5	1	4	1	0	0	0	6	1	0	0	0	0	2	3	2	1	0	0	3	1	7	21			
5:15 PM	1	0	0	0	0	0	1	0	10	0	0	0	0	10	1	1	0	0	6	0	8	0	3	1	0	3	0	7	26			
5:30 PM	0	0	1	0	1	2	4	1	8	1	0	0	0	10	0	0	0	0	0	1	1	0	1	1	0	2	0	4	19			
5:45 PM	0	0	1	0	0	2	3	1	7	0	0	0	0	8	0	1	1	0	1	1	4	0	1	1	0	1	2	5	20			
Total Volume	1	0	3	0	4	5	13	3	29	2	0	0	0	34	2	2	1	0	7	4	16	2	6	3	0	9	3	23	86			
% Approach Total	7.7	0.0	23.1	0.0	30.8	38.5		8.8	85.3	5.9	0.0	0.0	0.0		12.5	12.5	6.3	0.0	43.8	25.0		8.7	26.1	13.0	0.0	39.1	13.0					
PHF	0.250	0.000	0.750	0.000	0.333	0.625	0.650	0.750	0.725	0.500	0.000	0.000	0.000	0.850	0.500	0.500	0.250	0.000	0.292	0.500	0.500	0.250	0.500	0.750	0.000	0.750	0.375	0.821	0.827			
Entering Leg	1	0	3	0	4	5	13	3	29	2	0	0	0	34	2	2	1	0	7	4	16	2	6	3	0	9	3	23	86			
Exiting Leg	17							11								15								43								86
Total	30							45								31								66								172

PDI File #: **196867 (3) pm**
 Location: **N: Land Boulevard (Gilmore Bridge) S: Land Boulevard**
 Location: **E: Monsignor O'Brien Highway (Route 28) W: Monsignor O'Brien Highway (Route 28)**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)							Land Boulevard							Monsignor O'Brien Highway (Route 28)							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	5	12	17	0	0	0	0	0	0	0	0	0	0	0	20	19	39	0	0	0	0	26	8	34	90
4:45 PM	0	0	0	0	6	15	21	0	0	0	0	0	0	1	1	0	0	0	18	15	33	0	0	0	0	39	7	46	101
Total	0	0	0	0	11	27	38	0	0	0	0	0	1	1	0	0	0	0	38	34	72	0	0	0	0	65	15	80	191
5:00 PM	0	0	0	0	8	14	22	0	0	0	0	0	0	0	0	0	0	0	28	18	46	0	0	0	0	44	6	50	118
5:15 PM	0	0	0	0	12	18	30	0	0	0	0	0	0	0	0	0	0	0	18	8	26	0	0	0	0	42	8	50	106
5:30 PM	0	0	0	0	12	27	39	0	0	0	0	1	0	1	0	0	0	0	24	19	43	0	0	0	0	49	15	64	147
5:45 PM	0	0	0	0	5	17	22	0	0	0	0	0	0	0	0	0	0	0	32	15	47	0	0	0	0	43	13	56	125
Total	0	0	0	0	37	76	113	0	0	0	0	1	0	1	0	0	0	0	102	60	162	0	0	0	0	178	42	220	496
6:00 PM	0	0	0	0	5	18	23	0	0	0	0	2	0	2	0	0	0	0	23	16	39	0	0	0	0	30	8	38	102
6:15 PM	0	0	0	0	7	13	20	0	0	0	0	1	1	2	0	0	0	0	15	14	29	0	0	0	0	39	11	50	101
Total	0	0	0	0	12	31	43	0	0	0	0	3	1	4	0	0	0	0	38	30	68	0	0	0	0	69	19	88	203
Grand Total	0	0	0	0	60	134	194	0	0	0	0	4	2	6	0	0	0	0	178	124	302	0	0	0	0	312	76	388	890
Approach %	0	0	0	0	30.9	69.1		0	0	0	0	66.7	33.3		0	0	0	0	58.9	41.1		0	0	0	0	80.4	19.6		
Total %	0	0	0	0	6.74	15.1	21.8	0	0	0	0	0.45	0.22	0.67	0	0	0	0	20	13.9	33.9	0	0	0	0	35.1	8.54	43.6	
Exiting Leg Total	194							6							302							388							890

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Land Boulevard (Gilmore Bridge)							Monsignor O'Brien Highway (Route 28)							Land Boulevard							Monsignor O'Brien Highway (Route 28)							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	8	14	22	0	0	0	0	0	0	0	0	0	0	0	28	18	46	0	0	0	0	44	6	50	118
5:15 PM	0	0	0	0	12	18	30	0	0	0	0	0	0	0	0	0	0	0	18	8	26	0	0	0	0	42	8	50	106
5:30 PM	0	0	0	0	12	27	39	0	0	0	0	1	0	1	0	0	0	0	24	19	43	0	0	0	0	49	15	64	147
5:45 PM	0	0	0	0	5	17	22	0	0	0	0	0	0	0	0	0	0	0	32	15	47	0	0	0	0	43	13	56	125
Total Volume	0	0	0	0	37	76	113	0	0	0	0	1	0	1	0	0	0	0	102	60	162	0	0	0	0	178	42	220	496
% Approach Total	0.0	0.0	0.0	0.0	32.7	67.3		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	63.0	37.0		0.0	0.0	0.0	0.0	80.9	19.1		
PHF	0.000	0.000	0.000	0.000	0.771	0.704	0.724	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.797	0.789	0.862	0.000	0.000	0.000	0.000	0.908	0.700	0.859	0.844
Entering Leg	0	0	0	0	37	76	113	0	0	0	0	1	0	1	0	0	0	0	102	60	162	0	0	0	0	178	42	220	496
Exiting Leg	113							1							162							220							496
Total	226							2							324							440							992

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	4	30	0	0	34	14	19	86	0	119	104	0	0	0	104	4	17	13	0	34	291
7:45 AM	3	49	0	0	52	10	15	101	0	126	112	0	0	0	112	9	18	33	0	60	350
Total	7	79	0	0	86	24	34	187	0	245	216	0	0	0	216	13	35	46	0	94	641
8:00 AM	8	42	0	0	50	7	36	88	0	131	109	0	0	0	109	9	16	30	0	55	345
8:15 AM	4	36	1	0	41	5	23	76	0	104	76	0	0	0	76	7	20	27	0	54	275
8:30 AM	12	37	1	0	50	9	26	74	0	109	91	0	0	0	91	8	25	25	0	58	308
8:45 AM	12	32	1	0	45	15	31	89	0	135	116	1	0	0	117	9	17	11	0	37	334
Total	36	147	3	0	186	36	116	327	0	479	392	1	0	0	393	33	78	93	0	204	1262
9:00 AM	6	33	0	0	39	10	32	87	0	129	106	1	0	0	107	11	22	24	0	57	332
9:15 AM	15	39	0	0	54	9	33	88	1	131	89	3	0	0	92	7	21	22	0	50	327
Total	21	72	0	0	93	19	65	175	1	260	195	4	0	0	199	18	43	46	0	107	659
Grand Total	64	298	3	0	365	79	215	689	1	984	803	5	0	0	808	64	156	185	0	405	2562
Approach %	17.5	81.6	0.8	0.0		8.0	21.8	70.0	0.1		99.4	0.6	0.0	0.0		15.8	38.5	45.7	0.0		
Total %	2.5	11.6	0.1	0.0	14.2	3.1	8.4	26.9	0.0	38.4	31.3	0.2	0.0	0.0	31.5	2.5	6.1	7.2	0.0	15.8	
Exiting Leg Total	269					963					1051					279					2562
Cars	64	288	2	0	354	75	213	574	1	863	690	2	0	0	692	52	149	180	0	381	2290
% Cars	100.0	96.6	66.7	0.0	97.0	94.9	99.1	83.3	100.0	87.7	85.9	40.0	0.0	0.0	85.6	81.3	95.5	97.3	0.0	94.1	89.4
Exiting Leg Total	257					842					914					277					2290
Heavy Vehicles	0	10	1	0	11	4	2	115	0	121	113	3	0	0	116	12	7	5	0	24	272
% Heavy Vehicles	0.0	3.4	33.3	0.0	3.0	5.1	0.9	16.7	0.0	12.3	14.1	60.0	0.0	0.0	14.4	18.8	4.5	2.7	0.0	5.9	10.6
Exiting Leg Total	12					121					137					2					272

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
8:30 AM	12	37	1	0	50	9	26	74	0	109	91	0	0	0	91	8	25	25	0	58	308
8:45 AM	12	32	1	0	45	15	31	89	0	135	116	1	0	0	117	9	17	11	0	37	334
9:00 AM	6	33	0	0	39	10	32	87	0	129	106	1	0	0	107	11	22	24	0	57	332
9:15 AM	15	39	0	0	54	9	33	88	1	131	89	3	0	0	92	7	21	22	0	50	327
Total Volume	45	141	2	0	188	43	122	338	1	504	402	5	0	0	407	35	85	82	0	202	1301
% Approach Total	23.9	75.0	1.1	0.0		8.5	24.2	67.1	0.2		98.8	1.2	0.0	0.0		17.3	42.1	40.6	0.0		
PHF	0.750	0.904	0.500	0.000	0.870	0.717	0.924	0.949	0.250	0.933	0.866	0.417	0.000	0.000	0.870	0.795	0.850	0.820	0.000	0.871	0.974
Cars	45	133	2	0	180	41	122	291	1	455	346	2	0	0	348	30	81	81	0	192	1175
Cars %	100.0	94.3	100.0	0.0	95.7	95.3	100.0	86.1	100.0	90.3	86.1	40.0	0.0	0.0	85.5	85.7	95.3	98.8	0.0	95.0	90.3
Heavy Vehicles	0	8	0	0	8	2	0	47	0	49	56	3	0	0	59	5	4	1	0	10	126
Heavy Vehicles %	0.0	5.7	0.0	0.0	4.3	4.7	0.0	13.9	0.0	9.7	13.9	60.0	0.0	0.0	14.5	14.3	4.7	1.2	0.0	5.0	9.7
Cars Enter Leg	45	133	2	0	180	41	122	291	1	455	346	2	0	0	348	30	81	81	0	192	1175
Heavy Enter Leg	0	8	0	0	8	2	0	47	0	49	56	3	0	0	59	5	4	1	0	10	126
Total Entering Leg	45	141	2	0	188	43	122	338	1	504	402	5	0	0	407	35	85	82	0	202	1301
Cars Exiting Leg	124					430					454					167					1175
Heavy Exiting Leg	6					60					60					0					126
Total Exiting Leg	130					490					514					167					1301

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	4	28	0	0	32	13	18	67	0	98	85	0	0	0	85	3	17	13	0	33	248
7:45 AM	3	49	0	0	52	9	14	77	0	100	100	0	0	0	100	6	16	32	0	54	306
Total	7	77	0	0	84	22	32	144	0	198	185	0	0	0	185	9	33	45	0	87	554
8:00 AM	8	42	0	0	50	7	36	74	0	117	97	0	0	0	97	7	15	29	0	51	315
8:15 AM	4	36	0	0	40	5	23	65	0	93	62	0	0	0	62	6	20	25	0	51	246
8:30 AM	12	36	1	0	49	7	26	60	0	93	77	0	0	0	77	6	24	25	0	55	274
8:45 AM	12	31	1	0	44	15	31	81	0	127	104	0	0	0	104	9	16	11	0	36	311
Total	36	145	2	0	183	34	116	280	0	430	340	0	0	0	340	28	75	90	0	193	1146
9:00 AM	6	32	0	0	38	10	32	76	0	118	85	0	0	0	85	8	21	23	0	52	293
9:15 AM	15	34	0	0	49	9	33	74	1	117	80	2	0	0	82	7	20	22	0	49	297
Total	21	66	0	0	87	19	65	150	1	235	165	2	0	0	167	15	41	45	0	101	590
Grand Total	64	288	2	0	354	75	213	574	1	863	690	2	0	0	692	52	149	180	0	381	2290
Approach %	18.1	81.4	0.6	0.0		8.7	24.7	66.5	0.1		99.7	0.3	0.0	0.0		13.6	39.1	47.2	0.0		
Total %	2.8	12.6	0.1	0.0	15.5	3.3	9.3	25.1	0.0	37.7	30.1	0.1	0.0	0.0	30.2	2.3	6.5	7.9	0.0	16.6	
Exiting Leg Total	257					842					914					277					2290

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
8:30 AM	12	36	1	0	49	7	26	60	0	93	77	0	0	0	77	6	24	25	0	55	274
8:45 AM	12	31	1	0	44	15	31	81	0	127	104	0	0	0	104	9	16	11	0	36	311
9:00 AM	6	32	0	0	38	10	32	76	0	118	85	0	0	0	85	8	21	23	0	52	293
9:15 AM	15	34	0	0	49	9	33	74	1	117	80	2	0	0	82	7	20	22	0	49	297
Total Volume	45	133	2	0	180	41	122	291	1	455	346	2	0	0	348	30	81	81	0	192	1175
% Approach Total	25.0	73.9	1.1	0.0		9.0	26.8	64.0	0.2		99.4	0.6	0.0	0.0		15.6	42.2	42.2	0.0		
PHF	0.750	0.924	0.500	0.000	0.918	0.683	0.924	0.898	0.250	0.896	0.832	0.250	0.000	0.000	0.837	0.833	0.844	0.810	0.000	0.873	0.945
Entering Leg	45	133	2	0	180	41	122	291	1	455	346	2	0	0	348	30	81	81	0	192	1175
Exiting Leg	124					430					454					167					1175
Total	304					885					802					359					2350

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	2	0	0	2	1	1	19	0	21	19	0	0	0	19	1	0	0	0	1	43
7:45 AM	0	0	0	0	0	1	1	24	0	26	12	0	0	0	12	3	2	1	0	6	44
Total	0	2	0	0	2	2	2	43	0	47	31	0	0	0	31	4	2	1	0	7	87
8:00 AM	0	0	0	0	0	0	0	14	0	14	12	0	0	0	12	2	1	1	0	4	30
8:15 AM	0	0	1	0	1	0	0	11	0	11	14	0	0	0	14	1	0	2	0	3	29
8:30 AM	0	1	0	0	1	2	0	14	0	16	14	0	0	0	14	2	1	0	0	3	34
8:45 AM	0	1	0	0	1	0	0	8	0	8	12	1	0	0	13	0	1	0	0	1	23
Total	0	2	1	0	3	2	0	47	0	49	52	1	0	0	53	5	3	3	0	11	116
9:00 AM	0	1	0	0	1	0	0	11	0	11	21	1	0	0	22	3	1	1	0	5	39
9:15 AM	0	5	0	0	5	0	0	14	0	14	9	1	0	0	10	0	1	0	0	1	30
Total	0	6	0	0	6	0	0	25	0	25	30	2	0	0	32	3	2	1	0	6	69
Grand Total	0	10	1	0	11	4	2	115	0	121	113	3	0	0	116	12	7	5	0	24	272
Approach %	0.0	90.9	9.1	0.0		3.3	1.7	95.0	0.0		97.4	2.6	0.0	0.0		50.0	29.2	20.8	0.0		
Total %	0.0	3.7	0.4	0.0	4.0	1.5	0.7	42.3	0.0	44.5	41.5	1.1	0.0	0.0	42.6	4.4	2.6	1.8	0.0	8.8	
Exiting Leg Total	12					121					137					2					272
Buses	0	4	0	0	4	0	0	35	0	35	36	3	0	0	39	1	1	2	0	4	82
% Buses	0.0	40.0	0.0	0.0	36.4	0.0	0.0	30.4	0.0	28.9	31.9	100.0	0.0	0.0	33.6	8.3	14.3	40.0	0.0	16.7	30.1
Exiting Leg Total	5					37					40					0					82
Single-Unit Trucks	0	6	0	0	6	3	1	73	0	77	63	0	0	0	63	11	4	3	0	18	164
% Single-Unit	0.0	60.0	0.0	0.0	54.5	75.0	50.0	63.5	0.0	63.6	55.8	0.0	0.0	0.0	54.3	91.7	57.1	60.0	0.0	75.0	60.3
Exiting Leg Total	6					67					90					1					164
Articulated Trucks	0	0	1	0	1	1	1	7	0	9	14	0	0	0	14	0	2	0	0	2	26
% Articulated	0.0	0.0	100.0	0.0	9.1	25.0	50.0	6.1	0.0	7.4	12.4	0.0	0.0	0.0	12.1	0.0	28.6	0.0	0.0	8.3	9.6
Exiting Leg Total	1					17					7					1					26

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	2	0	0	2	1	1	19	0	21	19	0	0	0	19	1	0	0	0	1	43
7:45 AM	0	0	0	0	0	1	1	24	0	26	12	0	0	0	12	3	2	1	0	6	44
8:00 AM	0	0	0	0	0	0	0	14	0	14	12	0	0	0	12	2	1	1	0	4	30
8:15 AM	0	0	1	0	1	0	0	11	0	11	14	0	0	0	14	1	0	2	0	3	29
Total Volume	0	2	1	0	3	2	2	68	0	72	57	0	0	0	57	7	3	4	0	14	146
% Approach Total	0.0	66.7	33.3	0.0		2.8	2.8	94.4	0.0		100.0	0.0	0.0	0.0		50.0	21.4	28.6	0.0		
PHF	0.000	0.250	0.250	0.000	0.375	0.500	0.500	0.708	0.000	0.692	0.750	0.000	0.000	0.000	0.750	0.583	0.375	0.500	0.000	0.583	0.830
Buses	0	1	0	0	1	0	0	19	0	19	19	0	0	0	19	1	1	2	0	4	43
Buses %	0.0	50.0	0.0	0.0	33.3	0.0	0.0	27.9	0.0	26.4	33.3	0.0	0.0	0.0	33.3	14.3	33.3	50.0	0.0	28.6	29.5
Single-Unit Trucks	0	1	0	0	1	2	1	44	0	47	27	0	0	0	27	6	0	2	0	8	83
Single-Unit %	0.0	50.0	0.0	0.0	33.3	100.0	50.0	64.7	0.0	65.3	47.4	0.0	0.0	0.0	47.4	85.7	0.0	50.0	0.0	57.1	56.8
Articulated Trucks	0	0	1	0	1	0	1	5	0	6	11	0	0	0	11	0	2	0	0	2	20
Articulated %	0.0	0.0	100.0	0.0	33.3	0.0	50.0	7.4	0.0	8.3	19.3	0.0	0.0	0.0	19.3	0.0	66.7	0.0	0.0	14.3	13.7
Buses	0	1	0	0	1	0	0	19	0	19	19	0	0	0	19	1	1	2	0	4	43
Single-Unit Trucks	0	1	0	0	1	2	1	44	0	47	27	0	0	0	27	6	0	2	0	8	83
Articulated Trucks	0	0	1	0	1	0	1	5	0	6	11	0	0	0	11	0	2	0	0	2	20
Total Entering Leg	0	2	1	0	3	2	2	68	0	72	57	0	0	0	57	7	3	4	0	14	146
Buses	2					20					21					0					43
Single-Unit Trucks	4					27					51					1					83
Articulated Trucks	0					14					5					1					20
Total Exiting Leg	6					61					77					2					146

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	0	5	0	5	8	0	0	0	8	0	0	0	0	0	14
7:45 AM	0	0	0	0	0	0	0	7	0	7	3	0	0	0	3	1	0	0	0	1	11
Total	0	1	0	0	1	0	0	12	0	12	11	0	0	0	11	1	0	0	0	1	25
8:00 AM	0	0	0	0	0	0	0	4	0	4	5	0	0	0	5	0	1	0	0	1	10
8:15 AM	0	0	0	0	0	0	0	3	0	3	3	0	0	0	3	0	0	2	0	2	8
8:30 AM	0	0	0	0	0	0	0	6	0	6	5	0	0	0	5	0	0	0	0	0	11
8:45 AM	0	0	0	0	0	0	0	2	0	2	4	1	0	0	5	0	0	0	0	0	7
Total	0	0	0	0	0	0	0	15	0	15	17	1	0	0	18	0	1	2	0	3	36
9:00 AM	0	1	0	0	1	0	0	5	0	5	5	1	0	0	6	0	0	0	0	0	12
9:15 AM	0	2	0	0	2	0	0	3	0	3	3	1	0	0	4	0	0	0	0	0	9
Total	0	3	0	0	3	0	0	8	0	8	8	2	0	0	10	0	0	0	0	0	21
Grand Total	0	4	0	0	4	0	0	35	0	35	36	3	0	0	39	1	1	2	0	4	82
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		92.3	7.7	0.0	0.0		25.0	25.0	50.0	0.0		
Total %	0.0	4.9	0.0	0.0	4.9	0.0	0.0	42.7	0.0	42.7	43.9	3.7	0.0	0.0	47.6	1.2	1.2	2.4	0.0	4.9	
Exiting Leg Total	5					37					40					0					82

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	0	5	0	5	8	0	0	0	8	0	0	0	0	0	14
7:45 AM	0	0	0	0	0	0	0	7	0	7	3	0	0	0	3	1	0	0	0	1	11
8:00 AM	0	0	0	0	0	0	0	4	0	4	5	0	0	0	5	0	1	0	0	1	10
8:15 AM	0	0	0	0	0	0	0	3	0	3	3	0	0	0	3	0	0	2	0	2	8
Total Volume	0	1	0	0	1	0	0	19	0	19	19	0	0	0	19	1	1	2	0	4	43
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		25.0	25.0	50.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.679	0.000	0.679	0.594	0.000	0.000	0.000	0.594	0.250	0.250	0.250	0.000	0.500	0.768
Entering Leg	0	1	0	0	1	0	0	19	0	19	19	0	0	0	19	1	1	2	0	4	43
Exiting Leg	2					20					21					0					43
Total	3					39					40					4					86

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	1	0	12	0	13	5	0	0	0	5	1	0	0	0	1	20
7:45 AM	0	0	0	0	0	1	1	16	0	18	7	0	0	0	7	2	0	1	0	3	28
Total	0	1	0	0	1	2	1	28	0	31	12	0	0	0	12	3	0	1	0	4	48
8:00 AM	0	0	0	0	0	0	0	10	0	10	5	0	0	0	5	2	0	1	0	3	18
8:15 AM	0	0	0	0	0	0	0	6	0	6	10	0	0	0	10	1	0	0	0	1	17
8:30 AM	0	1	0	0	1	1	0	7	0	8	9	0	0	0	9	2	1	0	0	3	21
8:45 AM	0	1	0	0	1	0	0	6	0	6	8	0	0	0	8	0	1	0	0	1	16
Total	0	2	0	0	2	1	0	29	0	30	32	0	0	0	32	5	2	1	0	8	72
9:00 AM	0	0	0	0	0	0	0	6	0	6	15	0	0	0	15	3	1	1	0	5	26
9:15 AM	0	3	0	0	3	0	0	10	0	10	4	0	0	0	4	0	1	0	0	1	18
Total	0	3	0	0	3	0	0	16	0	16	19	0	0	0	19	3	2	1	0	6	44
Grand Total	0	6	0	0	6	3	1	73	0	77	63	0	0	0	63	11	4	3	0	18	164
Approach %	0.0	100.0	0.0	0.0		3.9	1.3	94.8	0.0		100.0	0.0	0.0	0.0		61.1	22.2	16.7	0.0		
Total %	0.0	3.7	0.0	0.0	3.7	1.8	0.6	44.5	0.0	47.0	38.4	0.0	0.0	0.0	38.4	6.7	2.4	1.8	0.0	11.0	
Exiting Leg Total	6					67					90					1					164

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:45 AM	0	0	0	0	0	1	1	16	0	18	7	0	0	0	7	2	0	1	0	3	28
8:00 AM	0	0	0	0	0	0	0	10	0	10	5	0	0	0	5	2	0	1	0	3	18
8:15 AM	0	0	0	0	0	0	0	6	0	6	10	0	0	0	10	1	0	0	0	1	17
8:30 AM	0	1	0	0	1	1	0	7	0	8	9	0	0	0	9	2	1	0	0	3	21
Total Volume	0	1	0	0	1	2	1	39	0	42	31	0	0	0	31	7	1	2	0	10	84
% Approach Total	0.0	100.0	0.0	0.0		4.8	2.4	92.9	0.0		100.0	0.0	0.0	0.0		70.0	10.0	20.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.500	0.250	0.609	0.000	0.583	0.775	0.000	0.000	0.000	0.775	0.875	0.250	0.500	0.000	0.833	0.750
Entering Leg	0	1	0	0	1	2	1	39	0	42	31	0	0	0	31	7	1	2	0	10	84
Exiting Leg	4					32					47					1					84
Total	5					74					78					11					168

PDI File #: **196867 (10) am**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	1	2	0	3	6	0	0	0	6	0	0	0	0	0	9
7:45 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	2	0	0	2	5
Total	0	0	0	0	0	0	1	3	0	4	8	0	0	0	8	0	2	0	0	2	14
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
8:15 AM	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
8:30 AM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	1	0	3	0	4	3	0	0	0	3	0	0	0	0	0	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	4
Grand Total	0	0	1	0	1	1	1	7	0	9	14	0	0	0	14	0	2	0	0	2	26
Approach %	0.0	0.0	100.0	0.0		11.1	11.1	77.8	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	3.8	0.0	3.8	3.8	3.8	26.9	0.0	34.6	53.8	0.0	0.0	0.0	53.8	0.0	7.7	0.0	0.0	7.7	
Exiting Leg Total	1					17					7					1					26

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	1	2	0	3	6	0	0	0	6	0	0	0	0	0	9
7:45 AM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	2	0	0	2	5
8:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2
8:15 AM	0	0	1	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
Total Volume	0	0	1	0	1	0	1	5	0	6	11	0	0	0	11	0	2	0	0	2	20
% Approach Total	0.0	0.0	100.0	0.0		0.0	16.7	83.3	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.625	0.000	0.500	0.458	0.000	0.000	0.000	0.458	0.000	0.250	0.000	0.000	0.250	0.556
Entering Leg	0	0	1	0	1	0	1	5	0	6	11	0	0	0	11	0	2	0	0	2	20
Exiting Leg	0					14					5					1					20
Total	1					20					16					3					40

PDI File #: 196867 (10) am
 Location: N: Fulkerson Street NW: Binney Street
 Location: E: Galileo Galilei Way W: Galileo Galilei Way
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM
 Class:



Bicycles (on Roadway and Crosswalks)

	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
7:30 AM	0	0	0	0	1	0	1	0	0	1	0	0	0	1	2	0	0	0	1	1	4	0	1	1	0	0	0	2	8
7:45 AM	0	2	0	0	0	0	2	0	0	4	0	0	0	4	7	0	0	0	1	2	10	0	1	3	0	2	0	6	22
Total	0	2	0	0	1	0	3	0	0	5	0	0	0	5	9	0	0	0	2	3	14	0	2	4	0	2	0	8	30
8:00 AM	0	7	1	0	1	0	9	0	2	6	0	0	0	8	6	0	0	0	1	1	8	0	9	1	0	0	0	10	35
8:15 AM	0	3	0	0	0	0	3	0	2	5	0	0	0	7	10	0	0	0	3	4	17	0	4	3	0	0	0	7	34
8:30 AM	3	7	3	0	1	0	14	0	1	6	0	0	0	7	5	0	0	0	0	0	5	2	5	4	0	0	1	12	38
8:45 AM	0	12	0	0	0	0	12	1	1	5	0	0	0	7	9	0	0	0	1	2	12	0	3	2	0	0	0	5	36
Total	3	29	4	0	2	0	38	1	6	22	0	0	0	29	30	0	0	0	5	7	42	2	21	10	0	0	1	34	143
9:00 AM	4	6	3	0	0	0	13	0	2	4	0	0	0	6	10	0	0	0	0	1	11	0	4	4	0	0	1	9	39
9:15 AM	3	13	2	0	1	0	19	0	1	2	0	0	0	3	9	0	0	0	0	0	9	0	4	0	0	0	1	5	36
Total	7	19	5	0	1	0	32	0	3	6	0	0	0	9	19	0	0	0	0	1	20	0	8	4	0	0	2	14	75
Grand Total	10	50	9	0	4	0	73	1	9	33	0	0	0	43	58	0	0	0	7	11	76	2	31	18	0	2	3	56	248
Approach %	13.7	68.5	12.3	0.0	5.5	0.0		2.3	20.9	76.7	0.0	0.0	0.0		76.3	0.0	0.0	0.0	9.2	14.5		3.6	55.4	32.1	0.0	3.6	5.4		
Total %	4.0	20.2	3.6	0.0	1.6	0.0	29.4	0.4	3.6	13.3	0.0	0.0	0.0	17.3	23.4	0.0	0.0	0.0	2.8	4.4	30.6	0.8	12.5	7.3	0.0	0.8	1.2	22.6	
Exiting Leg Total	23							98							103							24							248

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
8:30 AM	3	7	3	0	1	0	14	0	1	6	0	0	0	7	5	0	0	0	0	0	5	2	5	4	0	0	1	12	38
8:45 AM	0	12	0	0	0	0	12	1	1	5	0	0	0	7	9	0	0	0	1	2	12	0	3	2	0	0	0	5	36
9:00 AM	4	6	3	0	0	0	13	0	2	4	0	0	0	6	10	0	0	0	0	1	11	0	4	4	0	0	1	9	39
9:15 AM	3	13	2	0	1	0	19	0	1	2	0	0	0	3	9	0	0	0	0	0	9	0	4	0	0	0	1	5	36
Total Volume	10	38	8	0	2	0	58	1	5	17	0	0	0	23	33	0	0	0	1	3	37	2	16	10	0	0	3	31	149
% Approach Total	17.2	65.5	13.8	0.0	3.4	0.0		4.3	21.7	73.9	0.0	0.0	0.0		89.2	0.0	0.0	0.0	2.7	8.1		6.5	51.6	32.3	0.0	0.0	9.7		
PHF	0.625	0.731	0.667	0.000	0.500	0.000	0.763	0.250	0.625	0.708	0.000	0.000	0.000	0.821	0.825	0.000	0.000	0.000	0.250	0.375	0.771	0.250	0.800	0.625	0.000	0.000	0.750	0.646	0.955
Entering Leg	10	38	8	0	2	0	58	1	5	17	0	0	0	23	33	0	0	0	1	3	37	2	16	10	0	0	3	31	149
Exiting Leg	13							57							61							18							149
Total	71							80							98							49							298

PDI File #: 196867 (10) am
 Location: N: Fulkerson Street NW: Binney Street
 Location: E: Galileo Galilei Way W: Galileo Galilei Way
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM
 Class:



Pedestrians

	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
7:30 AM	0	0	0	0	18	14	32	0	0	0	0	0	0	0	0	0	0	0	8	8	16	0	0	0	0	9	13	22	70
7:45 AM	0	0	0	0	9	17	26	0	0	0	0	0	0	0	0	0	0	0	6	6	12	0	0	0	0	6	12	18	56
Total	0	0	0	0	27	31	58	0	0	0	0	0	0	0	0	0	0	0	14	14	28	0	0	0	0	15	25	40	126
8:00 AM	0	0	0	0	20	22	42	0	0	0	0	0	0	0	0	0	0	0	9	13	22	0	0	0	0	8	16	24	88
8:15 AM	0	0	0	0	44	22	66	0	0	0	0	0	0	0	0	0	0	0	13	10	23	0	0	0	0	15	11	26	115
8:30 AM	0	0	0	0	25	26	51	0	0	0	0	0	0	0	0	0	0	0	17	12	29	0	0	0	0	12	18	30	110
8:45 AM	0	0	0	0	32	31	63	0	0	0	0	0	0	0	0	0	0	0	20	25	45	0	0	0	0	17	17	34	142
Total	0	0	0	0	121	101	222	0	0	0	0	0	0	0	0	0	0	0	59	60	119	0	0	0	0	52	62	114	455
9:00 AM	0	0	0	0	19	23	42	0	0	0	0	0	0	0	0	0	0	0	12	12	24	0	0	0	0	8	13	21	87
9:15 AM	0	0	0	0	15	25	40	0	0	0	0	0	0	0	0	0	0	0	12	14	26	0	0	0	0	10	11	21	87
Total	0	0	0	0	34	48	82	0	0	0	0	0	0	0	0	0	0	0	24	26	50	0	0	0	0	18	24	42	174
Grand Total	0	0	0	0	182	180	362	0	0	0	0	0	0	0	0	0	0	0	97	100	197	0	0	0	0	85	111	196	755
Approach %	0	0	0	0	50.3	49.7		0	0	0	0	0	0	0	0	0	0	0	49.2	50.8		0	0	0	0	43.4	56.6		
Total %	0	0	0	0	24.1	23.8	47.9	0	0	0	0	0	0	0	0	0	0	0	12.8	13.2	26.1	0	0	0	0	11.3	14.7	26	
Exiting Leg Total	362							0							197							196							755

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
8:00 AM	0	0	0	0	20	22	42	0	0	0	0	0	0	0	0	0	0	0	9	13	22	0	0	0	0	8	16	24	88
8:15 AM	0	0	0	0	44	22	66	0	0	0	0	0	0	0	0	0	0	0	13	10	23	0	0	0	0	15	11	26	115
8:30 AM	0	0	0	0	25	26	51	0	0	0	0	0	0	0	0	0	0	0	17	12	29	0	0	0	0	12	18	30	110
8:45 AM	0	0	0	0	32	31	63	0	0	0	0	0	0	0	0	0	0	0	20	25	45	0	0	0	0	17	17	34	142
Total Volume	0	0	0	0	121	101	222	0	0	0	0	0	0	0	0	0	0	0	59	60	119	0	0	0	0	52	62	114	455
% Approach Total	0.0	0.0	0.0	0.0	54.5	45.5		0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	49.6	50.4		0.0	0.0	0.0	0.0	45.6	54.4		
PHF	0.000	0.000	0.000	0.000	0.688	0.815	0.841	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.738	0.600	0.661	0.000	0.000	0.000	0.000	0.765	0.861	0.838	0.801
Entering Leg	0	0	0	0	121	101	222	0	0	0	0	0	0	0	0	0	0	0	59	60	119	0	0	0	0	52	62	114	455
Exiting Leg	222							0							119							114							455
Total	444							0							238							228							910

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	4	34	0	0	38	5	2	50	0	57	88	0	0	0	88	27	19	44	0	90	273
4:45 PM	0	34	2	0	36	6	4	61	0	71	100	0	0	0	100	32	27	57	0	116	323
Total	4	68	2	0	74	11	6	111	0	128	188	0	0	0	188	59	46	101	0	206	596
5:00 PM	2	31	0	0	33	17	7	53	0	77	115	0	0	0	115	39	21	48	0	108	333
5:15 PM	3	29	0	0	32	11	7	81	0	99	129	0	0	0	129	46	21	78	0	145	405
5:30 PM	8	27	0	0	35	12	8	72	1	93	119	0	0	0	119	37	23	56	0	116	363
5:45 PM	0	30	0	0	30	7	3	52	1	63	166	0	0	0	166	32	21	58	0	111	370
Total	13	117	0	0	130	47	25	258	2	332	529	0	0	0	529	154	86	240	0	480	1471
6:00 PM	3	25	0	0	28	10	4	75	0	89	130	0	0	0	130	33	17	51	0	101	348
6:15 PM	2	21	0	0	23	7	5	68	0	80	88	0	0	0	88	25	16	53	0	94	285
Total	5	46	0	0	51	17	9	143	0	169	218	0	0	0	218	58	33	104	0	195	633
Grand Total	22	231	2	0	255	75	40	512	2	629	935	0	0	0	935	271	165	445	0	881	2700
Approach %	8.6	90.6	0.8	0.0		11.9	6.4	81.4	0.3		100.0	0.0	0.0	0.0		30.8	18.7	50.5	0.0		
Total %	0.8	8.6	0.1	0.0	9.4	2.8	1.5	19.0	0.1	23.3	34.6	0.0	0.0	0.0	34.6	10.0	6.1	16.5	0.0	32.6	
Exiting Leg Total	520					1104					1014					62					2700
Cars	22	229	2	0	253	75	39	472	2	588	892	0	0	0	892	271	165	441	0	877	2610
% Cars	100.0	99.1	100.0	0.0	99.2	100.0	97.5	92.2	100.0	93.5	95.4	0.0	0.0	0.0	95.4	100.0	100.0	99.1	0.0	99.5	96.7
Exiting Leg Total	516					1061					972					61					2610
Heavy Vehicles	0	2	0	0	2	0	1	40	0	41	43	0	0	0	43	0	0	4	0	4	90
% Heavy Vehicles	0.0	0.9	0.0	0.0	0.8	0.0	2.5	7.8	0.0	6.5	4.6	0.0	0.0	0.0	4.6	0.0	0.0	0.9	0.0	0.5	3.3
Exiting Leg Total	4					43					42					1					90

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
5:15 PM	3	29	0	0	32	11	7	81	0	99	129	0	0	0	129	46	21	78	0	145	405
5:30 PM	8	27	0	0	35	12	8	72	1	93	119	0	0	0	119	37	23	56	0	116	363
5:45 PM	0	30	0	0	30	7	3	52	1	63	166	0	0	0	166	32	21	58	0	111	370
6:00 PM	3	25	0	0	28	10	4	75	0	89	130	0	0	0	130	33	17	51	0	101	348
Total Volume	14	111	0	0	125	40	22	280	2	344	544	0	0	0	544	148	82	243	0	473	1486
% Approach Total	11.2	88.8	0.0	0.0		11.6	6.4	81.4	0.6		100.0	0.0	0.0	0.0		31.3	17.3	51.4	0.0		
PHF	0.438	0.925	0.000	0.000	0.893	0.833	0.688	0.864	0.500	0.869	0.819	0.000	0.000	0.000	0.819	0.804	0.891	0.779	0.000	0.816	0.917
Cars	14	110	0	0	124	40	22	260	2	324	525	0	0	0	525	148	82	241	0	471	1444
Cars %	100.0	99.1	0.0	0.0	99.2	100.0	100.0	92.9	100.0	94.2	96.5	0.0	0.0	0.0	96.5	100.0	100.0	99.2	0.0	99.6	97.2
Heavy Vehicles	0	1	0	0	1	0	0	20	0	20	19	0	0	0	19	0	0	2	0	2	42
Heavy Vehicles %	0.0	0.9	0.0	0.0	0.8	0.0	0.0	7.1	0.0	5.8	3.5	0.0	0.0	0.0	3.5	0.0	0.0	0.8	0.0	0.4	2.8
Cars Enter Leg	14	110	0	0	124	40	22	260	2	324	525	0	0	0	525	148	82	241	0	471	1444
Heavy Enter Leg	0	1	0	0	1	0	0	20	0	20	19	0	0	0	19	0	0	2	0	2	42
Total Entering Leg	14	111	0	0	125	40	22	280	2	344	544	0	0	0	544	148	82	243	0	473	1486
Cars Exiting Leg	281					609					518					36					1444
Heavy Exiting Leg	2					19					21					0					42
Total Exiting Leg	283					628					539					36					1486

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	4	34	0	0	38	5	2	43	0	50	79	0	0	0	79	27	19	44	0	90	257
4:45 PM	0	34	2	0	36	6	4	59	0	69	94	0	0	0	94	32	27	56	0	115	314
Total	4	68	2	0	74	11	6	102	0	119	173	0	0	0	173	59	46	100	0	205	571
5:00 PM	2	31	0	0	33	17	6	47	0	70	109	0	0	0	109	39	21	47	0	107	319
5:15 PM	3	29	0	0	32	11	7	74	0	92	126	0	0	0	126	46	21	77	0	144	394
5:30 PM	8	27	0	0	35	12	8	69	1	90	116	0	0	0	116	37	23	56	0	116	357
5:45 PM	0	29	0	0	29	7	3	47	1	58	158	0	0	0	158	32	21	58	0	111	356
Total	13	116	0	0	129	47	24	237	2	310	509	0	0	0	509	154	86	238	0	478	1426
6:00 PM	3	25	0	0	28	10	4	70	0	84	125	0	0	0	125	33	17	50	0	100	337
6:15 PM	2	20	0	0	22	7	5	63	0	75	85	0	0	0	85	25	16	53	0	94	276
Total	5	45	0	0	50	17	9	133	0	159	210	0	0	0	210	58	33	103	0	194	613
Grand Total	22	229	2	0	253	75	39	472	2	588	892	0	0	0	892	271	165	441	0	877	2610
Approach %	8.7	90.5	0.8	0.0		12.8	6.6	80.3	0.3		100.0	0.0	0.0	0.0		30.9	18.8	50.3	0.0		
Total %	0.8	8.8	0.1	0.0	9.7	2.9	1.5	18.1	0.1	22.5	34.2	0.0	0.0	0.0	34.2	10.4	6.3	16.9	0.0	33.6	
Exiting Leg Total	516					1061					972					61					2610

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
5:15 PM	3	29	0	0	32	11	7	74	0	92	126	0	0	0	126	46	21	77	0	144	394
5:30 PM	8	27	0	0	35	12	8	69	1	90	116	0	0	0	116	37	23	56	0	116	357
5:45 PM	0	29	0	0	29	7	3	47	1	58	158	0	0	0	158	32	21	58	0	111	356
6:00 PM	3	25	0	0	28	10	4	70	0	84	125	0	0	0	125	33	17	50	0	100	337
Total Volume	14	110	0	0	124	40	22	260	2	324	525	0	0	0	525	148	82	241	0	471	1444
% Approach Total	11.3	88.7	0.0	0.0		12.3	6.8	80.2	0.6		100.0	0.0	0.0	0.0		31.4	17.4	51.2	0.0		
PHF	0.438	0.948	0.000	0.000	0.886	0.833	0.688	0.878	0.500	0.880	0.831	0.000	0.000	0.000	0.831	0.804	0.891	0.782	0.000	0.818	0.916
Entering Leg	14	110	0	0	124	40	22	260	2	324	525	0	0	0	525	148	82	241	0	471	1444
Exiting Leg	281					609					518					36					1444
Total	405					933					1043					507					2888

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	7	0	7	9	0	0	0	9	0	0	0	0	0	16
4:45 PM	0	0	0	0	0	0	0	2	0	2	6	0	0	0	6	0	0	1	0	1	9
Total	0	0	0	0	0	0	0	9	0	9	15	0	0	0	15	0	0	1	0	1	25
5:00 PM	0	0	0	0	0	0	1	6	0	7	6	0	0	0	6	0	0	1	0	1	14
5:15 PM	0	0	0	0	0	0	0	7	0	7	3	0	0	0	3	0	0	1	0	1	11
5:30 PM	0	0	0	0	0	0	0	3	0	3	3	0	0	0	3	0	0	0	0	0	6
5:45 PM	0	1	0	0	1	0	0	5	0	5	8	0	0	0	8	0	0	0	0	0	14
Total	0	1	0	0	1	0	1	21	0	22	20	0	0	0	20	0	0	2	0	2	45
6:00 PM	0	0	0	0	0	0	0	5	0	5	5	0	0	0	5	0	0	1	0	1	11
6:15 PM	0	1	0	0	1	0	0	5	0	5	3	0	0	0	3	0	0	0	0	0	9
Total	0	1	0	0	1	0	0	10	0	10	8	0	0	0	8	0	0	1	0	1	20
Grand Total	0	2	0	0	2	0	1	40	0	41	43	0	0	0	43	0	0	4	0	4	90
Approach %	0.0	100.0	0.0	0.0		0.0	2.4	97.6	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	2.2	0.0	0.0	2.2	0.0	1.1	44.4	0.0	45.6	47.8	0.0	0.0	0.0	47.8	0.0	0.0	4.4	0.0	4.4	
Exiting Leg Total	4					43					42					1					90
Buses	0	1	0	0	1	0	1	30	0	31	25	0	0	0	25	0	0	3	0	3	60
% Buses	0.0	50.0	0.0	0.0	50.0	0.0	100.0	75.0	0.0	75.6	58.1	0.0	0.0	0.0	58.1	0.0	0.0	75.0	0.0	75.0	66.7
Exiting Leg Total	3					25					31					1					60
Single-Unit Trucks	0	1	0	0	1	0	0	8	0	8	15	0	0	0	15	0	0	1	0	1	25
% Single-Unit	0.0	50.0	0.0	0.0	50.0	0.0	0.0	20.0	0.0	19.5	34.9	0.0	0.0	0.0	34.9	0.0	0.0	25.0	0.0	25.0	27.8
Exiting Leg Total	1					15					9					0					25
Articulated Trucks	0	0	0	0	0	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	5
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	0.0	4.9	7.0	0.0	0.0	0.0	7.0	0.0	0.0	0.0	0.0	0.0	5.6
Exiting Leg Total	0					3					2					0					5

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	7	0	7	9	0	0	0	9	0	0	0	0	0	16
4:45 PM	0	0	0	0	0	0	0	2	0	2	6	0	0	0	6	0	0	1	0	1	9
5:00 PM	0	0	0	0	0	0	1	6	0	7	6	0	0	0	6	0	0	1	0	1	14
5:15 PM	0	0	0	0	0	0	0	7	0	7	3	0	0	0	3	0	0	1	0	1	11
Total Volume	0	0	0	0	0	0	1	22	0	23	24	0	0	0	24	0	0	3	0	3	50
% Approach Total	0.0	0.0	0.0	0.0		0.0	4.3	95.7	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.786	0.000	0.821	0.667	0.000	0.000	0.000	0.667	0.000	0.000	0.750	0.000	0.750	0.781
Buses	0	0	0	0	0	0	1	16	0	17	14	0	0	0	14	0	0	3	0	3	34
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	72.7	0.0	73.9	58.3	0.0	0.0	0.0	58.3	0.0	0.0	100.0	0.0	100.0	68.0
Single-Unit Trucks	0	0	0	0	0	0	0	4	0	4	8	0	0	0	8	0	0	0	0	0	12
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	17.4	33.3	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	24.0
Articulated Trucks	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	0.0	8.7	8.3	0.0	0.0	0.0	8.3	0.0	0.0	0.0	0.0	0.0	8.0
Buses	0	0	0	0	0	0	1	16	0	17	14	0	0	0	14	0	0	3	0	3	34
Single-Unit Trucks	0	0	0	0	0	0	0	4	0	4	8	0	0	0	8	0	0	0	0	0	12
Articulated Trucks	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
Total Entering Leg	0	0	0	0	0	0	1	22	0	23	24	0	0	0	24	0	0	3	0	3	50
Buses	3					14					16					1					34
Single-Unit Trucks	0					8					4					0					12
Articulated Trucks	0					2					2					0					4
Total Exiting Leg	3					24					22					1					50

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	4	0	4	4	0	0	0	4	0	0	0	0	0	8
4:45 PM	0	0	0	0	0	0	0	1	0	1	5	0	0	0	5	0	0	1	0	1	7
Total	0	0	0	0	0	0	0	5	0	5	9	0	0	0	9	0	0	1	0	1	15
5:00 PM	0	0	0	0	0	0	1	5	0	6	3	0	0	0	3	0	0	1	0	1	10
5:15 PM	0	0	0	0	0	0	0	6	0	6	2	0	0	0	2	0	0	1	0	1	9
5:30 PM	0	0	0	0	0	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	5
5:45 PM	0	1	0	0	1	0	0	5	0	5	4	0	0	0	4	0	0	0	0	0	10
Total	0	1	0	0	1	0	1	18	0	19	12	0	0	0	12	0	0	2	0	2	34
6:00 PM	0	0	0	0	0	0	0	4	0	4	2	0	0	0	2	0	0	0	0	0	6
6:15 PM	0	0	0	0	0	0	0	3	0	3	2	0	0	0	2	0	0	0	0	0	5
Total	0	0	0	0	0	0	0	7	0	7	4	0	0	0	4	0	0	0	0	0	11
Grand Total	0	1	0	0	1	0	1	30	0	31	25	0	0	0	25	0	0	3	0	3	60
Approach %	0.0	100.0	0.0	0.0		0.0	3.2	96.8	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	1.7	0.0	0.0	1.7	0.0	1.7	50.0	0.0	51.7	41.7	0.0	0.0	0.0	41.7	0.0	0.0	5.0	0.0	5.0	
Exiting Leg Total	3					25					31					1					60

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	4	0	4	4	0	0	0	4	0	0	0	0	0	8
4:45 PM	0	0	0	0	0	0	0	1	0	1	5	0	0	0	5	0	0	1	0	1	7
5:00 PM	0	0	0	0	0	0	1	5	0	6	3	0	0	0	3	0	0	1	0	1	10
5:15 PM	0	0	0	0	0	0	0	6	0	6	2	0	0	0	2	0	0	1	0	1	9
Total Volume	0	0	0	0	0	0	1	16	0	17	14	0	0	0	14	0	0	3	0	3	34
% Approach Total	0.0	0.0	0.0	0.0		0.0	5.9	94.1	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.667	0.000	0.708	0.700	0.000	0.000	0.000	0.700	0.000	0.000	0.750	0.000	0.750	0.850
Entering Leg	0	0	0	0	0	0	1	16	0	17	14	0	0	0	14	0	0	3	0	3	34
Exiting Leg	3					14					16					1					34
Total	3					31					30					4					68

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	2	0	2	4	0	0	0	4	0	0	0	0	0	6
4:45 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	3	0	3	5	0	0	0	5	0	0	0	0	0	8
5:00 PM	0	0	0	0	0	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
Total	0	0	0	0	0	0	0	2	0	2	6	0	0	0	6	0	0	0	0	0	8
6:00 PM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	1	0	1	5
6:15 PM	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
Total	0	1	0	0	1	0	0	3	0	3	4	0	0	0	4	0	0	1	0	1	9
Grand Total	0	1	0	0	1	0	0	8	0	8	15	0	0	0	15	0	0	1	0	1	25
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	4.0	0.0	0.0	4.0	0.0	0.0	32.0	0.0	32.0	60.0	0.0	0.0	0.0	60.0	0.0	0.0	4.0	0.0	4.0	
Exiting Leg Total	1					15					9					0					25

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	3
6:00 PM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	0	1	0	1	5
6:15 PM	0	1	0	0	1	0	0	2	0	2	1	0	0	0	1	0	0	0	0	0	4
Total Volume	0	1	0	0	1	0	0	4	0	4	7	0	0	0	7	0	0	1	0	1	13
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.500	0.000	0.500	0.583	0.000	0.000	0.000	0.583	0.000	0.000	0.250	0.000	0.250	0.650
Entering Leg	0	1	0	0	1	0	0	4	0	4	7	0	0	0	7	0	0	1	0	1	13
Exiting Leg	1					7					5					0					13
Total	2					11					12					1					26

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					Total		
	from North					from East					from West					from Northwest							
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total			
4:30 PM	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	0	1	2	0	0	0	0	2	0	0	0	0	0	3
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	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	2	0	2	3	0	0	0	0	3	0	0	0	0	0	5
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0			100.0	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	40.0	0.0	40.0		60.0	0.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0		
Exiting Leg Total	0					3					2					0					5		

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Fulkerson Street					Galileo Galilei Way					Galileo Galilei Way					Binney Street					
	from North					from East					from West					from Northwest					
	Hard Right	Right	Left	U-Turn	Total	Right	Bear Right	Thru	U-Turn	Total	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Left	Hard Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	4
Exiting Leg	0					2					2					0					4
Total	0					4					4					0					8

PDI File #: 196867 (10) pm
 Location: N: Fulkerson Street NW: Binney Street
 Location: E: Galileo Galilei Way W: Galileo Galilei Way
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Bicycles (on Roadway and Crosswalks)

	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
4:30 PM	2	3	0	0	0	1	6	0	0	5	0	0	0	5	2	0	0	0	1	0	3	0	1	0	0	1	0	2	16
4:45 PM	1	4	0	0	0	0	5	0	4	7	0	0	0	11	4	3	0	0	4	0	11	0	0	4	0	1	3	8	35
Total	3	7	0	0	0	1	11	0	4	12	0	0	0	16	6	3	0	0	5	0	14	0	1	4	0	2	3	10	51
5:00 PM	0	2	1	0	1	0	4	2	0	4	0	0	0	6	4	3	0	0	5	1	13	0	0	3	0	0	0	3	26
5:15 PM	1	4	0	0	1	0	6	0	3	7	0	0	0	10	5	2	0	0	3	0	10	0	0	0	0	1	0	1	27
5:30 PM	3	2	0	0	0	0	5	1	7	9	0	0	0	17	9	1	0	0	3	0	13	0	0	2	0	1	0	3	38
5:45 PM	1	1	0	0	0	0	2	0	1	9	0	0	0	10	5	3	0	0	4	0	12	1	2	1	0	0	0	4	28
Total	5	9	1	0	2	0	17	3	11	29	0	0	0	43	23	9	0	0	15	1	48	1	2	6	0	2	0	11	119
6:00 PM	0	1	1	0	0	1	3	1	2	1	0	0	0	4	6	4	0	0	4	0	14	1	0	3	0	3	0	7	28
6:15 PM	0	3	0	0	0	0	3	1	1	7	0	0	0	9	2	3	0	0	2	2	9	0	0	3	0	1	0	4	25
Total	0	4	1	0	0	1	6	2	3	8	0	0	0	13	8	7	0	0	6	2	23	1	0	6	0	4	0	11	53
Grand Total	8	20	2	0	2	2	34	5	18	49	0	0	0	72	37	19	0	0	26	3	85	2	3	16	0	8	3	32	223
Approach %	23.5	58.8	5.9	0.0	5.9	5.9		6.9	25.0	68.1	0.0	0.0	0.0		43.5	22.4	0.0	0.0	30.6	3.5		6.3	9.4	50.0	0.0	25.0	9.4		
Total %	3.6	9.0	0.9	0.0	0.9	0.9	15.2	2.2	8.1	22.0	0.0	0.0	0.0	32.3	16.6	8.5	0.0	0.0	11.7	1.3	38.1	0.9	1.3	7.2	0.0	3.6	1.3	14.3	
Exiting Leg Total	44							42							100							37							223

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
4:45 PM	1	4	0	0	0	0	5	0	4	7	0	0	0	11	4	3	0	0	4	0	11	0	0	4	0	1	3	8	35
5:00 PM	0	2	1	0	1	0	4	2	0	4	0	0	0	6	4	3	0	0	5	1	13	0	0	3	0	0	0	3	26
5:15 PM	1	4	0	0	1	0	6	0	3	7	0	0	0	10	5	2	0	0	3	0	10	0	0	0	0	1	0	1	27
5:30 PM	3	2	0	0	0	0	5	1	7	9	0	0	0	17	9	1	0	0	3	0	13	0	0	2	0	1	0	3	38
Total Volume	5	12	1	0	2	0	20	3	14	27	0	0	0	44	22	9	0	0	15	1	47	0	0	9	0	3	3	15	126
% Approach Total	25.0	60.0	5.0	0.0	10.0	0.0		6.8	31.8	61.4	0.0	0.0	0.0		46.8	19.1	0.0	0.0	31.9	2.1		0.0	0.0	60.0	0.0	20.0	20.0		
PHF	0.417	0.750	0.250	0.000	0.500	0.000	0.833	0.375	0.500	0.750	0.000	0.000	0.000	0.647	0.611	0.750	0.000	0.000	0.750	0.250	0.904	0.000	0.000	0.563	0.000	0.750	0.250	0.469	0.829
Entering Leg	5	12	1	0	2	0	20	3	14	27	0	0	0	44	22	9	0	0	15	1	47	0	0	9	0	3	3	15	126
Exiting Leg	23							23							55							25							126
Total	43							67							102							40							252

PDI File #: **196867 (10) pm**
 Location: **N: Fulkerson Street NW: Binney Street**
 Location: **E: Galileo Galilei Way W: Galileo Galilei Way**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
4:30 PM	0	0	0	0	15	12	27	0	0	0	0	0	0	0	0	0	0	0	16	12	28	0	0	0	0	10	3	13	68
4:45 PM	0	0	0	0	21	8	29	0	0	0	0	0	0	0	0	0	0	0	8	18	26	0	0	0	0	9	4	13	68
Total	0	0	0	0	36	20	56	0	0	0	0	0	0	0	0	0	0	0	24	30	54	0	0	0	0	19	7	26	136
5:00 PM	0	0	0	0	16	23	39	0	0	0	0	0	0	0	0	0	0	0	13	14	27	0	0	0	0	13	5	18	84
5:15 PM	0	0	0	0	16	31	47	0	0	0	0	1	0	1	0	0	0	0	15	21	36	0	0	0	0	21	5	26	110
5:30 PM	0	0	0	0	15	19	34	0	0	0	0	0	0	0	0	0	0	0	13	6	19	0	0	0	0	12	3	15	68
5:45 PM	0	0	0	0	15	14	29	0	0	0	0	0	0	0	0	0	0	0	14	7	21	0	0	0	0	17	6	23	73
Total	0	0	0	0	62	87	149	0	0	0	0	1	0	1	0	0	0	0	55	48	103	0	0	0	0	63	19	82	335
6:00 PM	0	0	0	0	16	23	39	0	0	0	0	0	0	0	0	0	0	0	16	10	26	0	0	0	0	13	6	19	84
6:15 PM	0	0	0	0	9	18	27	0	0	0	0	0	0	0	0	0	0	0	7	7	14	0	0	0	0	12	7	19	60
Total	0	0	0	0	25	41	66	0	0	0	0	0	0	0	0	0	0	0	23	17	40	0	0	0	0	25	13	38	144
Grand Total	0	0	0	0	123	148	271	0	0	0	0	1	0	1	0	0	0	0	102	95	197	0	0	0	0	107	39	146	615
Approach %	0	0	0	0	45.4	54.6		0	0	0	0	100	0		0	0	0	0	51.8	48.2		0	0	0	0	73.3	26.7		
Total %	0	0	0	0	20	24.1	44.1	0	0	0	0	0.16	0	0.16	0	0	0	0	16.6	15.4	32	0	0	0	0	17.4	6.34	23.7	
Exiting Leg Total	271							1							197							146							615

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Fulkerson Street							Galileo Galilei Way							Galileo Galilei Way							Binney Street							Total
	from North							from East							from West							from Northwest							
	Hard Right	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Bear Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	Hard Left	U-Turn	CW-NB	CW-SB	Total	Hard Right	Bear Left	Hard Left	U-Turn	CW-NEB	CW-SWB	Total	
5:00 PM	0	0	0	0	16	23	39	0	0	0	0	0	0	0	0	0	0	0	13	14	27	0	0	0	0	13	5	18	84
5:15 PM	0	0	0	0	16	31	47	0	0	0	0	1	0	1	0	0	0	0	15	21	36	0	0	0	0	21	5	26	110
5:30 PM	0	0	0	0	15	19	34	0	0	0	0	0	0	0	0	0	0	0	13	6	19	0	0	0	0	12	3	15	68
5:45 PM	0	0	0	0	15	14	29	0	0	0	0	0	0	0	0	0	0	0	14	7	21	0	0	0	0	17	6	23	73
Total Volume	0	0	0	0	62	87	149	0	0	0	0	1	0	1	0	0	0	0	55	48	103	0	0	0	0	63	19	82	335
% Approach Total	0.0	0.0	0.0	0.0	41.6	58.4		0.0	0.0	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	53.4	46.6		0.0	0.0	0.0	0.0	76.8	23.2		
PHF	0.000	0.000	0.000	0.000	0.969	0.702	0.793	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.917	0.571	0.715	0.000	0.000	0.000	0.000	0.750	0.792	0.788	0.761
Entering Leg	0	0	0	0	62	87	149	0	0	0	0	1	0	1	0	0	0	0	55	48	103	0	0	0	0	63	19	82	335
Exiting Leg	149							1							103							82							335
Total	298							2							206							164							670

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	16	62	8	0	86	5	36	8	0	49	14	52	7	0	73	8	81	23	0	112	320
7:45 AM	9	61	18	0	88	6	59	1	0	66	6	54	10	0	70	15	73	28	0	116	340
Total	25	123	26	0	174	11	95	9	0	115	20	106	17	0	143	23	154	51	0	228	660
8:00 AM	5	75	12	0	92	3	52	3	0	58	11	58	9	0	78	9	66	23	0	98	326
8:15 AM	12	69	10	0	91	5	44	8	0	57	7	42	8	0	57	12	73	21	0	106	311
8:30 AM	10	66	7	0	83	2	49	2	0	53	11	62	14	0	87	15	64	28	0	107	330
8:45 AM	17	62	11	0	90	5	49	8	0	62	12	38	14	0	64	9	79	29	0	117	333
Total	44	272	40	0	356	15	194	21	0	230	41	200	45	0	286	45	282	101	0	428	1300
9:00 AM	7	61	7	0	75	3	53	7	0	63	15	57	10	0	82	14	73	32	0	119	339
9:15 AM	11	51	6	0	68	1	41	3	0	45	14	45	13	0	72	16	62	31	0	109	294
Total	18	112	13	0	143	4	94	10	0	108	29	102	23	0	154	30	135	63	0	228	633
Grand Total	87	507	79	0	673	30	383	40	0	453	90	408	85	0	583	98	571	215	0	884	2593
Approach %	12.9	75.3	11.7	0.0		6.6	84.5	8.8	0.0		15.4	70.0	14.6	0.0		11.1	64.6	24.3	0.0		
Total %	3.4	19.6	3.0	0.0	26.0	1.2	14.8	1.5	0.0	17.5	3.5	15.7	3.3	0.0	22.5	3.8	22.0	8.3	0.0	34.1	
Exiting Leg Total	653					740					645					555					2593
Cars	85	484	71	0	640	28	351	31	0	410	70	376	80	0	526	94	551	210	0	855	2431
% Cars	97.7	95.5	89.9	0.0	95.1	93.3	91.6	77.5	0.0	90.5	77.8	92.2	94.1	0.0	90.2	95.9	96.5	97.7	0.0	96.7	93.8
Exiting Leg Total	614					692					609					516					2431
Heavy Vehicles	2	23	8	0	33	2	32	9	0	43	20	32	5	0	57	4	20	5	0	29	162
% Heavy Vehicles	2.3	4.5	10.1	0.0	4.9	6.7	8.4	22.5	0.0	9.5	22.2	7.8	5.9	0.0	9.8	4.1	3.5	2.3	0.0	3.3	6.2
Exiting Leg Total	39					48					36					39					162

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:15 AM	12	69	10	0	91	5	44	8	0	57	7	42	8	0	57	12	73	21	0	106	311
8:30 AM	10	66	7	0	83	2	49	2	0	53	11	62	14	0	87	15	64	28	0	107	330
8:45 AM	17	62	11	0	90	5	49	8	0	62	12	38	14	0	64	9	79	29	0	117	333
9:00 AM	7	61	7	0	75	3	53	7	0	63	15	57	10	0	82	14	73	32	0	119	339
Total Volume	46	258	35	0	339	15	195	25	0	235	45	199	46	0	290	50	289	110	0	449	1313
% Approach Total	13.6	76.1	10.3	0.0		6.4	83.0	10.6	0.0		15.5	68.6	15.9	0.0		11.1	64.4	24.5	0.0		
PHF	0.676	0.935	0.795	0.000	0.931	0.750	0.920	0.781	0.000	0.933	0.750	0.802	0.821	0.000	0.833	0.833	0.915	0.859	0.000	0.943	0.968
Cars	46	246	33	0	325	14	182	21	0	217	35	186	44	0	265	48	278	107	0	433	1240
Cars %	100.0	95.3	94.3	0.0	95.9	93.3	93.3	84.0	0.0	92.3	77.8	93.5	95.7	0.0	91.4	96.0	96.2	97.3	0.0	96.4	94.4
Heavy Vehicles	0	12	2	0	14	1	13	4	0	18	10	13	2	0	25	2	11	3	0	16	73
Heavy Vehicles %	0.0	4.7	5.7	0.0	4.1	6.7	6.7	16.0	0.0	7.7	22.2	6.5	4.3	0.0	8.6	4.0	3.8	2.7	0.0	3.6	5.6
Cars Enter Leg	46	246	33	0	325	14	182	21	0	217	35	186	44	0	265	48	278	107	0	433	1240
Heavy Enter Leg	0	12	2	0	14	1	13	4	0	18	10	13	2	0	25	2	11	3	0	16	73
Total Entering Leg	46	258	35	0	339	15	195	25	0	235	45	199	46	0	290	50	289	110	0	449	1313
Cars Exiting Leg	307					346					315					272					1240
Heavy Exiting Leg	17					23					18					15					73
Total Exiting Leg	324					369					333					287					1313

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	15	58	6	0	79	5	32	5	0	42	12	47	6	0	65	6	78	23	0	107	293
7:45 AM	9	60	16	0	85	5	57	1	0	63	4	47	10	0	61	15	70	28	0	113	322
Total	24	118	22	0	164	10	89	6	0	105	16	94	16	0	126	21	148	51	0	220	615
8:00 AM	5	70	11	0	86	3	47	3	0	53	8	54	9	0	71	9	64	22	0	95	305
8:15 AM	12	67	10	0	89	4	41	8	0	53	4	39	7	0	50	12	72	21	0	105	297
8:30 AM	10	64	7	0	81	2	45	1	0	48	8	60	13	0	81	15	62	27	0	104	314
8:45 AM	17	59	11	0	87	5	48	8	0	61	11	33	14	0	58	8	76	29	0	113	319
Total	44	260	39	0	343	14	181	20	0	215	31	186	43	0	260	44	274	99	0	417	1235
9:00 AM	7	56	5	0	68	3	48	4	0	55	12	54	10	0	76	13	68	30	0	111	310
9:15 AM	10	50	5	0	65	1	33	1	0	35	11	42	11	0	64	16	61	30	0	107	271
Total	17	106	10	0	133	4	81	5	0	90	23	96	21	0	140	29	129	60	0	218	581
Grand Total	85	484	71	0	640	28	351	31	0	410	70	376	80	0	526	94	551	210	0	855	2431
Approach %	13.3	75.6	11.1	0.0		6.8	85.6	7.6	0.0		13.3	71.5	15.2	0.0		11.0	64.4	24.6	0.0		
Total %	3.5	19.9	2.9	0.0	26.3	1.2	14.4	1.3	0.0	16.9	2.9	15.5	3.3	0.0	21.6	3.9	22.7	8.6	0.0	35.2	
Exiting Leg Total	614					692					609					516					2431

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:15 AM	12	67	10	0	89	4	41	8	0	53	4	39	7	0	50	12	72	21	0	105	297
8:30 AM	10	64	7	0	81	2	45	1	0	48	8	60	13	0	81	15	62	27	0	104	314
8:45 AM	17	59	11	0	87	5	48	8	0	61	11	33	14	0	58	8	76	29	0	113	319
9:00 AM	7	56	5	0	68	3	48	4	0	55	12	54	10	0	76	13	68	30	0	111	310
Total Volume	46	246	33	0	325	14	182	21	0	217	35	186	44	0	265	48	278	107	0	433	1240
% Approach Total	14.2	75.7	10.2	0.0		6.5	83.9	9.7	0.0		13.2	70.2	16.6	0.0		11.1	64.2	24.7	0.0		
PHF	0.676	0.918	0.750	0.000	0.913	0.700	0.948	0.656	0.000	0.889	0.729	0.775	0.786	0.000	0.818	0.800	0.914	0.892	0.000	0.958	0.972
Entering Leg	46	246	33	0	325	14	182	21	0	217	35	186	44	0	265	48	278	107	0	433	1240
Exiting Leg					307					346					315					272	1240
Total					632					563					580					705	2480

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	4	2	0	7	0	4	3	0	7	2	5	1	0	8	2	3	0	0	5	27
7:45 AM	0	1	2	0	3	1	2	0	0	3	2	7	0	0	9	0	3	0	0	3	18
Total	1	5	4	0	10	1	6	3	0	10	4	12	1	0	17	2	6	0	0	8	45
8:00 AM	0	5	1	0	6	0	5	0	0	5	3	4	0	0	7	0	2	1	0	3	21
8:15 AM	0	2	0	0	2	1	3	0	0	4	3	3	1	0	7	0	1	0	0	1	14
8:30 AM	0	2	0	0	2	0	4	1	0	5	3	2	1	0	6	0	2	1	0	3	16
8:45 AM	0	3	0	0	3	0	1	0	0	1	1	5	0	0	6	1	3	0	0	4	14
Total	0	12	1	0	13	1	13	1	0	15	10	14	2	0	26	1	8	2	0	11	65
9:00 AM	0	5	2	0	7	0	5	3	0	8	3	3	0	0	6	1	5	2	0	8	29
9:15 AM	1	1	1	0	3	0	8	2	0	10	3	3	2	0	8	0	1	1	0	2	23
Total	1	6	3	0	10	0	13	5	0	18	6	6	2	0	14	1	6	3	0	10	52
Grand Total	2	23	8	0	33	2	32	9	0	43	20	32	5	0	57	4	20	5	0	29	162
Approach %	6.1	69.7	24.2	0.0		4.7	74.4	20.9	0.0		35.1	56.1	8.8	0.0		13.8	69.0	17.2	0.0		
Total %	1.2	14.2	4.9	0.0	20.4	1.2	19.8	5.6	0.0	26.5	12.3	19.8	3.1	0.0	35.2	2.5	12.3	3.1	0.0	17.9	
Exiting Leg Total	39					48					36					39					162
Buses	0	2	1	0	3	0	15	0	0	15	14	13	3	0	30	0	10	0	0	10	58
% Buses	0.0	8.7	12.5	0.0	9.1	0.0	46.9	0.0	0.0	34.9	70.0	40.6	60.0	0.0	52.6	0.0	50.0	0.0	0.0	34.5	35.8
Exiting Leg Total	13					25					2					18					58
Single-Unit Trucks	2	20	7	0	29	2	17	8	0	27	4	18	2	0	24	4	10	5	0	19	99
% Single-Unit	100.0	87.0	87.5	0.0	87.9	100.0	53.1	88.9	0.0	62.8	20.0	56.3	40.0	0.0	42.1	100.0	50.0	100.0	0.0	65.5	61.1
Exiting Leg Total	25					21					32					21					99
Articulated Trucks	0	1	0	0	1	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	5
% Articulated	0.0	4.3	0.0	0.0	3.0	0.0	0.0	11.1	0.0	2.3	10.0	3.1	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	3.1
Exiting Leg Total	1					2					2					0					5

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	0	2	0	0	2	0	4	1	0	5	3	2	1	0	6	0	2	1	0	3	16
8:45 AM	0	3	0	0	3	0	1	0	0	1	1	5	0	0	6	1	3	0	0	4	14
9:00 AM	0	5	2	0	7	0	5	3	0	8	3	3	0	0	6	1	5	2	0	8	29
9:15 AM	1	1	1	0	3	0	8	2	0	10	3	3	2	0	8	0	1	1	0	2	23
Total Volume	1	11	3	0	15	0	18	6	0	24	10	13	3	0	26	2	11	4	0	17	82
% Approach Total	6.7	73.3	20.0	0.0		0.0	75.0	25.0	0.0		38.5	50.0	11.5	0.0		11.8	64.7	23.5	0.0		
PHF	0.250	0.550	0.375	0.000	0.536	0.000	0.563	0.500	0.000	0.600	0.833	0.650	0.375	0.000	0.813	0.500	0.550	0.500	0.000	0.531	0.707
Buses	0	1	1	0	2	0	9	0	0	9	8	5	2	0	15	0	6	0	0	6	32
Buses %	0.0	9.1	33.3	0.0	13.3	0.0	50.0	0.0	0.0	37.5	80.0	38.5	66.7	0.0	57.7	0.0	54.5	0.0	0.0	35.3	39.0
Single-Unit Trucks	1	10	2	0	13	0	9	5	0	14	1	8	1	0	10	2	5	4	0	11	48
Single-Unit %	100.0	90.9	66.7	0.0	86.7	0.0	50.0	83.3	0.0	58.3	10.0	61.5	33.3	0.0	38.5	100.0	45.5	100.0	0.0	64.7	58.5
Articulated Trucks	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.7	0.0	4.2	10.0	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	2.4
Buses	0	1	1	0	2	0	9	0	0	9	8	5	2	0	15	0	6	0	0	6	32
Single-Unit Trucks	1	10	2	0	13	0	9	5	0	14	1	8	1	0	10	2	5	4	0	11	48
Articulated Trucks	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Entering Leg	1	11	3	0	15	0	18	6	0	24	10	13	3	0	26	2	11	4	0	17	82
Buses	5					15					1					11					32
Single-Unit Trucks	12					8					17					11					48
Articulated Trucks	0					1					1					0					2
Total Exiting Leg	17					24					19					22					82

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	2	0	0	2	1	3	0	0	4	0	2	0	0	2	9
7:45 AM	0	0	0	0	0	0	2	0	0	2	2	3	0	0	5	0	1	0	0	1	8
Total	0	1	0	0	1	0	4	0	0	4	3	6	0	0	9	0	3	0	0	3	17
8:00 AM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	1	0	0	1	4
8:15 AM	0	0	0	0	0	0	1	0	0	1	2	1	1	0	4	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	3	0	0	3	2	1	0	0	3	0	1	0	0	1	7
8:45 AM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	2	0	0	2	5
Total	0	0	0	0	0	0	6	0	0	6	6	4	1	0	11	0	4	0	0	4	21
9:00 AM	0	1	1	0	2	0	1	0	0	1	2	3	0	0	5	0	2	0	0	2	10
9:15 AM	0	0	0	0	0	0	4	0	0	4	3	0	2	0	5	0	1	0	0	1	10
Total	0	1	1	0	2	0	5	0	0	5	5	3	2	0	10	0	3	0	0	3	20
Grand Total	0	2	1	0	3	0	15	0	0	15	14	13	3	0	30	0	10	0	0	10	58
Approach %	0.0	66.7	33.3	0.0		0.0	100.0	0.0	0.0		46.7	43.3	10.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	3.4	1.7	0.0	5.2	0.0	25.9	0.0	0.0	25.9	24.1	22.4	5.2	0.0	51.7	0.0	17.2	0.0	0.0	17.2	
Exiting Leg Total	13					25					2					18					58

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	0	0	0	0	0	0	3	0	0	3	2	1	0	0	3	0	1	0	0	1	7
8:45 AM	0	0	0	0	0	0	1	0	0	1	1	1	0	0	2	0	2	0	0	2	5
9:00 AM	0	1	1	0	2	0	1	0	0	1	2	3	0	0	5	0	2	0	0	2	10
9:15 AM	0	0	0	0	0	0	4	0	0	4	3	0	2	0	5	0	1	0	0	1	10
Total Volume	0	1	1	0	2	0	9	0	0	9	8	5	2	0	15	0	6	0	0	6	32
% Approach Total	0.0	50.0	50.0	0.0		0.0	100.0	0.0	0.0		53.3	33.3	13.3	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.250	0.250	0.000	0.250	0.000	0.563	0.000	0.000	0.563	0.667	0.417	0.250	0.000	0.750	0.000	0.750	0.000	0.000	0.750	0.800
Entering Leg	0	1	1	0	2	0	9	0	0	9	8	5	2	0	15	0	6	0	0	6	32
Exiting Leg	5					15					1					11					32
Total	7					24					16					17					64

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	2	2	0	5	0	2	3	0	5	1	1	1	0	3	2	1	0	0	3	16
7:45 AM	0	1	2	0	3	1	0	0	0	1	0	4	0	0	4	0	2	0	0	2	10
Total	1	3	4	0	8	1	2	3	0	6	1	5	1	0	7	2	3	0	0	5	26
8:00 AM	0	5	1	0	6	0	4	0	0	4	1	3	0	0	4	0	1	1	0	2	16
8:15 AM	0	2	0	0	2	1	2	0	0	3	1	2	0	0	3	0	1	0	0	1	9
8:30 AM	0	2	0	0	2	0	1	1	0	2	0	1	1	0	2	0	1	1	0	2	8
8:45 AM	0	3	0	0	3	0	0	0	0	0	0	4	0	0	4	1	1	0	0	2	9
Total	0	12	1	0	13	1	7	1	0	9	2	10	1	0	13	1	4	2	0	7	42
9:00 AM	0	4	1	0	5	0	4	3	0	7	1	0	0	0	1	1	3	2	0	6	19
9:15 AM	1	1	1	0	3	0	4	1	0	5	0	3	0	0	3	0	0	1	0	1	12
Total	1	5	2	0	8	0	8	4	0	12	1	3	0	0	4	1	3	3	0	7	31
Grand Total	2	20	7	0	29	2	17	8	0	27	4	18	2	0	24	4	10	5	0	19	99
Approach %	6.9	69.0	24.1	0.0		7.4	63.0	29.6	0.0		16.7	75.0	8.3	0.0		21.1	52.6	26.3	0.0		
Total %	2.0	20.2	7.1	0.0	29.3	2.0	17.2	8.1	0.0	27.3	4.0	18.2	2.0	0.0	24.2	4.0	10.1	5.1	0.0	19.2	
Exiting Leg Total	25					21					32					21					99

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	2	2	0	5	0	2	3	0	5	1	1	1	0	3	2	1	0	0	3	16
7:45 AM	0	1	2	0	3	1	0	0	0	1	0	4	0	0	4	0	2	0	0	2	10
8:00 AM	0	5	1	0	6	0	4	0	0	4	1	3	0	0	4	0	1	1	0	2	16
8:15 AM	0	2	0	0	2	1	2	0	0	3	1	2	0	0	3	0	1	0	0	1	9
Total Volume	1	10	5	0	16	2	8	3	0	13	3	10	1	0	14	2	5	1	0	8	51
% Approach Total	6.3	62.5	31.3	0.0		15.4	61.5	23.1	0.0		21.4	71.4	7.1	0.0		25.0	62.5	12.5	0.0		
PHF	0.250	0.500	0.625	0.000	0.667	0.500	0.500	0.250	0.000	0.650	0.750	0.625	0.250	0.000	0.875	0.250	0.625	0.250	0.000	0.667	0.797
Entering Leg	1	10	5	0	16	2	8	3	0	13	3	10	1	0	14	2	5	1	0	8	51
Exiting Leg					13					13					15					10	51
Total					29					26					29					18	102

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:45 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	2	0	0	0	2	0	0	0	0	0	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	5
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		66.7	33.3	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	20.0	0.0	0.0	20.0	0.0	0.0	20.0	0.0	20.0	40.0	20.0	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	1					2					2					0					5

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0			50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0	
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000		0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.375
Entering Leg	0	1	0	0	1	0	0	0	0	0		1	1	0	2	0	0	0	0	0	3
Exiting Leg					1										1					0	3
Total					2					1					3					0	6

PDI File #: **196867 (17) am**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Portland Street							Broadway							Portland Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	1	5	0	0	0	0	6	1	0	0	0	0	2	3	0	1	0	0	0	0	1	1	12	0	0	0	0	13	23
7:45 AM	0	13	1	0	0	0	14	1	3	0	0	0	1	5	1	1	0	0	0	0	2	1	16	0	0	0	0	17	38
Total	1	18	1	0	0	0	20	2	3	0	0	0	3	8	1	2	0	0	0	0	3	2	28	0	0	0	0	30	61
8:00 AM	1	10	2	0	0	0	13	2	5	1	0	0	1	9	1	3	3	0	0	0	7	1	25	0	0	0	0	26	55
8:15 AM	0	9	4	0	0	0	13	1	3	0	0	0	0	4	1	2	1	0	0	0	4	1	38	2	0	0	1	42	63
8:30 AM	0	16	1	0	0	0	17	0	6	0	0	1	1	8	0	4	2	0	0	1	7	1	35	0	0	0	0	36	68
8:45 AM	1	10	0	0	0	0	11	1	8	0	0	0	0	9	0	4	0	0	0	2	6	3	28	0	0	0	1	32	58
Total	2	45	7	0	0	0	54	4	22	1	0	1	2	30	2	13	6	0	0	3	24	6	126	2	0	0	2	136	244
9:00 AM	0	9	6	0	0	0	15	0	1	0	0	0	0	1	0	5	1	0	1	2	9	0	33	1	0	0	0	34	59
9:15 AM	0	9	1	0	0	0	10	0	5	0	0	0	0	5	0	0	0	0	0	1	1	2	27	0	0	0	0	29	45
Total	0	18	7	0	0	0	25	0	6	0	0	0	0	6	0	5	1	0	1	3	10	2	60	1	0	0	0	63	104
Grand Total	3	81	15	0	0	0	99	6	31	1	0	1	5	44	3	20	7	0	1	6	37	10	214	3	0	0	2	229	409
Approach %	3.0	81.8	15.2	0.0	0.0	0.0		13.6	70.5	2.3	0.0	2.3	11.4		8.1	54.1	18.9	0.0	2.7	16.2		4.4	93.4	1.3	0.0	0.0	0.9		
Total %	0.7	19.8	3.7	0.0	0.0	0.0	24.2	1.5	7.6	0.2	0.0	0.2	1.2	10.8	0.7	4.9	1.7	0.0	0.2	1.5	9.0	2.4	52.3	0.7	0.0	0.0	0.5	56.0	
Exiting Leg Total	29							238							99							43							409

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Portland Street							Broadway							Portland Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	9	4	0	0	0	13	1	3	0	0	0	0	4	1	2	1	0	0	0	4	1	38	2	0	0	1	42	63
8:30 AM	0	16	1	0	0	0	17	0	6	0	0	1	1	8	0	4	2	0	0	1	7	1	35	0	0	0	0	36	68
8:45 AM	1	10	0	0	0	0	11	1	8	0	0	0	0	9	0	4	0	0	0	2	6	3	28	0	0	0	1	32	58
9:00 AM	0	9	6	0	0	0	15	0	1	0	0	0	0	1	0	5	1	0	1	2	9	0	33	1	0	0	0	34	59
Total Volume	1	44	11	0	0	0	56	2	18	0	0	1	1	22	1	15	4	0	1	5	26	5	134	3	0	0	2	144	248
% Approach Total	1.8	78.6	19.6	0.0	0.0	0.0		9.1	81.8	0.0	0.0	4.5	4.5		3.8	57.7	15.4	0.0	3.8	19.2		3.5	93.1	2.1	0.0	0.0	1.4		
PHF	0.250	0.688	0.458	0.000	0.000	0.000	0.824	0.500	0.563	0.000	0.000	0.250	0.250	0.611	0.250	0.750	0.500	0.000	0.250	0.625	0.722	0.417	0.882	0.375	0.000	0.000	0.500	0.857	0.912
Entering Leg	1	44	11	0	0	0	56	2	18	0	0	1	1	22	1	15	4	0	1	5	26	5	134	3	0	0	2	144	248
Exiting Leg	20							148							55							25							248
Total	76							170							81							169							496

PDI File #: 196867 (17) am
 Location: N: Portland Street S: Portland Street
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM
 Class:



Pedestrians

	Portland Street							Broadway							Portland Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	11	2	13	0	0	0	0	7	10	17	0	0	0	0	17	23	40	0	0	0	0	8	9	17	87
7:45 AM	0	0	0	0	11	12	23	0	0	0	0	17	13	30	0	0	0	0	18	22	40	0	0	0	0	15	19	34	127
Total	0	0	0	0	22	14	36	0	0	0	0	24	23	47	0	0	0	0	35	45	80	0	0	0	0	23	28	51	214
8:00 AM	0	0	0	0	11	16	27	0	0	0	0	6	17	23	0	0	0	0	29	26	55	0	0	0	0	11	21	32	137
8:15 AM	0	0	0	0	22	17	39	0	0	0	0	18	21	39	0	0	0	0	35	28	63	0	0	0	0	21	13	34	175
8:30 AM	0	0	0	0	20	22	42	0	0	0	0	25	23	48	0	0	0	0	48	44	92	0	0	0	0	31	35	66	248
8:45 AM	0	0	0	0	19	33	52	0	0	0	0	37	35	72	0	0	0	0	67	33	100	0	0	0	0	28	55	83	307
Total	0	0	0	0	72	88	160	0	0	0	0	86	96	182	0	0	0	0	179	131	310	0	0	0	0	91	124	215	867
9:00 AM	0	0	0	0	32	38	70	0	0	0	0	28	28	56	0	0	0	0	56	25	81	0	0	0	0	26	29	55	262
9:15 AM	0	0	0	0	17	35	52	0	0	0	0	17	21	38	0	0	0	0	44	32	76	0	0	0	0	20	29	49	215
Total	0	0	0	0	49	73	122	0	0	0	0	45	49	94	0	0	0	0	100	57	157	0	0	0	0	46	58	104	477
Grand Total	0	0	0	0	143	175	318	0	0	0	0	155	168	323	0	0	0	0	314	233	547	0	0	0	0	160	210	370	1558
Approach %	0	0	0	0	45	55		0	0	0	0	48	52		0	0	0	0	57.4	42.6		0	0	0	0	43.2	56.8		
Total %	0	0	0	0	9.18	11.2	20.4	0	0	0	0	9.95	10.8	20.7	0	0	0	0	20.2	15	35.1	0	0	0	0	10.3	13.5	23.7	
Exiting Leg Total	318							323							547							370							1558

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Portland Street							Broadway							Portland Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:30 AM	0	0	0	0	20	22	42	0	0	0	0	25	23	48	0	0	0	0	48	44	92	0	0	0	0	31	35	66	248
8:45 AM	0	0	0	0	19	33	52	0	0	0	0	37	35	72	0	0	0	0	67	33	100	0	0	0	0	28	55	83	307
9:00 AM	0	0	0	0	32	38	70	0	0	0	0	28	28	56	0	0	0	0	56	25	81	0	0	0	0	26	29	55	262
9:15 AM	0	0	0	0	17	35	52	0	0	0	0	17	21	38	0	0	0	0	44	32	76	0	0	0	0	20	29	49	215
Total Volume	0	0	0	0	88	128	216	0	0	0	0	107	107	214	0	0	0	0	215	134	349	0	0	0	0	105	148	253	1032
% Approach Total	0.0	0.0	0.0	0.0	40.7	59.3		0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	61.6	38.4		0.0	0.0	0.0	0.0	41.5	58.5		
PHF	0.000	0.000	0.000	0.000	0.688	0.842	0.771	0.000	0.000	0.000	0.000	0.723	0.764	0.743	0.000	0.000	0.000	0.000	0.802	0.761	0.873	0.000	0.000	0.000	0.000	0.847	0.673	0.762	0.840
Entering Leg	0	0	0	0	88	128	216	0	0	0	0	107	107	214	0	0	0	0	215	134	349	0	0	0	0	105	148	253	1032
Exiting Leg	216							214							349							253							1032
Total	432							428							698							506							2064

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	7	30	6	0	43	13	81	4	0	98	10	87	10	0	107	8	40	12	0	60	308
4:45 PM	8	32	4	0	44	11	84	2	0	97	11	89	13	0	113	4	39	17	0	60	314
Total	15	62	10	0	87	24	165	6	0	195	21	176	23	0	220	12	79	29	0	120	622
5:00 PM	4	32	3	0	39	5	87	5	0	97	10	104	14	0	128	10	42	14	0	66	330
5:15 PM	8	33	2	0	43	18	98	5	0	121	8	107	20	0	135	10	42	28	0	80	379
5:30 PM	7	27	2	0	36	11	77	4	0	92	7	98	18	0	123	4	44	22	0	70	321
5:45 PM	7	32	5	0	44	7	78	7	0	92	8	98	16	0	122	12	52	18	0	82	340
Total	26	124	12	0	162	41	340	21	0	402	33	407	68	0	508	36	180	82	0	298	1370
6:00 PM	1	34	1	0	36	3	68	7	0	78	8	68	9	0	85	5	51	20	0	76	275
6:15 PM	6	33	1	0	40	6	77	3	0	86	10	110	6	0	126	5	41	13	0	59	311
Total	7	67	2	0	76	9	145	10	0	164	18	178	15	0	211	10	92	33	0	135	586
Grand Total	48	253	24	0	325	74	650	37	0	761	72	761	106	0	939	58	351	144	0	553	2578
Approach %	14.8	77.8	7.4	0.0		9.7	85.4	4.9	0.0		7.7	81.0	11.3	0.0		10.5	63.5	26.0	0.0		
Total %	1.9	9.8	0.9	0.0	12.6	2.9	25.2	1.4	0.0	29.5	2.8	29.5	4.1	0.0	36.4	2.2	13.6	5.6	0.0	21.5	
Exiting Leg Total	979					447					348					804					2578
Cars	46	251	24	0	321	74	638	37	0	749	61	743	104	0	908	54	340	143	0	537	2515
% Cars	95.8	99.2	100.0	0.0	98.8	100.0	98.2	100.0	0.0	98.4	84.7	97.6	98.1	0.0	96.7	93.1	96.9	99.3	0.0	97.1	97.6
Exiting Leg Total	960					425					342					788					2515
Heavy Vehicles	2	2	0	0	4	0	12	0	0	12	11	18	2	0	31	4	11	1	0	16	63
% Heavy Vehicles	4.2	0.8	0.0	0.0	1.2	0.0	1.8	0.0	0.0	1.6	15.3	2.4	1.9	0.0	3.3	6.9	3.1	0.7	0.0	2.9	2.4
Exiting Leg Total	19					22					6					16					63

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	4	32	3	0	39	5	87	5	0	97	10	104	14	0	128	10	42	14	0	66	330
5:15 PM	8	33	2	0	43	18	98	5	0	121	8	107	20	0	135	10	42	28	0	80	379
5:30 PM	7	27	2	0	36	11	77	4	0	92	7	98	18	0	123	4	44	22	0	70	321
5:45 PM	7	32	5	0	44	7	78	7	0	92	8	98	16	0	122	12	52	18	0	82	340
Total Volume	26	124	12	0	162	41	340	21	0	402	33	407	68	0	508	36	180	82	0	298	1370
% Approach Total	16.0	76.5	7.4	0.0		10.2	84.6	5.2	0.0		6.5	80.1	13.4	0.0		12.1	60.4	27.5	0.0		
PHF	0.813	0.939	0.600	0.000	0.920	0.569	0.867	0.750	0.000	0.831	0.825	0.951	0.850	0.000	0.941	0.750	0.865	0.732	0.000	0.909	0.904
Cars	26	123	12	0	161	41	335	21	0	397	28	399	67	0	494	34	176	82	0	292	1344
Cars %	100.0	99.2	100.0	0.0	99.4	100.0	98.5	100.0	0.0	98.8	84.8	98.0	98.5	0.0	97.2	94.4	97.8	100.0	0.0	98.0	98.1
Heavy Vehicles	0	1	0	0	1	0	5	0	0	5	5	8	1	0	14	2	4	0	0	6	26
Heavy Vehicles %	0.0	0.8	0.0	0.0	0.6	0.0	1.5	0.0	0.0	1.2	15.2	2.0	1.5	0.0	2.8	5.6	2.2	0.0	0.0	2.0	1.9
Cars Enter Leg	26	123	12	0	161	41	335	21	0	397	28	399	67	0	494	34	176	82	0	292	1344
Heavy Enter Leg	0	1	0	0	1	0	5	0	0	5	5	8	1	0	14	2	4	0	0	6	26
Total Entering Leg	26	124	12	0	162	41	340	21	0	402	33	407	68	0	508	36	180	82	0	298	1370
Cars Exiting Leg	522					216					178					428					1344
Heavy Exiting Leg	8					9					3					6					26
Total Exiting Leg	530					225					181					434					1370

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	6	29	6	0	41	13	79	4	0	96	8	83	10	0	101	7	40	12	0	59	297
4:45 PM	8	32	4	0	44	11	82	2	0	95	10	86	13	0	109	4	36	17	0	57	305
Total	14	61	10	0	85	24	161	6	0	191	18	169	23	0	210	11	76	29	0	116	602
5:00 PM	4	31	3	0	38	5	87	5	0	97	9	101	13	0	123	9	40	14	0	63	321
5:15 PM	8	33	2	0	43	18	96	5	0	119	7	107	20	0	134	9	41	28	0	78	374
5:30 PM	7	27	2	0	36	11	76	4	0	91	5	95	18	0	118	4	43	22	0	69	314
5:45 PM	7	32	5	0	44	7	76	7	0	90	7	96	16	0	119	12	52	18	0	82	335
Total	26	123	12	0	161	41	335	21	0	397	28	399	67	0	494	34	176	82	0	292	1344
6:00 PM	0	34	1	0	35	3	67	7	0	77	6	65	8	0	79	4	49	20	0	73	264
6:15 PM	6	33	1	0	40	6	75	3	0	84	9	110	6	0	125	5	39	12	0	56	305
Total	6	67	2	0	75	9	142	10	0	161	15	175	14	0	204	9	88	32	0	129	569
Grand Total	46	251	24	0	321	74	638	37	0	749	61	743	104	0	908	54	340	143	0	537	2515
Approach %	14.3	78.2	7.5	0.0		9.9	85.2	4.9	0.0		6.7	81.8	11.5	0.0		10.1	63.3	26.6	0.0		
Total %	1.8	10.0	1.0	0.0	12.8	2.9	25.4	1.5	0.0	29.8	2.4	29.5	4.1	0.0	36.1	2.1	13.5	5.7	0.0	21.4	
Exiting Leg Total	960					425					342					788					2515

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	4	31	3	0	38	5	87	5	0	97	9	101	13	0	123	9	40	14	0	63	321
5:15 PM	8	33	2	0	43	18	96	5	0	119	7	107	20	0	134	9	41	28	0	78	374
5:30 PM	7	27	2	0	36	11	76	4	0	91	5	95	18	0	118	4	43	22	0	69	314
5:45 PM	7	32	5	0	44	7	76	7	0	90	7	96	16	0	119	12	52	18	0	82	335
Total Volume	26	123	12	0	161	41	335	21	0	397	28	399	67	0	494	34	176	82	0	292	1344
% Approach Total	16.1	76.4	7.5	0.0		10.3	84.4	5.3	0.0		5.7	80.8	13.6	0.0		11.6	60.3	28.1	0.0		
PHF	0.813	0.932	0.600	0.000	0.915	0.569	0.872	0.750	0.000	0.834	0.778	0.932	0.838	0.000	0.922	0.708	0.846	0.732	0.000	0.890	0.898
Entering Leg	26	123	12	0	161	41	335	21	0	397	28	399	67	0	494	34	176	82	0	292	1344
Exiting Leg	522					216					178					428					1344
Total	683					613					672					720					2688

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	0	0	2	0	2	0	0	2	2	4	0	0	6	1	0	0	0	1	11
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	3	0	0	4	0	3	0	0	3	9
Total	1	1	0	0	2	0	4	0	0	4	3	7	0	0	10	1	3	0	0	4	20
5:00 PM	0	1	0	0	1	0	0	0	0	0	1	3	1	0	5	1	2	0	0	3	9
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	1	0	0	2	5
5:30 PM	0	0	0	0	0	0	1	0	0	1	2	3	0	0	5	0	1	0	0	1	7
5:45 PM	0	0	0	0	0	0	2	0	0	2	1	2	0	0	3	0	0	0	0	0	5
Total	0	1	0	0	1	0	5	0	0	5	5	8	1	0	14	2	4	0	0	6	26
6:00 PM	1	0	0	0	1	0	1	0	0	1	2	3	1	0	6	1	2	0	0	3	11
6:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	1	0	3	6
Total	1	0	0	0	1	0	3	0	0	3	3	3	1	0	7	1	4	1	0	6	17
Grand Total	2	2	0	0	4	0	12	0	0	12	11	18	2	0	31	4	11	1	0	16	63
Approach %	50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		35.5	58.1	6.5	0.0		25.0	68.8	6.3	0.0		
Total %	3.2	3.2	0.0	0.0	6.3	0.0	19.0	0.0	0.0	19.0	17.5	28.6	3.2	0.0	49.2	6.3	17.5	1.6	0.0	25.4	
Exiting Leg Total	19					22					6					16					63
Buses	0	1	0	0	1	0	8	0	0	8	10	9	2	0	21	1	9	1	0	11	41
% Buses	0.0	50.0	0.0	0.0	25.0	0.0	66.7	0.0	0.0	66.7	90.9	50.0	100.0	0.0	67.7	25.0	81.8	100.0	0.0	68.8	65.1
Exiting Leg Total	10					19					2					10					41
Single-Unit Trucks	2	1	0	0	3	0	4	0	0	4	0	8	0	0	8	3	2	0	0	5	20
% Single-Unit	100.0	50.0	0.0	0.0	75.0	0.0	33.3	0.0	0.0	33.3	0.0	44.4	0.0	0.0	25.8	75.0	18.2	0.0	0.0	31.3	31.7
Exiting Leg Total	8					2					4					6					20
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	9.1	5.6	0.0	0.0	6.5	0.0	0.0	0.0	0.0	0.0	3.2
Exiting Leg Total	1					1					0					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	0	0	2	0	2	0	0	2	2	4	0	0	6	1	0	0	0	1	11
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	3	0	0	4	0	3	0	0	3	9
5:00 PM	0	1	0	0	1	0	0	0	0	0	1	3	1	0	5	1	2	0	0	3	9
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	1	0	0	2	5
Total Volume	1	2	0	0	3	0	6	0	0	6	5	10	1	0	16	3	6	0	0	9	34
% Approach Total	33.3	66.7	0.0	0.0		0.0	100.0	0.0	0.0		31.3	62.5	6.3	0.0		33.3	66.7	0.0	0.0		
PHF	0.250	0.500	0.000	0.000	0.375	0.000	0.750	0.000	0.000	0.750	0.625	0.625	0.250	0.000	0.667	0.750	0.500	0.000	0.000	0.750	0.773
Buses	0	1	0	0	1	0	3	0	0	3	5	7	1	0	13	0	5	0	0	5	22
Buses %	0.0	50.0	0.0	0.0	33.3	0.0	50.0	0.0	0.0	50.0	100.0	70.0	100.0	0.0	81.3	0.0	83.3	0.0	0.0	55.6	64.7
Single-Unit Trucks	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	3	1	0	0	4	12
Single-Unit %	100.0	50.0	0.0	0.0	66.7	0.0	50.0	0.0	0.0	50.0	0.0	30.0	0.0	0.0	18.8	100.0	16.7	0.0	0.0	44.4	35.3
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	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	0.0	0.0	0.0	0.0	0.0	0.0
Buses	0	1	0	0	1	0	3	0	0	3	5	7	1	0	13	0	5	0	0	5	22
Single-Unit Trucks	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	3	1	0	0	4	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	1	2	0	0	3	0	6	0	0	6	5	10	1	0	16	3	6	0	0	9	34
Buses	7					10					1					4					22
Single-Unit Trucks	3					1					4					4					12
Articulated Trucks	0					0					0					0					0
Total Exiting Leg	10					11					5					8					34

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	3	0	0	4	0	3	0	0	3	9
Total	0	1	0	0	1	0	2	0	0	2	3	4	0	0	7	0	3	0	0	3	13
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	3	1	0	5	0	1	0	0	1	6
5:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	1	0	0	1	4
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	0	0	0	0	0	3	0	0	3	4	4	1	0	9	0	3	0	0	3	15
6:00 PM	0	0	0	0	0	0	1	0	0	1	2	1	1	0	4	1	1	0	0	2	7
6:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	1	0	3	6
Total	0	0	0	0	0	0	3	0	0	3	3	1	1	0	5	1	3	1	0	5	13
Grand Total	0	1	0	0	1	0	8	0	0	8	10	9	2	0	21	1	9	1	0	11	41
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		47.6	42.9	9.5	0.0		9.1	81.8	9.1	0.0		
Total %	0.0	2.4	0.0	0.0	2.4	0.0	19.5	0.0	0.0	19.5	24.4	22.0	4.9	0.0	51.2	2.4	22.0	2.4	0.0	26.8	
Exiting Leg Total	10					19					2					10					41

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	4
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	3	0	0	4	0	3	0	0	3	9
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	3	1	0	5	0	1	0	0	1	6
5:15 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	1	0	0	1	3
Total Volume	0	1	0	0	1	0	3	0	0	3	5	7	1	0	13	0	5	0	0	5	22
% Approach Total	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		38.5	53.8	7.7	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.375	0.000	0.000	0.375	0.625	0.583	0.250	0.000	0.650	0.000	0.417	0.000	0.000	0.417	0.611
Entering Leg	0	1	0	0	1	0	3	0	0	3	5	7	1	0	13	0	5	0	0	5	22
Exiting Leg	7					10					1					4					22
Total	8					13					14					9					44

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	0	2	0	0	2	0	3	0	0	3	1	0	0	0	1	7
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	2	0	0	2	0	3	0	0	3	1	0	0	0	1	7
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	3
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	2
Total	0	1	0	0	1	0	2	0	0	2	0	4	0	0	4	2	1	0	0	3	10
6:00 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	3
Grand Total	2	1	0	0	3	0	4	0	0	4	0	8	0	0	8	3	2	0	0	5	20
Approach %	66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		60.0	40.0	0.0	0.0		
Total %	10.0	5.0	0.0	0.0	15.0	0.0	20.0	0.0	0.0	20.0	0.0	40.0	0.0	0.0	40.0	15.0	10.0	0.0	0.0	25.0	
Exiting Leg Total	8					2					4					6					20

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	0	0	0	1	0	2	0	0	2	0	3	0	0	3	1	0	0	0	1	7
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	3
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	2
Total Volume	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	3	1	0	0	4	12
% Approach Total	50.0	50.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		75.0	25.0	0.0	0.0		
PHF	0.250	0.250	0.000	0.000	0.500	0.000	0.375	0.000	0.000	0.375	0.000	0.250	0.000	0.000	0.250	0.750	0.250	0.000	0.000	0.500	0.429
Entering Leg	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	3	1	0	0	4	12
Exiting Leg					3					1					4					4	12
Total					5					4					7					8	24

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Portland Street					Broadway					Portland Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
6:15 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	1	0	0	1	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	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	50.0	50.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	1					1					0					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Portland Street					Broadway					Portland Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.500
Entering Leg	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	2
Exiting Leg	1					1					0					0					2
Total	1					1					2					0					4

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Portland Street							Broadway							Portland Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	1	0	0	0	0	1	0	10	3	0	0	0	13	0	5	0	0	0	0	5	1	1	0	0	0	0	2	21
4:45 PM	1	1	0	0	0	0	2	3	10	2	0	0	0	15	1	4	1	0	0	0	6	1	4	0	0	0	0	5	28
Total	1	2	0	0	0	0	3	3	20	5	0	0	0	28	1	9	1	0	0	0	11	2	5	0	0	0	0	7	49
5:00 PM	0	4	0	0	0	0	4	1	25	1	0	0	0	27	0	10	2	0	0	1	13	3	0	0	0	0	0	3	47
5:15 PM	1	5	0	0	0	0	6	1	17	1	0	1	0	20	0	13	5	0	0	0	18	1	1	0	0	0	1	3	47
5:30 PM	2	2	0	0	0	0	4	0	31	0	0	1	0	32	0	6	3	0	0	0	9	2	8	0	0	0	1	11	56
5:45 PM	0	6	0	0	0	0	6	0	38	0	0	0	0	38	0	11	3	0	0	0	14	1	8	1	0	1	0	11	69
Total	3	17	0	0	0	0	20	2	111	2	0	2	0	117	0	40	13	0	0	1	54	7	17	1	0	1	2	28	219
6:00 PM	0	6	0	0	0	1	7	0	19	0	0	1	3	23	0	16	1	0	0	0	17	1	8	0	0	0	1	10	57
6:15 PM	1	8	0	0	0	0	9	0	27	0	0	0	5	32	0	10	1	0	0	0	11	0	4	0	0	0	0	4	56
Total	1	14	0	0	0	1	16	0	46	0	0	1	8	55	0	26	2	0	0	0	28	1	12	0	0	0	1	14	113
Grand Total	5	33	0	0	0	1	39	5	177	7	0	3	8	200	1	75	16	0	0	1	93	10	34	1	0	1	3	49	381
Approach %	12.8	84.6	0.0	0.0	0.0	2.6		2.5	88.5	3.5	0.0	1.5	4.0		1.1	80.6	17.2	0.0	0.0	1.1		20.4	69.4	2.0	0.0	2.0	6.1		
Total %	1.3	8.7	0.0	0.0	0.0	0.3	10.2	1.3	46.5	1.8	0.0	0.8	2.1	52.5	0.3	19.7	4.2	0.0	0.0	0.3	24.4	2.6	8.9	0.3	0.0	0.3	0.8	12.9	
Exiting Leg Total	82							46							51							202							381

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Portland Street							Broadway							Portland Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:30 PM	2	2	0	0	0	0	4	0	31	0	0	1	0	32	0	6	3	0	0	0	9	2	8	0	0	0	1	11	56
5:45 PM	0	6	0	0	0	0	6	0	38	0	0	0	0	38	0	11	3	0	0	0	14	1	8	1	0	1	0	11	69
6:00 PM	0	6	0	0	0	1	7	0	19	0	0	1	3	23	0	16	1	0	0	0	17	1	8	0	0	0	1	10	57
6:15 PM	1	8	0	0	0	0	9	0	27	0	0	0	5	32	0	10	1	0	0	0	11	0	4	0	0	0	0	4	56
Total Volume	3	22	0	0	0	1	26	0	115	0	0	2	8	125	0	43	8	0	0	0	51	4	28	1	0	1	2	36	238
% Approach Total	11.5	84.6	0.0	0.0	0.0	3.8		0.0	92.0	0.0	0.0	1.6	6.4		0.0	84.3	15.7	0.0	0.0	0.0		11.1	77.8	2.8	0.0	2.8	5.6		
PHF	0.375	0.688	0.000	0.000	0.000	0.250	0.722	0.000	0.757	0.000	0.000	0.500	0.400	0.822	0.000	0.672	0.667	0.000	0.000	0.000	0.750	0.500	0.875	0.250	0.000	0.250	0.500	0.818	0.862
Entering Leg	3	22	0	0	0	1	26	0	115	0	0	2	8	125	0	43	8	0	0	0	51	4	28	1	0	1	2	36	238
Exiting Leg	45							38							26							129							238
Total	71							163							77							165							476

PDI File #: **196867 (17) pm**
 Location: **N: Portland Street S: Portland Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Portland Street							Broadway							Portland Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	17	10	27	0	0	0	0	10	16	26	0	0	0	0	21	22	43	0	0	0	0	21	12	33	129
4:45 PM	0	0	0	0	28	14	42	0	0	0	0	10	25	35	0	0	0	0	23	27	50	0	0	0	0	18	13	31	158
Total	0	0	0	0	45	24	69	0	0	0	0	20	41	61	0	0	0	0	44	49	93	0	0	0	0	39	25	64	287
5:00 PM	0	0	0	0	24	12	36	0	0	0	0	13	18	31	0	0	0	0	19	68	87	0	0	0	0	39	31	70	224
5:15 PM	0	0	0	0	16	25	41	0	0	0	0	16	39	55	0	0	0	0	31	51	82	0	0	0	0	35	19	54	232
5:30 PM	0	0	0	0	28	22	50	0	0	0	0	20	25	45	0	0	0	0	30	49	79	0	0	0	0	24	29	53	227
5:45 PM	0	0	0	0	22	13	35	0	0	0	0	12	21	33	0	0	0	0	42	41	83	0	0	0	0	27	20	47	198
Total	0	0	0	0	90	72	162	0	0	0	0	61	103	164	0	0	0	0	122	209	331	0	0	0	0	125	99	224	881
6:00 PM	0	0	0	0	7	10	17	0	0	0	0	13	28	41	0	0	0	0	29	32	61	0	0	0	0	23	17	40	159
6:15 PM	0	0	0	0	13	17	30	0	0	0	0	13	17	30	0	0	0	0	31	38	69	0	0	0	0	29	23	52	181
Total	0	0	0	0	20	27	47	0	0	0	0	26	45	71	0	0	0	0	60	70	130	0	0	0	0	52	40	92	340
Grand Total	0	0	0	0	155	123	278	0	0	0	0	107	189	296	0	0	0	0	226	328	554	0	0	0	0	216	164	380	1508
Approach %	0	0	0	0	55.8	44.2		0	0	0	0	36.1	63.9		0	0	0	0	40.8	59.2		0	0	0	0	56.8	43.2		
Total %	0	0	0	0	10.3	8.16	18.4	0	0	0	0	7.1	12.5	19.6	0	0	0	0	15	21.8	36.7	0	0	0	0	14.3	10.9	25.2	
Exiting Leg Total	278							296							554							380							1508

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Portland Street							Broadway							Portland Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	24	12	36	0	0	0	0	13	18	31	0	0	0	0	19	68	87	0	0	0	0	39	31	70	224
5:15 PM	0	0	0	0	16	25	41	0	0	0	0	16	39	55	0	0	0	0	31	51	82	0	0	0	0	35	19	54	232
5:30 PM	0	0	0	0	28	22	50	0	0	0	0	20	25	45	0	0	0	0	30	49	79	0	0	0	0	24	29	53	227
5:45 PM	0	0	0	0	22	13	35	0	0	0	0	12	21	33	0	0	0	0	42	41	83	0	0	0	0	27	20	47	198
Total Volume	0	0	0	0	90	72	162	0	0	0	0	61	103	164	0	0	0	0	122	209	331	0	0	0	0	125	99	224	881
% Approach Total	0.0	0.0	0.0	0.0	55.6	44.4		0.0	0.0	0.0	0.0	37.2	62.8		0.0	0.0	0.0	0.0	36.9	63.1		0.0	0.0	0.0	0.0	55.8	44.2		
PHF	0.000	0.000	0.000	0.000	0.804	0.720	0.810	0.000	0.000	0.000	0.000	0.763	0.660	0.745	0.000	0.000	0.000	0.000	0.726	0.768	0.951	0.000	0.000	0.000	0.000	0.801	0.798	0.800	0.949
Entering Leg	0	0	0	0	90	72	162	0	0	0	0	61	103	164	0	0	0	0	122	209	331	0	0	0	0	125	99	224	881
Exiting Leg	162							164							331							224							881
Total	324							328							662							448							1762

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	17	41	0	59	22	43	20	0	85	4	7	5	0	16	28	73	0	0	101	261
7:45 AM	3	16	54	0	73	30	63	26	0	119	6	9	4	0	19	30	66	0	0	96	307
Total	4	33	95	0	132	52	106	46	0	204	10	16	9	0	35	58	139	0	0	197	568
8:00 AM	2	15	49	0	66	28	51	30	0	109	4	6	5	0	15	28	61	0	0	89	279
8:15 AM	4	18	47	0	69	27	49	19	0	95	4	7	6	0	17	25	66	0	0	91	272
8:30 AM	2	18	30	0	50	29	47	14	0	90	0	2	4	0	6	21	67	0	0	88	234
8:45 AM	2	21	46	0	69	34	52	24	0	110	5	9	4	0	18	24	71	1	0	96	293
Total	10	72	172	0	254	118	199	87	0	404	13	24	19	0	56	98	265	1	0	364	1078
9:00 AM	1	18	37	0	56	35	54	18	0	107	8	2	10	0	20	17	67	3	0	87	270
9:15 AM	1	19	39	0	59	27	38	24	0	89	3	6	5	0	14	12	75	2	0	89	251
Total	2	37	76	0	115	62	92	42	0	196	11	8	15	0	34	29	142	5	0	176	521
Grand Total	16	142	343	0	501	232	397	175	0	804	34	48	43	0	125	185	546	6	0	737	2167
Approach %	3.2	28.3	68.5	0.0		28.9	49.4	21.8	0.0		27.2	38.4	34.4	0.0		25.1	74.1	0.8	0.0		
Total %	0.7	6.6	15.8	0.0	23.1	10.7	18.3	8.1	0.0	37.1	1.6	2.2	2.0	0.0	5.8	8.5	25.2	0.3	0.0	34.0	
Exiting Leg Total	286					923					502					456					2167
Cars	14	142	312	0	468	202	361	173	0	736	32	44	34	0	110	183	506	5	0	694	2008
% Cars	87.5	100.0	91.0	0.0	93.4	87.1	90.9	98.9	0.0	91.5	94.1	91.7	79.1	0.0	88.0	98.9	92.7	83.3	0.0	94.2	92.7
Exiting Leg Total	251					850					498					409					2008
Heavy Vehicles	2	0	31	0	33	30	36	2	0	68	2	4	9	0	15	2	40	1	0	43	159
% Heavy Vehicles	12.5	0.0	9.0	0.0	6.6	12.9	9.1	1.1	0.0	8.5	5.9	8.3	20.9	0.0	12.0	1.1	7.3	16.7	0.0	5.8	7.3
Exiting Leg Total	35					73					4					47					159

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	17	41	0	59	22	43	20	0	85	4	7	5	0	16	28	73	0	0	101	261
7:45 AM	3	16	54	0	73	30	63	26	0	119	6	9	4	0	19	30	66	0	0	96	307
8:00 AM	2	15	49	0	66	28	51	30	0	109	4	6	5	0	15	28	61	0	0	89	279
8:15 AM	4	18	47	0	69	27	49	19	0	95	4	7	6	0	17	25	66	0	0	91	272
Total Volume	10	66	191	0	267	107	206	95	0	408	18	29	20	0	67	111	266	0	0	377	1119
% Approach Total	3.7	24.7	71.5	0.0		26.2	50.5	23.3	0.0		26.9	43.3	29.9	0.0		29.4	70.6	0.0	0.0		
PHF	0.625	0.917	0.884	0.000	0.914	0.892	0.817	0.792	0.000	0.857	0.750	0.806	0.833	0.000	0.882	0.925	0.911	0.000	0.000	0.933	0.911
Cars	8	66	171	0	245	90	188	95	0	373	17	26	16	0	59	110	245	0	0	355	1032
Cars %	80.0	100.0	89.5	0.0	91.8	84.1	91.3	100.0	0.0	91.4	94.4	89.7	80.0	0.0	88.1	99.1	92.1	0.0	0.0	94.2	92.2
Heavy Vehicles	2	0	20	0	22	17	18	0	0	35	1	3	4	0	8	1	21	0	0	22	87
Heavy Vehicles %	20.0	0.0	10.5	0.0	8.2	15.9	8.7	0.0	0.0	8.6	5.6	10.3	20.0	0.0	11.9	0.9	7.9	0.0	0.0	5.8	7.8
Cars Enter Leg	8	66	171	0	245	90	188	95	0	373	17	26	16	0	59	110	245	0	0	355	1032
Heavy Enter Leg	2	0	20	0	22	17	18	0	0	35	1	3	4	0	8	1	21	0	0	22	87
Total Entering Leg	10	66	191	0	267	107	206	95	0	408	18	29	20	0	67	111	266	0	0	377	1119
Cars Exiting Leg	116					433					271					212					1032
Heavy Exiting Leg	20					42					1					24					87
Total Exiting Leg	136					475					272					236					1119

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	17	35	0	53	17	37	20	0	74	4	6	3	0	13	28	66	0	0	94	234
7:45 AM	3	16	46	0	65	24	60	26	0	110	6	8	3	0	17	30	61	0	0	91	283
Total	4	33	81	0	118	41	97	46	0	184	10	14	6	0	30	58	127	0	0	185	517
8:00 AM	2	15	45	0	62	26	45	30	0	101	4	6	5	0	15	27	56	0	0	83	261
8:15 AM	2	18	45	0	65	23	46	19	0	88	3	6	5	0	14	25	62	0	0	87	254
8:30 AM	2	18	28	0	48	25	44	14	0	83	0	2	3	0	5	21	62	0	0	83	219
8:45 AM	2	21	42	0	65	31	51	24	0	106	5	9	4	0	18	24	67	1	0	92	281
Total	8	72	160	0	240	105	186	87	0	378	12	23	17	0	52	97	247	1	0	345	1015
9:00 AM	1	18	34	0	53	31	48	17	0	96	7	2	8	0	17	17	61	2	0	80	246
9:15 AM	1	19	37	0	57	25	30	23	0	78	3	5	3	0	11	11	71	2	0	84	230
Total	2	37	71	0	110	56	78	40	0	174	10	7	11	0	28	28	132	4	0	164	476
Grand Total	14	142	312	0	468	202	361	173	0	736	32	44	34	0	110	183	506	5	0	694	2008
Approach %	3.0	30.3	66.7	0.0		27.4	49.0	23.5	0.0		29.1	40.0	30.9	0.0		26.4	72.9	0.7	0.0		
Total %	0.7	7.1	15.5	0.0	23.3	10.1	18.0	8.6	0.0	36.7	1.6	2.2	1.7	0.0	5.5	9.1	25.2	0.2	0.0	34.6	
Exiting Leg Total	251					850					498					409					2008

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	17	35	0	53	17	37	20	0	74	4	6	3	0	13	28	66	0	0	94	234
7:45 AM	3	16	46	0	65	24	60	26	0	110	6	8	3	0	17	30	61	0	0	91	283
8:00 AM	2	15	45	0	62	26	45	30	0	101	4	6	5	0	15	27	56	0	0	83	261
8:15 AM	2	18	45	0	65	23	46	19	0	88	3	6	5	0	14	25	62	0	0	87	254
Total Volume	8	66	171	0	245	90	188	95	0	373	17	26	16	0	59	110	245	0	0	355	1032
% Approach Total	3.3	26.9	69.8	0.0		24.1	50.4	25.5	0.0		28.8	44.1	27.1	0.0		31.0	69.0	0.0	0.0		
PHF	0.667	0.917	0.929	0.000	0.942	0.865	0.783	0.792	0.000	0.848	0.708	0.813	0.800	0.000	0.868	0.917	0.928	0.000	0.000	0.944	0.912
Entering Leg	8	66	171	0	245	90	188	95	0	373	17	26	16	0	59	110	245	0	0	355	1032
Exiting Leg	116					433					271					212					1032
Total	361					806					330					567					2064

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	6	0	6	5	6	0	0	11	0	1	2	0	3	0	7	0	0	7	27
7:45 AM	0	0	8	0	8	6	3	0	0	9	0	1	1	0	2	0	5	0	0	5	24
Total	0	0	14	0	14	11	9	0	0	20	0	2	3	0	5	0	12	0	0	12	51
8:00 AM	0	0	4	0	4	2	6	0	0	8	0	0	0	0	0	1	5	0	0	6	18
8:15 AM	2	0	2	0	4	4	3	0	0	7	1	1	1	0	3	0	4	0	0	4	18
8:30 AM	0	0	2	0	2	4	3	0	0	7	0	0	1	0	1	0	5	0	0	5	15
8:45 AM	0	0	4	0	4	3	1	0	0	4	0	0	0	0	0	0	4	0	0	4	12
Total	2	0	12	0	14	13	13	0	0	26	1	1	2	0	4	1	18	0	0	19	63
9:00 AM	0	0	3	0	3	4	6	1	0	11	1	0	2	0	3	0	6	1	0	7	24
9:15 AM	0	0	2	0	2	2	8	1	0	11	0	1	2	0	3	1	4	0	0	5	21
Total	0	0	5	0	5	6	14	2	0	22	1	1	4	0	6	1	10	1	0	12	45
Grand Total	2	0	31	0	33	30	36	2	0	68	2	4	9	0	15	2	40	1	0	43	159
Approach %	6.1	0.0	93.9	0.0		44.1	52.9	2.9	0.0		13.3	26.7	60.0	0.0		4.7	93.0	2.3	0.0		
Total %	1.3	0.0	19.5	0.0	20.8	18.9	22.6	1.3	0.0	42.8	1.3	2.5	5.7	0.0	9.4	1.3	25.2	0.6	0.0	27.0	
Exiting Leg Total	35					73					4					47					159
Buses	0	0	17	0	17	9	16	0	0	25	0	1	1	0	2	0	23	0	0	23	67
% Buses	0.0	0.0	54.8	0.0	51.5	30.0	44.4	0.0	0.0	36.8	0.0	25.0	11.1	0.0	13.3	0.0	57.5	0.0	0.0	53.5	42.1
Exiting Leg Total	10					40					0					17					67
Single-Unit Trucks	2	0	12	0	14	20	19	2	0	41	2	3	8	0	13	1	16	1	0	18	86
% Single-Unit	100.0	0.0	38.7	0.0	42.4	66.7	52.8	100.0	0.0	60.3	100.0	75.0	88.9	0.0	86.7	50.0	40.0	100.0	0.0	41.9	54.1
Exiting Leg Total	24					30					3					29					86
Articulated Trucks	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2	6
% Articulated	0.0	0.0	6.5	0.0	6.1	3.3	2.8	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	50.0	2.5	0.0	0.0	4.7	3.8
Exiting Leg Total	1					3					1					1					6

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	6	0	6	5	6	0	0	11	0	1	2	0	3	0	7	0	0	7	27
7:45 AM	0	0	8	0	8	6	3	0	0	9	0	1	1	0	2	0	5	0	0	5	24
8:00 AM	0	0	4	0	4	2	6	0	0	8	0	0	0	0	0	1	5	0	0	6	18
8:15 AM	2	0	2	0	4	4	3	0	0	7	1	1	1	0	3	0	4	0	0	4	18
Total Volume	2	0	20	0	22	17	18	0	0	35	1	3	4	0	8	1	21	0	0	22	87
% Approach Total	9.1	0.0	90.9	0.0		48.6	51.4	0.0	0.0		12.5	37.5	50.0	0.0		4.5	95.5	0.0	0.0		
PHF	0.250	0.000	0.625	0.000	0.688	0.708	0.750	0.000	0.000	0.795	0.250	0.750	0.500	0.000	0.667	0.250	0.750	0.000	0.000	0.786	0.806
Buses	0	0	9	0	9	6	9	0	0	15	0	0	1	0	1	0	10	0	0	10	35
Buses %	0.0	0.0	45.0	0.0	40.9	35.3	50.0	0.0	0.0	42.9	0.0	0.0	25.0	0.0	12.5	0.0	47.6	0.0	0.0	45.5	40.2
Single-Unit Trucks	2	0	9	0	11	11	9	0	0	20	1	3	3	0	7	0	11	0	0	11	49
Single-Unit %	100.0	0.0	45.0	0.0	50.0	64.7	50.0	0.0	0.0	57.1	100.0	100.0	75.0	0.0	87.5	0.0	52.4	0.0	0.0	50.0	56.3
Articulated Trucks	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Articulated %	0.0	0.0	10.0	0.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	4.5	3.4
Buses	0	0	9	0	9	6	9	0	0	15	0	0	1	0	1	0	10	0	0	10	35
Single-Unit Trucks	2	0	9	0	11	11	9	0	0	20	1	3	3	0	7	0	11	0	0	11	49
Articulated Trucks	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3
Total Entering Leg	2	0	20	0	22	17	18	0	0	35	1	3	4	0	8	1	21	0	0	22	87
Buses	6					19					0					10					35
Single-Unit Trucks	14					21					0					14					49
Articulated Trucks	0					2					1					0					3
Total Exiting Leg	20					42					1					24					87

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	3	0	3	2	3	0	0	5	0	0	0	0	0	0	3	0	0	3	11
7:45 AM	0	0	2	0	2	1	1	0	0	2	0	0	1	0	1	0	2	0	0	2	7
Total	0	0	5	0	5	3	4	0	0	7	0	0	1	0	1	0	5	0	0	5	18
8:00 AM	0	0	2	0	2	1	3	0	0	4	0	0	0	0	0	0	4	0	0	4	10
8:15 AM	0	0	2	0	2	2	2	0	0	4	0	0	0	0	0	0	1	0	0	1	7
8:30 AM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	3	0	0	3	7
8:45 AM	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	7
Total	0	0	7	0	7	5	8	0	0	13	0	0	0	0	0	0	11	0	0	11	31
9:00 AM	0	0	3	0	3	1	1	0	0	2	0	0	0	0	0	0	3	0	0	3	8
9:15 AM	0	0	2	0	2	0	3	0	0	3	0	1	0	0	1	0	4	0	0	4	10
Total	0	0	5	0	5	1	4	0	0	5	0	1	0	0	1	0	7	0	0	7	18
Grand Total	0	0	17	0	17	9	16	0	0	25	0	1	1	0	2	0	23	0	0	23	67
Approach %	0.0	0.0	100.0	0.0		36.0	64.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	25.4	0.0	25.4	13.4	23.9	0.0	0.0	37.3	0.0	1.5	1.5	0.0	3.0	0.0	34.3	0.0	0.0	34.3	
Exiting Leg Total	10					40					0					17					67

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Hampshire Street					Broadway					Hampshire Street					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
7:30 AM	0	0	3	0	3	2	3	0	0	5	0	0	0	0	0	0	3	0	0	0	3	11
7:45 AM	0	0	2	0	2	1	1	0	0	2	0	0	1	0	1	0	2	0	0	0	2	7
8:00 AM	0	0	2	0	2	1	3	0	0	4	0	0	0	0	0	0	4	0	0	0	4	10
8:15 AM	0	0	2	0	2	2	2	0	0	4	0	0	0	0	0	0	1	0	0	0	1	7
Total Volume	0	0	9	0	9	6	9	0	0	15	0	0	1	0	1	0	10	0	0	0	10	35
% Approach Total	0.0	0.0	100.0	0.0		40.0	60.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.750	0.000	0.750	0.750	0.750	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.000	0.625	0.000	0.000	0.625		0.795
Entering Leg	0	0	9	0	9	6	9	0	0	15	0	0	1	0	1	0	10	0	0	0	10	35
Exiting Leg					6					19					0						10	35
Total					15					34					1						20	70

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	3	0	3	3	3	0	0	6	0	1	2	0	3	0	4	0	0	4	16
7:45 AM	0	0	4	0	4	5	2	0	0	7	0	1	0	0	1	0	3	0	0	3	15
Total	0	0	7	0	7	8	5	0	0	13	0	2	2	0	4	0	7	0	0	7	31
8:00 AM	0	0	2	0	2	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	7
8:15 AM	2	0	0	0	2	2	1	0	0	3	1	1	1	0	3	0	3	0	0	3	11
8:30 AM	0	0	1	0	1	3	1	0	0	4	0	0	1	0	1	0	1	0	0	1	7
8:45 AM	0	0	2	0	2	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	5
Total	2	0	5	0	7	8	5	0	0	13	1	1	2	0	4	0	6	0	0	6	30
9:00 AM	0	0	0	0	0	2	5	1	0	8	1	0	2	0	3	0	3	1	0	4	15
9:15 AM	0	0	0	0	0	2	4	1	0	7	0	0	2	0	2	1	0	0	0	1	10
Total	0	0	0	0	0	4	9	2	0	15	1	0	4	0	5	1	3	1	0	5	25
Grand Total	2	0	12	0	14	20	19	2	0	41	2	3	8	0	13	1	16	1	0	18	86
Approach %	14.3	0.0	85.7	0.0		48.8	46.3	4.9	0.0		15.4	23.1	61.5	0.0		5.6	88.9	5.6	0.0		
Total %	2.3	0.0	14.0	0.0	16.3	23.3	22.1	2.3	0.0	47.7	2.3	3.5	9.3	0.0	15.1	1.2	18.6	1.2	0.0	20.9	
Exiting Leg Total	24					30					3					29					86

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Hampshire Street					Broadway					Hampshire Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	3	0	3	3	3	0	0	6	0	1	2	0	3	0	4	0	0	4	16
7:45 AM	0	0	4	0	4	5	2	0	0	7	0	1	0	0	1	0	3	0	0	3	15
8:00 AM	0	0	2	0	2	1	3	0	0	4	0	0	0	0	0	0	1	0	0	1	7
8:15 AM	2	0	0	0	2	2	1	0	0	3	1	1	1	0	3	0	3	0	0	3	11
Total Volume	2	0	9	0	11	11	9	0	0	20	1	3	3	0	7	0	11	0	0	11	49
% Approach Total	18.2	0.0	81.8	0.0		55.0	45.0	0.0	0.0		14.3	42.9	42.9	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.000	0.563	0.000	0.688	0.550	0.750	0.000	0.000	0.714	0.250	0.750	0.375	0.000	0.583	0.000	0.688	0.000	0.000	0.688	0.766
Entering Leg	2	0	9	0	11	11	9	0	0	20	1	3	3	0	7	0	11	0	0	11	49
Exiting Leg					14					21					0					14	49
Total					25					41					7					25	98

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
8:45 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	1	1	0	0	2	2
9:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	2	0	2	1	1	0	0	2	0	0	0	0	0	1	1	0	0	2	6
Approach %	0.0	0.0	100.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		
Total %	0.0	0.0	33.3	0.0	33.3	16.7	16.7	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	16.7	16.7	0.0	0.0	33.3	
Exiting Leg Total	1					3					1					1					6

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Volume	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	4
% Approach Total	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.500	0.500
Entering Leg	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	4
Exiting Leg	0					3					1					0					4
Total	2					3					1					2					8

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Hampshire Street							Broadway							Hampshire Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	2	25	0	1	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	8	0	0	0	0	9	37
7:45 AM	0	5	39	0	1	5	50	0	0	0	0	0	0	0	0	1	0	0	0	0	0	3	16	0	0	0	0	19	70
Total	0	7	64	0	2	5	78	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	24	0	0	0	0	28	107
8:00 AM	0	3	44	0	1	5	53	0	0	0	0	0	0	0	0	2	0	0	0	0	0	1	24	0	0	0	0	25	80
8:15 AM	1	7	65	0	1	4	78	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	43	0	0	0	0	47	126
8:30 AM	0	3	68	0	2	7	80	0	1	1	0	1	0	3	1	0	0	0	0	2	3	4	28	0	0	0	0	32	118
8:45 AM	1	6	64	0	5	8	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	27	0	0	0	0	29	113
Total	2	19	241	0	9	24	295	0	1	1	0	1	0	3	1	3	0	0	0	2	6	11	122	0	0	0	0	133	437
9:00 AM	0	9	69	0	8	1	87	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	25	0	0	0	0	27	115
9:15 AM	0	4	54	0	6	5	69	0	0	1	0	2	0	3	0	0	0	0	0	0	0	2	24	0	0	0	0	26	98
Total	0	13	123	0	14	6	156	0	0	1	0	2	0	3	0	0	1	0	0	0	1	4	49	0	0	0	0	53	213
Grand Total	2	39	428	0	25	35	529	0	1	2	0	3	0	6	1	4	1	0	0	2	8	19	195	0	0	0	0	214	757
Approach %	0.4	7.4	80.9	0.0	4.7	6.6		0.0	16.7	33.3	0.0	50.0	0.0		12.5	50.0	12.5	0.0	0.0	25.0		8.9	91.1	0.0	0.0	0.0	0.0		
Total %	0.3	5.2	56.5	0.0	3.3	4.6	69.9	0.0	0.1	0.3	0.0	0.4	0.0	0.8	0.1	0.5	0.1	0.0	0.0	0.3	1.1	2.5	25.8	0.0	0.0	0.0	0.0	28.3	
Exiting Leg Total	64							627							62							4							757

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Hampshire Street							Broadway							Hampshire Street							Broadway								
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		Total
8:15 AM	1	7	65	0	1	4	78	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	4	43	0	0	0	0	47	126
8:30 AM	0	3	68	0	2	7	80	0	1	1	0	1	0	3	1	0	0	0	0	2	3	4	28	0	0	0	0	32	118	
8:45 AM	1	6	64	0	5	8	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	27	0	0	0	0	29	113	
9:00 AM	0	9	69	0	8	1	87	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	25	0	0	0	0	27	115	
Total Volume	2	25	266	0	16	20	329	0	1	1	0	1	0	3	1	1	1	0	0	2	5	12	123	0	0	0	0	135	472	
% Approach Total	0.6	7.6	80.9	0.0	4.9	6.1		0.0	33.3	33.3	0.0	33.3	0.0		20.0	20.0	20.0	0.0	0.0	40.0		8.9	91.1	0.0	0.0	0.0	0.0			
PHF	0.500	0.694	0.964	0.000	0.500	0.625	0.945	0.000	0.250	0.250	0.000	0.250	0.000	0.250	0.250	0.250	0.250	0.000	0.000	0.250	0.417	0.750	0.715	0.000	0.000	0.000	0.000	0.718	0.937	
Entering Leg	2	25	266	0	16	20	329	0	1	1	0	1	0	3	1	1	1	0	0	2	5	12	123	0	0	0	0	135	472	
Exiting Leg	37							391							40							4							472	
Total	366							394							45							139							944	

PDI File #: **196867 (18) am**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Hampshire Street							Broadway							Hampshire Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	16	2	18	0	0	0	0	10	15	25	0	0	0	0	12	23	35	0	0	0	0	9	5	14	92
7:45 AM	0	0	0	0	11	4	15	0	0	0	0	10	26	36	0	0	0	0	19	33	52	0	0	0	0	6	8	14	117
Total	0	0	0	0	27	6	33	0	0	0	0	20	41	61	0	0	0	0	31	56	87	0	0	0	0	15	13	28	209
8:00 AM	0	0	0	0	11	3	14	0	0	0	0	13	37	50	0	0	0	0	39	31	70	0	0	0	0	6	9	15	149
8:15 AM	0	0	0	0	13	5	18	0	0	0	0	16	30	46	0	0	0	0	31	28	59	0	0	0	0	5	9	14	137
8:30 AM	0	0	0	0	16	2	18	0	0	0	0	20	32	52	0	0	0	0	46	31	77	0	0	0	0	12	12	24	171
8:45 AM	0	0	0	0	18	4	22	0	0	0	0	23	25	48	0	0	0	0	64	43	107	0	0	0	0	11	13	24	201
Total	0	0	0	0	58	14	72	0	0	0	0	72	124	196	0	0	0	0	180	133	313	0	0	0	0	34	43	77	658
9:00 AM	0	0	0	0	13	8	21	0	0	0	0	27	20	47	0	0	0	0	58	32	90	0	0	0	0	11	16	27	185
9:15 AM	0	0	0	0	14	4	18	0	0	0	0	20	22	42	0	0	0	0	48	25	73	0	0	0	0	10	10	20	153
Total	0	0	0	0	27	12	39	0	0	0	0	47	42	89	0	0	0	0	106	57	163	0	0	0	0	21	26	47	338
Grand Total	0	0	0	0	112	32	144	0	0	0	0	139	207	346	0	0	0	0	317	246	563	0	0	0	0	70	82	152	1205
Approach %	0	0	0	0	77.8	22.2		0	0	0	0	40.2	59.8		0	0	0	0	56.3	43.7		0	0	0	0	46.1	53.9		
Total %	0	0	0	0	9.29	2.66	12	0	0	0	0	11.5	17.2	28.7	0	0	0	0	26.3	20.4	46.7	0	0	0	0	5.81	6.8	12.6	
Exiting Leg Total	144							346							563							152							1205

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Hampshire Street							Broadway							Hampshire Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:30 AM	0	0	0	0	16	2	18	0	0	0	0	20	32	52	0	0	0	0	46	31	77	0	0	0	0	12	12	24	171
8:45 AM	0	0	0	0	18	4	22	0	0	0	0	23	25	48	0	0	0	0	64	43	107	0	0	0	0	11	13	24	201
9:00 AM	0	0	0	0	13	8	21	0	0	0	0	27	20	47	0	0	0	0	58	32	90	0	0	0	0	11	16	27	185
9:15 AM	0	0	0	0	14	4	18	0	0	0	0	20	22	42	0	0	0	0	48	25	73	0	0	0	0	10	10	20	153
Total Volume	0	0	0	0	61	18	79	0	0	0	0	90	99	189	0	0	0	0	216	131	347	0	0	0	0	44	51	95	710
% Approach Total	0.0	0.0	0.0	0.0	77.2	22.8		0.0	0.0	0.0	0.0	47.6	52.4		0.0	0.0	0.0	0.0	62.2	37.8		0.0	0.0	0.0	0.0	46.3	53.7		
PHF	0.000	0.000	0.000	0.000	0.847	0.563	0.898	0.000	0.000	0.000	0.000	0.833	0.773	0.909	0.000	0.000	0.000	0.000	0.844	0.762	0.811	0.000	0.000	0.000	0.000	0.917	0.797	0.880	0.883
Entering Leg	0	0	0	0	61	18	79	0	0	0	0	90	99	189	0	0	0	0	216	131	347	0	0	0	0	44	51	95	710
Exiting Leg							79							189							347							95	710
Total							158							378							694							190	1420

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	2	0	27	0	29	59	64	2	0	125	28	46	26	0	100	3	53	1	0	57	311
4:45 PM	2	0	28	0	30	58	64	2	0	124	28	41	31	0	100	1	51	1	0	53	307
Total	4	0	55	0	59	117	128	4	0	249	56	87	57	0	200	4	104	2	0	110	618
5:00 PM	0	1	29	0	30	59	67	2	0	128	20	38	32	0	90	1	50	2	0	53	301
5:15 PM	1	2	27	0	30	60	86	4	0	150	28	52	37	0	117	1	52	1	0	54	351
5:30 PM	0	8	29	0	37	49	80	0	0	129	24	47	19	0	90	1	50	1	0	52	308
5:45 PM	7	4	25	0	36	59	69	1	0	129	25	28	11	0	64	5	63	0	0	68	297
Total	8	15	110	0	133	227	302	7	0	536	97	165	99	0	361	8	215	4	0	227	1257
6:00 PM	1	1	25	0	27	60	59	1	0	120	18	35	21	0	74	0	61	0	0	61	282
6:15 PM	2	2	35	0	39	64	70	1	0	135	18	37	15	0	70	0	52	0	0	52	296
Total	3	3	60	0	66	124	129	2	0	255	36	72	36	0	144	0	113	0	0	113	578
Grand Total	15	18	225	0	258	468	559	13	0	1040	189	324	192	0	705	12	432	6	0	450	2453
Approach %	5.8	7.0	87.2	0.0		45.0	53.8	1.3	0.0		26.8	46.0	27.2	0.0		2.7	96.0	1.3	0.0		
Total %	0.6	0.7	9.2	0.0	10.5	19.1	22.8	0.5	0.0	42.4	7.7	13.2	7.8	0.0	28.7	0.5	17.6	0.2	0.0	18.3	
Exiting Leg Total	798					846					43					766					2453
Cars	15	18	213	0	246	450	548	11	0	1009	188	322	190	0	700	12	409	6	0	427	2382
% Cars	100.0	100.0	94.7	0.0	95.3	96.2	98.0	84.6	0.0	97.0	99.5	99.4	99.0	0.0	99.3	100.0	94.7	100.0	0.0	94.9	97.1
Exiting Leg Total	778					810					41					753					2382
Heavy Vehicles	0	0	12	0	12	18	11	2	0	31	1	2	2	0	5	0	23	0	0	23	71
% Heavy Vehicles	0.0	0.0	5.3	0.0	4.7	3.8	2.0	15.4	0.0	3.0	0.5	0.6	1.0	0.0	0.7	0.0	5.3	0.0	0.0	5.1	2.9
Exiting Leg Total	20					36					2					13					71

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	2	0	27	0	29	59	64	2	0	125	28	46	26	0	100	3	53	1	0	57	311
4:45 PM	2	0	28	0	30	58	64	2	0	124	28	41	31	0	100	1	51	1	0	53	307
5:00 PM	0	1	29	0	30	59	67	2	0	128	20	38	32	0	90	1	50	2	0	53	301
5:15 PM	1	2	27	0	30	60	86	4	0	150	28	52	37	0	117	1	52	1	0	54	351
Total Volume	5	3	111	0	119	236	281	10	0	527	104	177	126	0	407	6	206	5	0	217	1270
% Approach Total	4.2	2.5	93.3	0.0		44.8	53.3	1.9	0.0		25.6	43.5	31.0	0.0		2.8	94.9	2.3	0.0		
PHF	0.625	0.375	0.957	0.000	0.992	0.983	0.817	0.625	0.000	0.878	0.929	0.851	0.851	0.000	0.870	0.500	0.972	0.625	0.000	0.952	0.905
Cars	5	3	107	0	115	226	276	9	0	511	104	176	125	0	405	6	194	5	0	205	1236
Cars %	100.0	100.0	96.4	0.0	96.6	95.8	98.2	90.0	0.0	97.0	100.0	99.4	99.2	0.0	99.5	100.0	94.2	100.0	0.0	94.5	97.3
Heavy Vehicles	0	0	4	0	4	10	5	1	0	16	0	1	1	0	2	0	12	0	0	12	34
Heavy Vehicles %	0.0	0.0	3.6	0.0	3.4	4.2	1.8	10.0	0.0	3.0	0.0	0.6	0.8	0.0	0.5	0.0	5.8	0.0	0.0	5.5	2.7
Cars Enter Leg	5	3	107	0	115	226	276	9	0	511	104	176	125	0	405	6	194	5	0	205	1236
Heavy Enter Leg	0	0	4	0	4	10	5	1	0	16	0	1	1	0	2	0	12	0	0	12	34
Total Entering Leg	5	3	111	0	119	236	281	10	0	527	104	177	126	0	407	6	206	5	0	217	1270
Cars Exiting Leg	407					405					18					406					1236
Heavy Exiting Leg	11					16					1					6					34
Total Exiting Leg	418					421					19					412					1270

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	2	0	25	0	27	55	63	1	0	119	28	46	25	0	99	3	50	1	0	54	299
4:45 PM	2	0	27	0	29	57	62	2	0	121	28	41	31	0	100	1	47	1	0	49	299
Total	4	0	52	0	56	112	125	3	0	240	56	87	56	0	199	4	97	2	0	103	598
5:00 PM	0	1	28	0	29	57	67	2	0	126	20	38	32	0	90	1	47	2	0	50	295
5:15 PM	1	2	27	0	30	57	84	4	0	145	28	51	37	0	116	1	50	1	0	52	343
5:30 PM	0	8	26	0	34	49	77	0	0	126	23	47	19	0	89	1	47	1	0	49	298
5:45 PM	7	4	23	0	34	56	68	1	0	125	25	28	11	0	64	5	62	0	0	67	290
Total	8	15	104	0	127	219	296	7	0	522	96	164	99	0	359	8	206	4	0	218	1226
6:00 PM	1	1	25	0	27	59	58	0	0	117	18	34	21	0	73	0	57	0	0	57	274
6:15 PM	2	2	32	0	36	60	69	1	0	130	18	37	14	0	69	0	49	0	0	49	284
Total	3	3	57	0	63	119	127	1	0	247	36	71	35	0	142	0	106	0	0	106	558
Grand Total	15	18	213	0	246	450	548	11	0	1009	188	322	190	0	700	12	409	6	0	427	2382
Approach %	6.1	7.3	86.6	0.0		44.6	54.3	1.1	0.0		26.9	46.0	27.1	0.0		2.8	95.8	1.4	0.0		
Total %	0.6	0.8	8.9	0.0	10.3	18.9	23.0	0.5	0.0	42.4	7.9	13.5	8.0	0.0	29.4	0.5	17.2	0.3	0.0	17.9	
Exiting Leg Total	778					810					41					753					2382

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	2	0	25	0	27	55	63	1	0	119	28	46	25	0	99	3	50	1	0	54	299
4:45 PM	2	0	27	0	29	57	62	2	0	121	28	41	31	0	100	1	47	1	0	49	299
5:00 PM	0	1	28	0	29	57	67	2	0	126	20	38	32	0	90	1	47	2	0	50	295
5:15 PM	1	2	27	0	30	57	84	4	0	145	28	51	37	0	116	1	50	1	0	52	343
Total Volume	5	3	107	0	115	226	276	9	0	511	104	176	125	0	405	6	194	5	0	205	1236
% Approach Total	4.3	2.6	93.0	0.0		44.2	54.0	1.8	0.0		25.7	43.5	30.9	0.0		2.9	94.6	2.4	0.0		
PHF	0.625	0.375	0.955	0.000	0.958	0.991	0.821	0.563	0.000	0.881	0.929	0.863	0.845	0.000	0.873	0.500	0.970	0.625	0.000	0.949	0.901
Entering Leg	5	3	107	0	115	226	276	9	0	511	104	176	125	0	405	6	194	5	0	205	1236
Exiting Leg	407					405					18					406					1236
Total	522					916					423					611					2472

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Hampshire Street					Broadway					Hampshire Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	0	0	2	0	2	4	1	1	0	6	0	0	1	0	1	0	3	0	0	0	3	12
4:45 PM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	4	0	0	0	4	8
Total	0	0	3	0	3	5	3	1	0	9	0	0	1	0	1	0	7	0	0	0	7	20
5:00 PM	0	0	1	0	1	2	0	0	0	2	0	0	0	0	0	0	3	0	0	0	3	6
5:15 PM	0	0	0	0	0	3	2	0	0	5	0	1	0	0	1	0	2	0	0	0	2	8
5:30 PM	0	0	3	0	3	0	3	0	0	3	1	0	0	0	1	0	3	0	0	0	3	10
5:45 PM	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	0	1	0	0	0	1	7
Total	0	0	6	0	6	8	6	0	0	14	1	1	0	0	2	0	9	0	0	0	9	31
6:00 PM	0	0	0	0	0	1	1	1	0	3	0	1	0	0	1	0	4	0	0	0	4	8
6:15 PM	0	0	3	0	3	4	1	0	0	5	0	0	1	0	1	0	3	0	0	0	3	12
Total	0	0	3	0	3	5	2	1	0	8	0	1	1	0	2	0	7	0	0	0	7	20
Grand Total	0	0	12	0	12	18	11	2	0	31	1	2	2	0	5	0	23	0	0	0	23	71
Approach %	0.0	0.0	100.0	0.0		58.1	35.5	6.5	0.0		20.0	40.0	40.0	0.0		0.0	100.0	0.0	0.0			
Total %	0.0	0.0	16.9	0.0	16.9	25.4	15.5	2.8	0.0	43.7	1.4	2.8	2.8	0.0	7.0	0.0	32.4	0.0	0.0		32.4	
Exiting Leg Total	20					36					2					13					71	
Buses	0	0	10	0	10	14	8	0	0	22	0	0	1	0	1	0	20	0	0	0	20	53
% Buses	0.0	0.0	83.3	0.0	83.3	77.8	72.7	0.0	0.0	71.0	0.0	0.0	50.0	0.0	20.0	0.0	87.0	0.0	0.0		87.0	74.6
Exiting Leg Total	14					30					0					9					53	
Single-Unit Trucks	0	0	2	0	2	4	3	2	0	9	1	2	1	0	4	0	2	0	0	0	2	17
% Single-Unit	0.0	0.0	16.7	0.0	16.7	22.2	27.3	100.0	0.0	29.0	100.0	100.0	50.0	0.0	80.0	0.0	8.7	0.0	0.0		8.7	23.9
Exiting Leg Total	6					5					2					4					17	
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Articulated	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	0.0	4.3	0.0	0.0		4.3	1.4
Exiting Leg Total	0					1					0					0					1	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	0	0	3	0	3	0	3	0	0	3	1	0	0	0	1	0	3	0	0	3	10
5:45 PM	0	0	2	0	2	3	1	0	0	4	0	0	0	0	0	0	1	0	0	1	7
6:00 PM	0	0	0	0	0	1	1	1	0	3	0	1	0	0	1	0	4	0	0	4	8
6:15 PM	0	0	3	0	3	4	1	0	0	5	0	0	1	0	1	0	3	0	0	3	12
Total Volume	0	0	8	0	8	8	6	1	0	15	1	1	1	0	3	0	11	0	0	11	37
% Approach Total	0.0	0.0	100.0	0.0		53.3	40.0	6.7	0.0		33.3	33.3	33.3	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.667	0.000	0.667	0.500	0.500	0.250	0.000	0.750	0.250	0.250	0.250	0.000	0.750	0.000	0.688	0.000	0.000	0.688	0.771
Buses	0	0	7	0	7	7	5	0	0	12	0	0	1	0	1	0	9	0	0	9	29
Buses %	0.0	0.0	87.5	0.0	87.5	87.5	83.3	0.0	0.0	80.0	0.0	0.0	100.0	0.0	33.3	0.0	81.8	0.0	0.0	81.8	78.4
Single-Unit Trucks	0	0	1	0	1	1	1	1	0	3	1	1	0	0	2	0	1	0	0	1	7
Single-Unit %	0.0	0.0	12.5	0.0	12.5	12.5	16.7	100.0	0.0	20.0	100.0	100.0	0.0	0.0	66.7	0.0	9.1	0.0	0.0	9.1	18.9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Articulated %	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	0.0	9.1	0.0	0.0	9.1	2.7
Buses	0	0	7	0	7	7	5	0	0	12	0	0	1	0	1	0	9	0	0	9	29
Single-Unit Trucks	0	0	1	0	1	1	1	1	0	3	1	1	0	0	2	0	1	0	0	1	7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total Entering Leg	0	0	8	0	8	8	6	1	0	15	1	1	1	0	3	0	11	0	0	11	37
Buses	7					16					0					6					29
Single-Unit Trucks	2					3					1					1					7
Articulated Trucks	0					1					0					0					1
Total Exiting Leg	9					20					1					7					37

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	0	0	1	0	1	3	0	0	0	3	0	0	0	0	0	0	3	0	0	0	3	7
4:45 PM	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	0	0	4	0	0	4	8
Total	0	0	2	0	2	4	2	0	0	6	0	0	0	0	0	0	0	7	0	0	7	15
5:00 PM	0	0	1	0	1	1	0	0	0	1	0	0	0	0	0	0	0	2	0	0	2	4
5:15 PM	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	0	0	2	0	0	2	5
5:30 PM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	0	0	3	0	0	3	8
5:45 PM	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	0	5	0	5	6	4	0	0	10	0	0	0	0	0	0	0	7	0	0	7	22
6:00 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	3	0	0	3	5
6:15 PM	0	0	3	0	3	3	1	0	0	4	0	0	1	0	1	0	3	0	0	0	3	11
Total	0	0	3	0	3	4	2	0	0	6	0	0	1	0	1	0	6	0	0	0	6	16
Grand Total	0	0	10	0	10	14	8	0	0	22	0	0	1	0	1	0	20	0	0	0	20	53
Approach %	0.0	0.0	100.0	0.0		63.6	36.4	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0			
Total %	0.0	0.0	18.9	0.0	18.9	26.4	15.1	0.0	0.0	41.5	0.0	0.0	1.9	0.0	1.9	0.0	37.7	0.0	0.0		37.7	
Exiting Leg Total	14					30					0					9					53	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
5:30 PM	0	0	2	0	2	0	3	0	0	3	0	0	0	0	0	0	3	0	0	0	3	8
5:45 PM	0	0	2	0	2	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	5
6:00 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3	0	0	0	3	5
6:15 PM	0	0	3	0	3	3	1	0	0	4	0	0	1	0	1	0	3	0	0	0	3	11
Total Volume	0	0	7	0	7	7	5	0	0	12	0	0	1	0	1	0	9	0	0	0	9	29
% Approach Total	0.0	0.0	100.0	0.0		58.3	41.7	0.0	0.0		0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.583	0.000	0.583	0.583	0.417	0.000	0.000	0.750	0.000	0.000	0.250	0.000	0.250	0.000	0.750	0.000	0.000	0.000	0.750	0.659
Entering Leg	0	0	7	0	7	7	5	0	0	12	0	0	1	0	1	0	9	0	0	0	9	29
Exiting Leg	7					16					0					6					29	
Total	14					28					1					15					58	

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	1	1	1	0	3	0	0	1	0	1	0	0	0	0	0	5
4:45 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	1	0	1	1	1	1	0	3	0	0	1	0	1	0	0	0	0	0	5
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	2
5:15 PM	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	3
5:30 PM	0	0	1	0	1	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	2	2	0	0	4	1	1	0	0	2	0	1	0	0	1	8
6:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	3
6:15 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	1	0	2	0	1	0	0	1	0	1	0	0	1	4
Grand Total	0	0	2	0	2	4	3	2	0	9	1	2	1	0	4	0	2	0	0	2	17
Approach %	0.0	0.0	100.0	0.0		44.4	33.3	22.2	0.0		25.0	50.0	25.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	0.0	11.8	0.0	11.8	23.5	17.6	11.8	0.0	52.9	5.9	11.8	5.9	0.0	23.5	0.0	11.8	0.0	0.0	11.8	
Exiting Leg Total	6					5					2					4					17

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Hampshire Street					Broadway					Hampshire Street					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
4:30 PM	0	0	1	0	1	1	1	1	0	3	0	0	1	0	1	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
5:15 PM	0	0	0	0	0	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	3
Total Volume	0	0	1	0	1	3	2	1	0	6	0	1	1	0	2	0	1	0	0	0	1	10
% Approach Total	0.0	0.0	100.0	0.0		50.0	33.3	16.7	0.0		0.0	50.0	50.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.250	0.000	0.250	0.750	0.500	0.250	0.000	0.500	0.000	0.250	0.250	0.000	0.500	0.000	0.250	0.000	0.000	0.250	0.500	
Entering Leg	0	0	1	0	1	3	2	1	0	6	0	1	1	0	2	0	1	0	0	0	1	10
Exiting Leg					4					2					1						3	10
Total					5					8					3						4	20

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Hampshire Street					Broadway					Hampshire Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Approach %	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	100.0	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	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	100.0	
Exiting Leg Total	0					1					0					0					1

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Hampshire Street					Broadway					Hampshire Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
% Approach Total	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	100.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.250	
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	
Exiting Leg	0					1					0					0					1	
Total	0					1					0					1					2	

PDI File #: **196867 (18) pm**
 Location: **N: Hampshire Street S: Hampshire Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Hampshire Street							Broadway							Hampshire Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	1	2	0	1	13	17	0	13	0	0	2	0	15	0	5	0	0	0	0	5	0	2	0	0	0	0	2	39
4:45 PM	0	3	1	0	0	12	16	0	13	0	0	0	0	13	1	3	1	0	0	0	5	0	5	0	0	0	0	5	39
Total	0	4	3	0	1	25	33	0	26	0	0	2	0	28	1	8	1	0	0	0	10	0	7	0	0	0	0	7	78
5:00 PM	3	2	5	0	1	19	30	0	18	0	0	1	0	19	1	3	2	0	0	0	6	0	1	0	0	0	0	1	56
5:15 PM	2	0	7	0	0	19	28	0	17	0	0	0	0	17	0	1	2	0	0	0	3	0	1	0	0	0	0	1	49
5:30 PM	0	1	2	0	1	28	32	0	1	0	0	0	0	1	0	7	0	0	1	0	8	0	8	0	0	1	0	9	50
5:45 PM	0	0	10	0	0	36	46	0	0	0	0	1	0	1	2	8	2	0	0	0	12	0	8	0	0	0	0	8	67
Total	5	3	24	0	2	102	136	0	36	0	0	2	0	38	3	19	6	0	1	0	29	0	18	0	0	1	0	19	222
6:00 PM	0	0	4	0	0	21	25	0	0	0	0	1	0	1	0	7	0	0	0	0	7	1	7	0	0	0	0	8	41
6:15 PM	0	0	4	0	0	25	29	0	0	0	0	0	0	0	0	11	0	0	0	0	11	0	5	0	0	0	0	5	45
Total	0	0	8	0	0	46	54	0	0	0	0	1	0	1	0	18	0	0	0	0	18	1	12	0	0	0	0	13	86
Grand Total	5	7	35	0	3	173	223	0	62	0	0	5	0	67	4	45	7	0	1	0	57	1	37	0	0	1	0	39	386
Approach %	2.2	3.1	15.7	0.0	1.3	77.6		0.0	92.5	0.0	0.0	7.5	0.0		7.0	78.9	12.3	0.0	1.8	0.0		2.6	94.9	0.0	0.0	2.6	0.0		
Total %	1.3	1.8	9.1	0.0	0.8	44.8	57.8	0.0	16.1	0.0	0.0	1.3	0.0	17.4	1.0	11.7	1.8	0.0	0.3	0.0	14.8	0.3	9.6	0.0	0.0	0.3	0.0	10.1	
Exiting Leg Total	221							81							9							75							386

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Hampshire Street							Broadway							Hampshire Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	3	2	5	0	1	19	30	0	18	0	0	1	0	19	1	3	2	0	0	0	6	0	1	0	0	0	0	1	56
5:15 PM	2	0	7	0	0	19	28	0	17	0	0	0	0	17	0	1	2	0	0	0	3	0	1	0	0	0	0	1	49
5:30 PM	0	1	2	0	1	28	32	0	1	0	0	0	0	1	0	7	0	0	1	0	8	0	8	0	0	1	0	9	50
5:45 PM	0	0	10	0	0	36	46	0	0	0	0	1	0	1	2	8	2	0	0	0	12	0	8	0	0	0	0	8	67
Total Volume	5	3	24	0	2	102	136	0	36	0	0	2	0	38	3	19	6	0	1	0	29	0	18	0	0	1	0	19	222
% Approach Total	3.7	2.2	17.6	0.0	1.5	75.0		0.0	94.7	0.0	0.0	5.3	0.0		10.3	65.5	20.7	0.0	3.4	0.0		0.0	94.7	0.0	0.0	5.3	0.0		
PHF	0.417	0.375	0.600	0.000	0.500	0.708	0.739	0.000	0.500	0.000	0.000	0.500	0.000	0.500	0.375	0.594	0.750	0.000	0.250	0.000	0.604	0.000	0.563	0.000	0.000	0.250	0.000	0.528	0.828
Entering Leg	5	3	24	0	2	102	136	0	36	0	0	2	0	38	3	19	6	0	1	0	29	0	18	0	0	1	0	19	222
Exiting Leg	123							47							4							48							222
Total	259							85							33							67							444

PDI File #: 196867 (18) pm
 Location: N: Hampshire Street S: Hampshire Street
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Pedestrians

	Hampshire Street							Broadway							Hampshire Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	9	4	13	0	0	0	0	24	19	43	0	0	0	0	22	27	49	0	0	0	0	9	18	27	132
4:45 PM	0	0	0	0	3	16	19	0	0	0	0	18	18	36	0	0	0	0	17	39	56	0	0	0	0	13	15	28	139
Total	0	0	0	0	12	20	32	0	0	0	0	42	37	79	0	0	0	0	39	66	105	0	0	0	0	22	33	55	271
5:00 PM	0	0	0	0	17	11	28	0	0	0	0	35	23	58	0	0	0	0	24	60	84	0	0	0	0	12	12	24	194
5:15 PM	0	0	0	0	7	11	18	0	0	0	0	24	29	53	0	0	0	0	36	38	74	0	0	0	0	9	8	17	162
5:30 PM	0	0	0	0	4	14	18	0	0	0	0	14	28	42	0	0	0	0	30	49	79	0	0	0	0	6	8	14	153
5:45 PM	0	0	0	0	7	9	16	0	0	0	0	19	36	55	0	0	0	0	44	41	85	0	0	0	0	9	16	25	181
Total	0	0	0	0	35	45	80	0	0	0	0	92	116	208	0	0	0	0	134	188	322	0	0	0	0	36	44	80	690
6:00 PM	0	0	0	0	2	5	7	0	0	0	0	15	34	49	0	0	0	0	24	21	45	0	0	0	0	9	7	16	117
6:15 PM	0	0	0	0	7	19	26	0	0	0	0	16	31	47	0	0	0	0	29	35	64	0	0	0	0	16	9	25	162
Total	0	0	0	0	9	24	33	0	0	0	0	31	65	96	0	0	0	0	53	56	109	0	0	0	0	25	16	41	279
Grand Total	0	0	0	0	56	89	145	0	0	0	0	165	218	383	0	0	0	0	226	310	536	0	0	0	0	83	93	176	1240
Approach %	0	0	0	0	38.6	61.4		0	0	0	0	43.1	56.9		0	0	0	0	42.2	57.8		0	0	0	0	47.2	52.8		
Total %	0	0	0	0	4.52	7.18	11.7	0	0	0	0	13.3	17.6	30.9	0	0	0	0	18.2	25	43.2	0	0	0	0	6.69	7.5	14.2	
Exiting Leg Total	145							383							536							176							1240

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Hampshire Street							Broadway							Hampshire Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	17	11	28	0	0	0	0	35	23	58	0	0	0	0	24	60	84	0	0	0	0	12	12	24	194
5:15 PM	0	0	0	0	7	11	18	0	0	0	0	24	29	53	0	0	0	0	36	38	74	0	0	0	0	9	8	17	162
5:30 PM	0	0	0	0	4	14	18	0	0	0	0	14	28	42	0	0	0	0	30	49	79	0	0	0	0	6	8	14	153
5:45 PM	0	0	0	0	7	9	16	0	0	0	0	19	36	55	0	0	0	0	44	41	85	0	0	0	0	9	16	25	181
Total Volume	0	0	0	0	35	45	80	0	0	0	0	92	116	208	0	0	0	0	134	188	322	0	0	0	0	36	44	80	690
% Approach Total	0.0	0.0	0.0	0.0	43.8	56.3		0.0	0.0	0.0	0.0	44.2	55.8		0.0	0.0	0.0	0.0	41.6	58.4		0.0	0.0	0.0	0.0	45.0	55.0		
PHF	0.000	0.000	0.000	0.000	0.515	0.804	0.714	0.000	0.000	0.000	0.000	0.657	0.806	0.897	0.000	0.000	0.000	0.000	0.761	0.783	0.947	0.000	0.000	0.000	0.000	0.750	0.688	0.800	0.889
Entering Leg	0	0	0	0	35	45	80	0	0	0	0	92	116	208	0	0	0	0	134	188	322	0	0	0	0	36	44	80	690
Exiting Leg	80							208							322							80							690
Total	160							416							644							160							1380

BLUE GARAGE DAILY OCCUPANCY REPORT

MONTH : SEPTEMBER 2019

SPACES
O/N INV.1136
43
1093

21 HP

DATE	DAY	TIME	TRANS. IN	TRANS. OUT	TRANS. TOTAL	MONTH IN	MONTH OUT	MONTH TOTAL	TOTAL	TOTAL SPACES	OCCUPIED SPACES	AVAILABLE	% EMPTY SPACES	% SPACES OCCUPIED
9/22/2019	SUN	12:00 AM	1	0	1	1	1	0	1	1136	44	1092	96%	4%
		1:00 AM	0	0	0	0	0	0	0	1136	44	1092	96%	4%
		2:00 AM	0	0	0	0	0	0	0	1136	44	1092	96%	4%
		3:00 AM	0	0	0	1	0	1	1	1136	45	1091	96%	4%
		4:00 AM	3	0	3	6	0	6	9	1136	54	1082	95%	5%
		5:00 AM	1	0	1	1	0	1	2	1136	56	1080	95%	5%
		6:00 AM	1	0	1	17	4	13	14	1136	70	1066	94%	6%
		7:00 AM	0	0	0	4	4	0	0	1136	70	1066	94%	6%
		8:00 AM	1	0	1	4	1	3	4	1136	74	1062	93%	7%
		9:00 AM	0	0	0	3	2	1	1	1136	75	1061	93%	7%
		10:00 AM	0	0	0	5	3	2	2	1136	77	1059	93%	7%
		11:00 AM	0	1	-1	8	2	6	5	1136	82	1054	93%	7%
		12:00 PM	0	1	-1	3	5	-2	-3	1136	79	1057	93%	7%
		1:00 PM	0	0	0	3	8	-5	-5	1136	74	1062	93%	7%
		2:00 PM	0	0	0	6	1	5	5	1136	79	1057	93%	7%
		3:00 PM	0	0	0	4	7	-3	-3	1136	76	1060	93%	7%
		4:00 PM	0	0	0	0	1	-1	-1	1136	75	1061	93%	7%
		5:00 PM	0	0	0	4	6	-2	-2	1136	73	1063	94%	6%
		6:00 PM	0	0	0	5	4	1	1	1136	74	1062	93%	7%
		7:00 PM	0	1	-1	3	14	-11	-12	1136	62	1074	95%	5%
		8:00 PM	0	0	0	1	5	-4	-4	1136	58	1078	95%	5%
		9:00 PM	0	0	0	2	0	2	2	1136	60	1076	95%	5%
		10:00 PM	0	0	0	0	3	-3	-3	1136	57	1079	95%	5%
		11:00 PM	0	0	0	1	1	0	0	844	57	787	93%	7%
TOTALS			7	3	4	82	72	10	14					

BLUE GARAGE DAILY OCCUPANCY REPORT

MONTH : SEPTEMBER 2019

SPACES
O/N INV.1136
50
1086

DATE	DAY	TIME	TRANS. IN	TRANS. OUT	TRANS. TOTAL	MONTH IN	MONTH OUT	MONTH TOTAL	TOTAL	TOTAL SPACES	OCCUPIED SPACES	AVAILABLE	% EMPTY SPACES	% SPACES OCCUPIED
9/23/2019	MON	12:00 AM	0	0	0	0	0	0	0	1136	50	1086	96%	4%
		1:00 AM	0	0	0	0	1	-1	-1	1136	49	1087	96%	4%
		2:00 AM	0	0	0	0	0	0	0	1136	49	1087	96%	4%
		3:00 AM	0	0	0	1	2	-1	-1	1136	48	1088	96%	4%
		4:00 AM	0	0	0	9	1	8	8	1136	56	1080	95%	5%
		5:00 AM	26	1	25	48	1	47	72	1136	128	1008	89%	11%
		6:00 AM	28	2	26	107	4	103	129	1136	257	879	77%	23%
		7:00 AM	16	2	14	217	5	212	226	1136	483	653	57%	43%
		8:00 AM	15	1	14	254	3	251	265	1136	748	388	34%	66%
		9:00 AM	26	3	23	170	2	168	191	1136	939	197	17%	83%
		10:00 AM	16	5	11	49	5	44	55	1136	994	142	13%	88%
		11:00 AM	6	3	3	10	9	1	4	1136	998	138	12%	88%
		12:00 PM	2	7	-5	15	18	-3	-8	1136	990	146	13%	87%
		1:00 PM	3	25	-22	11	18	-7	-29	1136	961	175	15%	85%
		2:00 PM	1	32	-31	9	62	-53	-84	1136	877	259	23%	77%
		3:00 PM	1	28	-27	2	136	-134	-161	1136	716	420	37%	63%
		4:00 PM	0	13	-13	2	234	-232	-245	1136	471	665	59%	41%
		5:00 PM	0	11	-11	8	229	-221	-232	1136	239	897	79%	21%
		6:00 PM	1	7	-6	8	104	-96	-102	1136	137	999	88%	12%
		7:00 PM	0	4	-4	4	48	-44	-48	1136	89	1047	92%	8%
		8:00 PM	0	0	0	0	21	-21	-21	1136	68	1068	94%	6%
		9:00 PM	0	0	0	2	8	-6	-6	1136	62	1074	95%	5%
		10:00 PM	0	0	0	0	11	-11	-11	1136	51	1085	96%	4%
		11:00 PM	0	1	-1	2	3	-1	-2	1136	49	1087	96%	4%
TOTALS			141	145	-4	928	925	3	-1					

BLUE GARAGE DAILY OCCUPANCY REPORT

MONTH : SEPTEMBER 2019

SPACES
O/N INV.1136
58
1078

DATE	DAY	TIME	TRANS. IN	TRANS. OUT	TRANS. TOTAL	MONTH IN	MONTH OUT	MONTH TOTAL	TOTAL	TOTAL SPACES	OCCUPIED SPACES	AVAILABLE	% EMPTY SPACES	% SPACES OCCUPIED
9/24/2019	TUE	12:00 AM	0	0	0	0	1	-1	-1	1136	57	1079	95%	5%
		1:00 AM	0	0	0	0	1	-1	-1	1136	56	1080	95%	5%
		2:00 AM	0	0	0	2	1	1	1	1136	57	1079	95%	5%
		3:00 AM	0	0	0	1	1	0	0	1136	57	1079	95%	5%
		4:00 AM	0	0	0	6	1	5	5	1136	62	1074	95%	5%
		5:00 AM	28	0	28	44	1	43	71	1136	133	1003	88%	12%
		6:00 AM	25	0	25	113	3	110	135	1136	268	868	76%	24%
		7:00 AM	21	3	18	229	2	227	245	1136	513	623	55%	45%
		8:00 AM	18	5	13	248	7	241	254	1136	767	369	32%	68%
		9:00 AM	22	4	18	164	4	160	178	1136	945	191	17%	83%
		10:00 AM	24	4	20	53	5	48	68	1136	1013	123	11%	89%
		11:00 AM	26	4	22	18	7	11	33	1136	1046	90	8%	92%
		12:00 PM	23	7	16	14	23	-9	7	1136	1053	83	7%	93%
		1:00 PM	4	34	-30	14	23	-9	-39	1136	1014	122	11%	89%
		2:00 PM	6	44	-38	8	60	-52	-90	1136	924	212	19%	81%
		3:00 PM	1	23	-22	3	133	-130	-152	1136	772	364	32%	68%
		4:00 PM	1	21	-20	7	234	-227	-247	1136	525	611	54%	46%
		5:00 PM	2	16	-14	5	196	-191	-205	1136	320	816	72%	28%
		6:00 PM	1	13	-12	11	131	-120	-132	1136	188	948	83%	17%
		7:00 PM	0	12	-12	2	68	-66	-78	1136	110	1026	90%	10%
		8:00 PM	0	7	-7	3	21	-18	-25	1136	85	1051	93%	7%
		9:00 PM	0	7	-7	3	11	-8	-15	1136	70	1066	94%	6%
		10:00 PM	0	0	0	0	8	-8	-8	1136	62	1074	95%	5%

4:00 PM	0	6	-6	14	174	-160	-166	1136	337	799	70%	30%
5:00 PM	2	6	-4	1	163	-162	-166	1136	171	965	85%	15%
6:00 PM	0	7	-7	6	51	-45	-52	1136	119	1017	90%	10%
7:00 PM	1	2	-1	4	44	-40	-41	1136	78	1058	93%	7%
8:00 PM	0	0	0	1	20	-19	-19	1136	59	1077	95%	5%
9:00 PM	0	0	0	2	3	-1	-1	1136	58	1078	95%	5%
10:00 PM	1	1	0	0	9	-9	-9	1136	49	1087	96%	4%
11:00 PM	0	0	0	0	1	-1	-1	1136	48	1088	96%	4%
TOTALS	124	124	0	778	780	-2	-2					

BLUE GARAGE DAILY OCCUPANCY REPORT

MONTH : SEPTEMBER 2019

SPACES 1136
O/N INV. 55

1081

DATE	DAY	TIME	TRANS. IN	TRANS. OUT	TRANS. TOTAL	MONTH IN	MONTH OUT	MONTH TOTAL	TOTAL	TOTAL SPACES	OCCUPIED SPACES	AVAILABLE	% EMPTY SPACES	% SPACES OCCUPIED
9/28/2019	SAT	12:00 AM	0	0	0	0	0	0	0	1136	55	1081	95%	5%
		1:00 AM	0	0	0	0	1	-1	-1	1136	54	1082	95%	5%
		2:00 AM	0	0	0	2	2	0	0	1136	54	1082	95%	5%
		3:00 AM	0	0	0	0	0	0	0	1136	54	1082	95%	5%
		4:00 AM	0	0	0	0	1	-1	-1	1136	53	1083	95%	5%
		5:00 AM	20	1	19	7	0	7	26	1136	79	1057	93%	7%
		6:00 AM	6	1	5	21	2	19	24	1136	103	1033	91%	9%
		7:00 AM	1	0	1	5	3	2	3	1136	106	1030	91%	9%
		8:00 AM	2	0	2	7	4	3	5	1136	111	1025	90%	10%
		9:00 AM	0	0	0	7	5	2	2	1136	113	1023	90%	10%
		10:00 AM	0	0	0	14	10	4	4	1136	117	1019	90%	10%
		11:00 AM	0	0	0	9	8	1	1	1136	118	1018	90%	10%
		12:00 PM	0	6	-6	8	8	0	-6	1136	112	1024	90%	10%
		1:00 PM	0	3	-3	5	8	-3	-6	1136	106	1030	91%	9%
		2:00 PM	0	20	-20	8	8	0	-20	1136	86	1050	92%	8%
		3:00 PM	0	0	0	2	5	-3	-3	1136	83	1053	93%	7%
		4:00 PM	2	2	0	3	7	-4	-4	1136	79	1057	93%	7%
		5:00 PM	0	0	0	0	5	-5	-5	1136	74	1062	93%	7%
		6:00 PM	0	0	0	9	6	3	3	1136	77	1059	93%	7%
		7:00 PM	1	0	1	1	14	-13	-12	1136	65	1071	94%	6%
		8:00 PM	0	0	0	2	5	-3	-3	1136	62	1074	95%	5%
		9:00 PM	0	1	-1	2	4	-2	-3	1136	59	1077	95%	5%
		10:00 PM	0	1	-1	2	0	2	1	1136	60	1076	95%	5%
		11:00 PM	0	0	0	0	2	-2	-2	1136	58	1078	95%	5%
TOTALS			32	35	-3	114	108	6	3					

Note: Garage calls for 1171 parking spaces, Garage had to be resized to accommodate current vehicle sizes 35 spaces lost = Net actual 1136
1171 -35 = 1136

PDI File #: **196867 (12) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	30	59	11	0	100	5	69	32	0	106	29	12	17	0	58	17	29	15	3	64	328
7:45 AM	20	76	7	0	103	2	96	25	0	123	22	17	15	0	54	14	34	12	2	62	342
Total	50	135	18	0	203	7	165	57	0	229	51	29	32	0	112	31	63	27	5	126	670
8:00 AM	13	59	7	0	79	6	96	35	0	137	28	13	12	0	53	15	32	17	2	66	335
8:15 AM	25	74	7	0	106	7	91	27	0	125	24	18	17	0	59	18	30	7	3	58	348
8:30 AM	14	70	8	0	92	7	81	42	0	130	30	24	19	0	73	15	27	13	5	60	355
8:45 AM	16	59	14	0	89	6	101	38	0	145	28	15	19	0	62	15	41	22	2	80	376
Total	68	262	36	0	366	26	369	142	0	537	110	70	67	0	247	63	130	59	12	264	1414
9:00 AM	19	69	11	0	99	8	102	27	0	137	14	29	14	0	57	14	41	16	3	74	367
9:15 AM	21	53	10	0	84	8	90	35	0	133	21	18	21	0	60	16	40	13	2	71	348
Total	40	122	21	0	183	16	192	62	0	270	35	47	35	0	117	30	81	29	5	145	715
Grand Total	158	519	75	0	752	49	726	261	0	1036	196	146	134	0	476	124	274	115	22	535	2799
Approach %	21.0	69.0	10.0	0.0		4.7	70.1	25.2	0.0		41.2	30.7	28.2	0.0		23.2	51.2	21.5	4.1		
Total %	5.6	18.5	2.7	0.0	26.9	1.8	25.9	9.3	0.0	37.0	7.0	5.2	4.8	0.0	17.0	4.4	9.8	4.1	0.8	19.1	
Exiting Leg Total	310					545					904					1040					2799

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:15 AM	25	74	7	0	106	7	91	27	0	125	24	18	17	0	59	18	30	7	3	58	348
8:30 AM	14	70	8	0	92	7	81	42	0	130	30	24	19	0	73	15	27	13	5	60	355
8:45 AM	16	59	14	0	89	6	101	38	0	145	28	15	19	0	62	15	41	22	2	80	376
9:00 AM	19	69	11	0	99	8	102	27	0	137	14	29	14	0	57	14	41	16	3	74	367
Total Volume	74	272	40	0	386	28	375	134	0	537	96	86	69	0	251	62	139	58	13	272	1446
% Approach Total	19.2	70.5	10.4	0.0		5.2	69.8	25.0	0.0		38.2	34.3	27.5	0.0		22.8	51.1	21.3	4.8		
PHF	0.740	0.919	0.714	0.000	0.910	0.875	0.919	0.798	0.000	0.926	0.800	0.741	0.908	0.000	0.860	0.861	0.848	0.659	0.650	0.850	0.961
Entering Leg	74	272	40	0	386	28	375	134	0	537	96	86	69	0	251	62	139	58	13	272	1446
Exiting Leg	172					275					468					531					1446
Total	558					812					719					803					2892

PDI File #: **196867 (12) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Third Street					Binney Street					Third Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	0	1	0	0	1	0	6	2	0	8	0	0	0	0	0	0	7	0	0	0	7	16
7:45 AM	0	1	0	0	1	0	3	2	0	5	0	1	2	0	3	0	4	0	0	0	4	13
Total	0	2	0	0	2	0	9	4	0	13	0	1	2	0	3	0	11	0	0	0	11	29
8:00 AM	0	1	0	0	1	0	4	1	0	5	0	2	2	0	4	0	4	1	0	0	5	15
8:15 AM	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	2	0	0	0	2	8
8:30 AM	0	0	0	0	0	0	6	2	0	8	0	0	0	0	0	0	5	0	0	0	5	13
8:45 AM	0	0	0	0	0	0	1	3	0	4	0	0	0	0	0	0	4	0	0	0	4	8
Total	0	1	0	0	1	0	15	8	0	23	0	2	2	0	4	0	15	1	0	0	16	44
9:00 AM	1	0	0	0	1	0	3	2	0	5	0	0	0	0	0	0	4	0	0	0	4	10
9:15 AM	0	0	0	0	0	0	3	2	0	5	0	1	0	0	1	0	3	0	0	0	3	9
Total	1	0	0	0	1	0	6	4	0	10	0	1	0	0	1	0	7	0	0	0	7	19
Grand Total	1	3	0	0	4	0	30	16	0	46	0	4	4	0	8	0	33	1	0	0	34	92
Approach %	25.0	75.0	0.0	0.0		0.0	65.2	34.8	0.0		0.0	50.0	50.0	0.0		0.0	97.1	2.9	0.0			
Total %	1.1	3.3	0.0	0.0	4.3	0.0	32.6	17.4	0.0	50.0	0.0	4.3	4.3	0.0	8.7	0.0	35.9	1.1	0.0		37.0	
Exiting Leg Total	5					33					19					35					92	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Third Street					Binney Street					Third Street					Binney Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
7:30 AM	0	1	0	0	1	0	6	2	0	8	0	0	0	0	0	0	7	0	0	0	7	16
7:45 AM	0	1	0	0	1	0	3	2	0	5	0	1	2	0	3	0	4	0	0	4	13	
8:00 AM	0	1	0	0	1	0	4	1	0	5	0	2	2	0	4	0	4	1	0	5	15	
8:15 AM	0	0	0	0	0	0	4	2	0	6	0	0	0	0	0	0	2	0	0	2	8	
Total Volume	0	3	0	0	3	0	17	7	0	24	0	3	4	0	7	0	17	1	0	18	52	
% Approach Total	0.0	100.0	0.0	0.0		0.0	70.8	29.2	0.0		0.0	42.9	57.1	0.0		0.0	94.4	5.6	0.0			
PHF	0.000	0.750	0.000	0.000	0.750	0.000	0.708	0.875	0.000	0.750	0.000	0.375	0.500	0.000	0.438	0.000	0.607	0.250	0.000	0.643	0.813	
Entering Leg	0	3	0	0	3	0	17	7	0	24	0	3	4	0	7	0	17	1	0	18	52	
Exiting Leg	4					17					10					21					52	
Total	7					41					17					39					104	

PDI File #: **196867 (12) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	1	1	0	3	0	13	6	0	19	3	0	1	0	4	1	4	0	0	5	31
7:45 AM	2	0	0	0	2	0	9	5	0	14	1	0	3	0	4	0	8	1	0	9	29
Total	3	1	1	0	5	0	22	11	0	33	4	0	4	0	8	1	12	1	0	14	60
8:00 AM	1	2	0	0	3	0	8	4	0	12	4	0	0	0	4	1	3	0	0	4	23
8:15 AM	2	1	1	0	4	0	4	5	0	9	2	0	0	0	2	1	9	1	0	11	26
8:30 AM	2	0	1	0	3	0	6	3	0	9	0	1	1	0	2	1	9	1	0	11	25
8:45 AM	3	1	1	0	5	0	4	2	0	6	2	1	1	0	4	1	5	0	1	7	22
Total	8	4	3	0	15	0	22	14	0	36	8	2	2	0	12	4	26	2	1	33	96
9:00 AM	2	1	0	0	3	0	5	4	0	9	2	1	0	0	3	5	7	1	1	14	29
9:15 AM	1	0	1	0	2	0	9	6	0	15	4	1	0	0	5	1	5	1	0	7	29
Total	3	1	1	0	5	0	14	10	0	24	6	2	0	0	8	6	12	2	1	21	58
Grand Total	14	6	5	0	25	0	58	35	0	93	18	4	6	0	28	11	50	5	2	68	214
Approach %	56.0	24.0	20.0	0.0		0.0	62.4	37.6	0.0		64.3	14.3	21.4	0.0		16.2	73.5	7.4	2.9		
Total %	6.5	2.8	2.3	0.0	11.7	0.0	27.1	16.4	0.0	43.5	8.4	1.9	2.8	0.0	13.1	5.1	23.4	2.3	0.9	31.8	
Exiting Leg Total	9					73					52					80					214

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Third Street					Binney Street					Third Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	1	1	0	3	0	13	6	0	19	3	0	1	0	4	1	4	0	0	5	31
7:45 AM	2	0	0	0	2	0	9	5	0	14	1	0	3	0	4	0	8	1	0	9	29
8:00 AM	1	2	0	0	3	0	8	4	0	12	4	0	0	0	4	1	3	0	0	4	23
8:15 AM	2	1	1	0	4	0	4	5	0	9	2	0	0	0	2	1	9	1	0	11	26
Total Volume	6	4	2	0	12	0	34	20	0	54	10	0	4	0	14	3	24	2	0	29	109
% Approach Total	50.0	33.3	16.7	0.0		0.0	63.0	37.0	0.0		71.4	0.0	28.6	0.0		10.3	82.8	6.9	0.0		
PHF	0.750	0.500	0.500	0.000	0.750	0.000	0.654	0.833	0.000	0.711	0.625	0.000	0.333	0.000	0.875	0.750	0.667	0.500	0.000	0.659	0.879
Entering Leg	6	4	2	0	12	0	34	20	0	54	10	0	4	0	14	3	24	2	0	29	109
Exiting Leg	2					36					27					44					109
Total	14					90					41					73					218

PDI File #: **196867 (12) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Third Street					Binney Street					Third Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	6	0	0	0	6	9
7:45 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	0	2	0	0	2	7	
Total	0	0	0	0	0	0	5	2	0	7	1	0	0	0	1	0	8	0	0	8	16	
8:00 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	3	1	0	0	4	8	
8:15 AM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	2	0	0	2	6	
8:30 AM	0	0	0	0	0	0	2	0	0	2	2	1	0	0	3	0	1	0	0	1	6	
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	
Total	0	0	0	0	0	0	4	1	0	5	8	1	0	0	9	3	4	0	0	7	21	
9:00 AM	0	0	0	0	0	0	1	2	0	3	0	0	0	0	0	0	1	0	0	1	4	
9:15 AM	1	0	0	0	1	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	4	
Total	1	0	0	0	1	0	1	3	0	4	0	0	0	0	0	0	3	0	0	3	8	
Grand Total	1	0	0	0	1	0	10	6	0	16	9	1	0	0	10	3	15	0	0	18	45	
Approach %	100.0	0.0	0.0	0.0		0.0	62.5	37.5	0.0		90.0	10.0	0.0	0.0		16.7	83.3	0.0	0.0			
Total %	2.2	0.0	0.0	0.0	2.2	0.0	22.2	13.3	0.0	35.6	20.0	2.2	0.0	0.0	22.2	6.7	33.3	0.0	0.0	40.0		
Exiting Leg Total	1					24					9					11					45	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Third Street					Binney Street					Third Street					Binney Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
7:30 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	6	0	0	0	6	9
7:45 AM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	0	2	0	0	2	7	
8:00 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	3	1	0	0	4	8	
8:15 AM	0	0	0	0	0	0	1	0	0	1	3	0	0	0	3	0	2	0	0	2	6	
Total Volume	0	0	0	0	0	0	7	3	0	10	6	0	0	0	6	3	11	0	0	14	30	
% Approach Total	0.0	0.0	0.0	0.0		0.0	70.0	30.0	0.0		100.0	0.0	0.0	0.0		21.4	78.6	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.583	0.375	0.000	0.625	0.500	0.000	0.000	0.000	0.500	0.250	0.458	0.000	0.000	0.583	0.833	
Entering Leg	0	0	0	0	0	0	7	3	0	10	6	0	0	0	6	3	11	0	0	14	30	
Exiting Leg	0					17					6					7					30	
Total	0					27					12					21					60	

PDI File #: **196867 (12) am**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Binney Street							Third Street							Binney Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:30 AM	0	0	0	0	0	1	1	0	2	0	0	0	0	0	2	0	0	0	0	0	1	1	0	0	0	0	0	1	1	5
7:45 AM	0	3	0	0	0	3	6	0	1	0	0	0	0	0	1	0	1	0	0	1	4	6	0	1	0	0	0	0	1	14
Total	0	3	0	0	0	4	7	0	3	0	0	0	0	0	3	0	1	0	0	1	5	7	0	1	0	0	0	1	2	19
8:00 AM	1	2	0	0	0	7	10	0	1	1	0	0	0	2	0	1	0	0	0	5	6	0	0	0	0	1	0	1	19	
8:15 AM	0	5	0	0	0	4	9	0	0	1	0	0	0	1	0	3	0	0	1	0	4	2	0	3	0	1	0	6	20	
8:30 AM	0	5	0	0	0	5	10	0	0	0	0	0	0	0	1	2	0	0	0	4	7	2	1	1	0	0	0	4	21	
8:45 AM	0	4	0	0	0	8	12	0	0	0	0	0	0	0	0	5	1	0	0	6	12	0	1	0	0	1	0	2	26	
Total	1	16	0	0	0	24	41	0	1	2	0	0	0	3	1	11	1	0	1	15	29	4	2	4	0	3	0	13	86	
9:00 AM	0	8	0	0	0	3	11	0	0	1	0	1	0	2	0	3	0	0	1	6	10	7	1	0	0	1	0	9	32	
9:15 AM	0	2	0	0	0	6	8	0	0	0	0	0	0	0	0	1	0	0	0	4	5	5	1	1	0	0	2	9	22	
Total	0	10	0	0	0	9	19	0	0	1	0	1	0	2	0	4	0	0	1	10	15	12	2	1	0	1	2	18	54	
Grand Total	1	29	0	0	0	37	67	0	4	3	0	1	0	8	1	16	1	0	3	30	51	16	5	5	0	4	3	33	159	
Approach %	1.5	43.3	0.0	0.0	0.0	55.2		0.0	50.0	37.5	0.0	12.5	0.0		2.0	31.4	2.0	0.0	5.9	58.8		48.5	15.2	15.2	0.0	12.1	9.1			
Total %	0.6	18.2	0.0	0.0	0.0	23.3	42.1	0.0	2.5	1.9	0.0	0.6	0.0	5.0	0.6	10.1	0.6	0.0	1.9	18.9	32.1	10.1	3.1	3.1	0.0	2.5	1.9	20.8		
Exiting Leg Total	58							7							81							13							159	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Third Street							Binney Street							Third Street							Binney Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:30 AM	0	5	0	0	0	0	5	10	0	0	0	0	0	0	0	1	2	0	0	0	4	7	2	1	1	0	0	0	4	21
8:45 AM	0	4	0	0	0	0	8	12	0	0	0	0	0	0	0	0	5	1	0	0	6	12	0	1	0	0	1	0	2	26
9:00 AM	0	8	0	0	0	0	3	11	0	0	1	0	1	0	2	0	3	0	0	1	6	10	7	1	0	0	1	0	9	32
9:15 AM	0	2	0	0	0	0	6	8	0	0	0	0	0	0	0	0	1	0	0	0	4	5	5	1	1	0	0	2	9	22
Total Volume	0	19	0	0	0	0	22	41	0	0	1	0	1	0	2	1	11	1	0	1	20	34	14	4	2	0	2	2	24	101
% Approach Total	0.0	46.3	0.0	0.0	0.0	0.0	53.7		0.0	0.0	50.0	0.0	50.0	0.0		2.9	32.4	2.9	0.0	2.9	58.8		58.3	16.7	8.3	0.0	8.3	8.3		
PHF	0.000	0.594	0.000	0.000	0.000	0.688	0.854		0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.250	0.550	0.250	0.000	0.250	0.833	0.708	0.500	1.000	0.500	0.000	0.500	0.250	0.667	0.789
Entering Leg	0	19	0	0	0	0	22	41	0	0	1	0	1	0	2	1	11	1	0	1	20	34	14	4	2	0	2	2	24	101
Exiting Leg	35							6							55							5							101	
Total	76							8							89							29							202	

PDI File #: 196867 (12) am
 Location: N: Third Street S: Third Street
 Location: E: Binney Street W: Binney Street
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM
 Class:



Pedestrians

	Third Street							Binney Street							Third Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	11	11	22	0	0	0	0	20	29	49	0	0	0	0	6	3	9	0	0	0	0	4	12	16	96
7:45 AM	0	0	0	0	7	15	22	0	0	0	0	33	28	61	0	0	0	0	7	11	18	0	0	0	0	4	19	23	124
Total	0	0	0	0	18	26	44	0	0	0	0	53	57	110	0	0	0	0	13	14	27	0	0	0	0	8	31	39	220
8:00 AM	0	0	0	0	13	18	31	0	0	0	0	36	52	88	0	0	0	0	4	16	20	0	0	0	0	8	13	21	160
8:15 AM	0	0	0	0	29	20	49	0	0	0	0	39	62	101	0	0	0	0	6	13	19	1	0	0	0	9	23	33	202
8:30 AM	0	0	0	0	17	22	39	0	0	0	0	37	75	112	0	0	0	0	5	18	23	0	0	0	0	15	22	37	211
8:45 AM	0	0	0	0	13	16	29	0	0	0	0	32	54	86	0	0	0	0	5	31	36	0	0	0	0	10	15	25	176
Total	0	0	0	0	72	76	148	0	0	0	0	144	243	387	0	0	0	0	20	78	98	1	0	0	0	42	73	116	749
9:00 AM	0	0	0	0	15	20	35	0	0	0	0	27	71	98	0	0	0	0	4	9	13	0	0	0	0	2	16	18	164
9:15 AM	0	0	0	0	17	7	24	0	0	0	0	29	50	79	0	0	0	0	3	9	12	0	0	0	0	7	14	21	136
Total	0	0	0	0	32	27	59	0	0	0	0	56	121	177	0	0	0	0	7	18	25	0	0	0	0	9	30	39	300
Grand Total	0	0	0	0	122	129	251	0	0	0	0	253	421	674	0	0	0	0	40	110	150	1	0	0	0	59	134	194	1269
Approach %	0	0	0	0	48.6	51.4		0	0	0	0	37.5	62.5		0	0	0	0	26.7	73.3		0.52	0	0	0	30.4	69.1		
Total %	0	0	0	0	9.61	10.2	19.8	0	0	0	0	19.9	33.2	53.1	0	0	0	0	3.15	8.67	11.8	0.08	0	0	0	4.65	10.6	15.3	
Exiting Leg Total	251							674							151							193							1269

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Third Street							Binney Street							Third Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	0	0	0	29	20	49	0	0	0	0	39	62	101	0	0	0	0	6	13	19	1	0	0	0	9	23	33	202
8:30 AM	0	0	0	0	17	22	39	0	0	0	0	37	75	112	0	0	0	0	5	18	23	0	0	0	0	15	22	37	211
8:45 AM	0	0	0	0	13	16	29	0	0	0	0	32	54	86	0	0	0	0	5	31	36	0	0	0	0	10	15	25	176
9:00 AM	0	0	0	0	15	20	35	0	0	0	0	27	71	98	0	0	0	0	4	9	13	0	0	0	0	2	16	18	164
Total Volume	0	0	0	0	74	78	152	0	0	0	0	135	262	397	0	0	0	0	20	71	91	1	0	0	0	36	76	113	753
% Approach Total	0.0	0.0	0.0	0.0	48.7	51.3		0.0	0.0	0.0	0.0	34.0	66.0		0.0	0.0	0.0	0.0	22.0	78.0		0.9	0.0	0.0	0.0	31.9	67.3		
PHF	0.000	0.000	0.000	0.000	0.638	0.886	0.776	0.000	0.000	0.000	0.000	0.865	0.873	0.886	0.000	0.000	0.000	0.000	0.833	0.573	0.632	0.250	0.000	0.000	0.000	0.600	0.826	0.764	0.892
Entering Leg	0	0	0	0	74	78	152	0	0	0	0	135	262	397	0	0	0	0	20	71	91	1	0	0	0	36	76	113	753
Exiting Leg	152							397							92							112							753
Total	304							794							183							225							1506

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	7	42	3	0	52	19	60	16	0	95	18	36	28	0	82	26	63	46	1	136	365
4:45 PM	12	38	11	0	61	9	53	9	0	71	25	58	24	0	107	30	80	58	1	169	408
Total	19	80	14	0	113	28	113	25	0	166	43	94	52	0	189	56	143	104	2	305	773
5:00 PM	7	55	12	0	74	6	52	21	0	79	15	51	24	0	90	25	81	48	2	156	399
5:15 PM	6	47	7	0	60	16	94	12	0	122	15	64	17	0	96	28	61	64	1	154	432
5:30 PM	10	44	4	0	58	12	60	13	0	85	30	46	26	0	102	29	77	65	1	172	417
5:45 PM	12	52	6	1	71	6	31	11	0	48	18	58	19	0	95	20	77	86	1	184	398
Total	35	198	29	1	263	40	237	57	0	334	78	219	86	0	383	102	296	263	5	666	1646
6:00 PM	6	34	7	0	47	11	56	18	0	85	24	39	23	0	86	19	100	62	2	183	401
6:15 PM	11	39	3	0	53	9	52	8	0	69	16	48	27	0	91	11	67	34	0	112	325
Total	17	73	10	0	100	20	108	26	0	154	40	87	50	0	177	30	167	96	2	295	726
Grand Total	71	351	53	1	476	88	458	108	0	654	161	400	188	0	749	188	606	463	9	1266	3145
Approach %	14.9	73.7	11.1	0.2		13.5	70.0	16.5	0.0		21.5	53.4	25.1	0.0		14.8	47.9	36.6	0.7		
Total %	2.3	11.2	1.7	0.0	15.1	2.8	14.6	3.4	0.0	20.8	5.1	12.7	6.0	0.0	23.8	6.0	19.3	14.7	0.3	40.3	
Exiting Leg Total	952					820					647					726					3145
Cars	69	350	53	1	473	88	421	106	0	615	148	397	186	0	731	187	573	456	9	1225	3044
% Cars	97.2	99.7	100.0	100.0	99.4	100.0	91.9	98.1	0.0	94.0	91.9	99.3	98.9	0.0	97.6	99.5	94.6	98.5	100.0	96.8	96.8
Exiting Leg Total	942					774					643					685					3044
Heavy Vehicles	2	1	0	0	3	0	37	2	0	39	13	3	2	0	18	1	33	7	0	41	101
% Heavy Vehicles	2.8	0.3	0.0	0.0	0.6	0.0	8.1	1.9	0.0	6.0	8.1	0.8	1.1	0.0	2.4	0.5	5.4	1.5	0.0	3.2	3.2
Exiting Leg Total	10					46					4					41					101

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	12	38	11	0	61	9	53	9	0	71	25	58	24	0	107	30	80	58	1	169	408
5:00 PM	7	55	12	0	74	6	52	21	0	79	15	51	24	0	90	25	81	48	2	156	399
5:15 PM	6	47	7	0	60	16	94	12	0	122	15	64	17	0	96	28	61	64	1	154	432
5:30 PM	10	44	4	0	58	12	60	13	0	85	30	46	26	0	102	29	77	65	1	172	417
Total Volume	35	184	34	0	253	43	259	55	0	357	85	219	91	0	395	112	299	235	5	651	1656
% Approach Total	13.8	72.7	13.4	0.0		12.0	72.5	15.4	0.0		21.5	55.4	23.0	0.0		17.2	45.9	36.1	0.8		
PHF	0.729	0.836	0.708	0.000	0.855	0.672	0.689	0.655	0.000	0.732	0.708	0.855	0.875	0.000	0.923	0.933	0.923	0.904	0.625	0.946	0.958
Cars	34	184	34	0	252	43	240	54	0	337	79	218	89	0	386	112	283	230	5	630	1605
Cars %	97.1	100.0	100.0	0.0	99.6	100.0	92.7	98.2	0.0	94.4	92.9	99.5	97.8	0.0	97.7	100.0	94.6	97.9	100.0	96.8	96.9
Heavy Vehicles	1	0	0	0	1	0	19	1	0	20	6	1	2	0	9	0	16	5	0	21	51
Heavy Vehicles %	2.9	0.0	0.0	0.0	0.4	0.0	7.3	1.8	0.0	5.6	7.1	0.5	2.2	0.0	2.3	0.0	5.4	2.1	0.0	3.2	3.1
Cars Enter Leg	34	184	34	0	252	43	240	54	0	337	79	218	89	0	386	112	283	230	5	630	1605
Heavy Enter Leg	1	0	0	0	1	0	19	1	0	20	6	1	2	0	9	0	16	5	0	21	51
Total Entering Leg	35	184	34	0	253	43	259	55	0	357	85	219	91	0	395	112	299	235	5	651	1656
Cars Exiting Leg	491					396					350					368					1605
Heavy Exiting Leg	6					22					1					22					51
Total Exiting Leg	497					418					351					390					1656

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	7	42	3	0	52	19	54	16	0	89	15	36	28	0	79	26	57	45	1	129	349
4:45 PM	12	38	11	0	61	9	49	8	0	66	23	57	24	0	104	30	75	56	1	162	393
Total	19	80	14	0	113	28	103	24	0	155	38	93	52	0	183	56	132	101	2	291	742
5:00 PM	6	55	12	0	73	6	47	21	0	74	14	51	23	0	88	25	74	48	2	149	384
5:15 PM	6	47	7	0	60	16	86	12	0	114	15	64	16	0	95	28	60	62	1	151	420
5:30 PM	10	44	4	0	58	12	58	13	0	83	27	46	26	0	99	29	74	64	1	168	408
5:45 PM	11	51	6	1	69	6	28	10	0	44	16	56	19	0	91	20	72	85	1	178	382
Total	33	197	29	1	260	40	219	56	0	315	72	217	84	0	373	102	280	259	5	646	1594
6:00 PM	6	34	7	0	47	11	51	18	0	80	23	39	23	0	85	18	96	62	2	178	390
6:15 PM	11	39	3	0	53	9	48	8	0	65	15	48	27	0	90	11	65	34	0	110	318
Total	17	73	10	0	100	20	99	26	0	145	38	87	50	0	175	29	161	96	2	288	708
Grand Total	69	350	53	1	473	88	421	106	0	615	148	397	186	0	731	187	573	456	9	1225	3044
Approach %	14.6	74.0	11.2	0.2		14.3	68.5	17.2	0.0		20.2	54.3	25.4	0.0		15.3	46.8	37.2	0.7		
Total %	2.3	11.5	1.7	0.0	15.5	2.9	13.8	3.5	0.0	20.2	4.9	13.0	6.1	0.0	24.0	6.1	18.8	15.0	0.3	40.2	
Exiting Leg Total	942					774					643					685					3044

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	12	38	11	0	61	9	49	8	0	66	23	57	24	0	104	30	75	56	1	162	393
5:00 PM	6	55	12	0	73	6	47	21	0	74	14	51	23	0	88	25	74	48	2	149	384
5:15 PM	6	47	7	0	60	16	86	12	0	114	15	64	16	0	95	28	60	62	1	151	420
5:30 PM	10	44	4	0	58	12	58	13	0	83	27	46	26	0	99	29	74	64	1	168	408
Total Volume	34	184	34	0	252	43	240	54	0	337	79	218	89	0	386	112	283	230	5	630	1605
% Approach Total	13.5	73.0	13.5	0.0		12.8	71.2	16.0	0.0		20.5	56.5	23.1	0.0		17.8	44.9	36.5	0.8		
PHF	0.708	0.836	0.708	0.000	0.863	0.672	0.698	0.643	0.000	0.739	0.731	0.852	0.856	0.000	0.928	0.933	0.943	0.898	0.625	0.938	0.955
Entering Leg	34	184	34	0	252	43	240	54	0	337	79	218	89	0	386	112	283	230	5	630	1605
Exiting Leg	491					396					350					368					1605
Total	743					733					736					998					3210

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Buses

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	1	1	0	2	7
4:45 PM	0	0	0	0	0	0	2	1	0	3	1	1	0	0	2	0	3	2	0	5	10
Total	0	0	0	0	0	0	6	1	0	7	2	1	0	0	3	0	4	3	0	7	17
5:00 PM	1	0	0	0	1	0	4	0	0	4	0	0	1	0	1	0	4	0	0	4	10
5:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	1	1	0	2	9
5:30 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	3	1	0	4	7
5:45 PM	1	0	0	0	1	0	3	1	0	4	1	1	0	0	2	0	3	0	0	3	10
Total	2	0	0	0	2	0	15	1	0	16	2	1	2	0	5	0	11	2	0	13	36
6:00 PM	0	0	0	0	0	0	5	0	0	5	0	0	0	0	0	0	3	0	0	3	8
6:15 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	1	0	0	1	4
Total	0	0	0	0	0	0	7	0	0	7	1	0	0	0	1	0	4	0	0	4	12
Grand Total	2	0	0	0	2	0	28	2	0	30	5	2	2	0	9	0	19	5	0	24	65
Approach %	100.0	0.0	0.0	0.0		0.0	93.3	6.7	0.0		55.6	22.2	22.2	0.0		0.0	79.2	20.8	0.0		
Total %	3.1	0.0	0.0	0.0	3.1	0.0	43.1	3.1	0.0	46.2	7.7	3.1	3.1	0.0	13.8	0.0	29.2	7.7	0.0	36.9	
Exiting Leg Total	7					24					2					32					65

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Binney Street					Third Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	4	0	0	4	1	0	0	0	1	0	1	1	0	2	7
4:45 PM	0	0	0	0	0	0	2	1	0	3	1	1	0	0	2	0	3	2	0	5	10
5:00 PM	1	0	0	0	1	0	4	0	0	4	0	0	1	0	1	0	4	0	0	4	10
5:15 PM	0	0	0	0	0	0	6	0	0	6	0	0	1	0	1	0	1	1	0	2	9
Total Volume	1	0	0	0	1	0	16	1	0	17	2	1	2	0	5	0	9	4	0	13	36
% Approach Total	100.0	0.0	0.0	0.0		0.0	94.1	5.9	0.0		40.0	20.0	40.0	0.0		0.0	69.2	30.8	0.0		
PHF	0.250	0.000	0.000	0.000	0.250	0.000	0.667	0.250	0.000	0.708	0.500	0.250	0.500	0.000	0.625	0.000	0.563	0.500	0.000	0.650	0.900
Entering Leg	1	0	0	0	1	0	16	1	0	17	2	1	2	0	5	0	9	4	0	13	36
Exiting Leg	5					11					1					19					36
Total	6					28					6					32					72

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	4	0	0	4	7
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
Total	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	6	0	0	6	12
5:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	2	4
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
5:45 PM	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	0	1	1	0	2	5
Total	0	1	0	0	1	0	2	0	0	2	3	1	0	0	4	0	3	2	0	5	12
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	2	3
6:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	1	2	0	0	3	6
Grand Total	0	1	0	0	1	0	7	0	0	7	7	1	0	0	8	1	11	2	0	14	30
Approach %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		87.5	12.5	0.0	0.0		7.1	78.6	14.3	0.0		
Total %	0.0	3.3	0.0	0.0	3.3	0.0	23.3	0.0	0.0	23.3	23.3	3.3	0.0	0.0	26.7	3.3	36.7	6.7	0.0	46.7	
Exiting Leg Total	3					18					2					7					30

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Binney Street					Third Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	4	0	0	4	7
4:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
5:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	2	4
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
Total Volume	0	0	0	0	0	0	5	0	0	5	4	0	0	0	4	0	8	1	0	9	18
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	88.9	11.1	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.000	0.625	0.500	0.000	0.000	0.000	0.500	0.000	0.500	0.250	0.000	0.563	0.643
Entering Leg	0	0	0	0	0	0	5	0	0	5	4	0	0	0	4	0	8	1	0	9	18
Exiting Leg	1					12					0					5					18
Total	1					17					4					14					36

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Third Street					Binney Street					Third Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
4:45 PM	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	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
Total	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	2	0	0	0	2	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	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	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	2	0	0	2	1	0	0	0	1	0	3	0	0	3	6	
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0			
Total %	0.0	0.0	0.0	0.0	0.0	0.0	33.3	0.0	0.0	33.3	16.7	0.0	0.0	0.0	16.7	0.0	50.0	0.0	0.0	50.0		
Exiting Leg Total	0					4					0					2					6	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Third Street					Binney Street					Third Street					Binney Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.500
Entering Leg	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	0	2	4
Exiting Leg	0					2					0					2					4	
Total	0					4					0					4					8	

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Binney Street							Third Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	3	0	0	0	0	3	6	0	0	0	0	0	0	0	0	0	1	0	1	2	4	0	0	1	0	3	0	4	14
4:45 PM	0	4	0	0	1	7	12	0	0	0	0	0	0	0	0	0	4	0	0	2	6	0	0	0	0	0	0	0	18
Total	3	4	0	0	1	10	18	0	0	0	0	0	0	0	0	0	5	0	1	4	10	0	0	1	0	3	0	4	32
5:00 PM	1	0	0	0	0	4	5	0	0	1	0	0	0	1	1	3	3	0	1	4	12	1	1	0	0	0	0	2	20
5:15 PM	2	3	0	0	0	8	13	0	0	2	0	0	0	2	1	2	1	0	1	9	14	1	0	0	0	1	0	2	31
5:30 PM	0	1	0	0	0	7	8	0	0	0	0	0	0	0	0	3	2	0	0	3	8	1	1	1	0	1	1	5	21
5:45 PM	0	1	0	0	0	6	7	0	0	1	0	0	0	1	1	8	1	0	1	10	21	0	0	0	0	2	0	2	31
Total	3	5	0	0	0	25	33	0	0	4	0	0	0	4	3	16	7	0	3	26	55	3	2	1	0	4	1	11	103
6:00 PM	0	2	0	0	0	4	6	0	1	2	0	3	0	6	0	2	0	0	2	6	10	1	0	0	0	2	0	3	25
6:15 PM	0	0	0	0	0	6	6	0	0	0	0	0	0	0	0	3	0	0	1	2	6	1	0	0	0	1	0	2	14
Total	0	2	0	0	0	10	12	0	1	2	0	3	0	6	0	5	0	0	3	8	16	2	0	0	0	3	0	5	39
Grand Total	6	11	0	0	1	45	63	0	1	6	0	3	0	10	3	21	12	0	7	38	81	5	2	2	0	10	1	20	174
Approach %	9.5	17.5	0.0	0.0	1.6	71.4		0.0	10.0	60.0	0.0	30.0	0.0		3.7	25.9	14.8	0.0	8.6	46.9		25.0	10.0	10.0	0.0	50.0	5.0		
Total %	3.4	6.3	0.0	0.0	0.6	25.9	36.2	0.0	0.6	3.4	0.0	1.7	0.0	5.7	1.7	12.1	6.9	0.0	4.0	21.8	46.6	2.9	1.1	1.1	0.0	5.7	0.6	11.5	
Exiting Leg Total	69							8							67							30							174

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street							Binney Street							Third Street							Binney Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
5:15 PM	2	3	0	0	0	0	8	13	0	0	2	0	0	0	2	1	2	1	0	1	9	14	1	0	0	0	1	0	2	31
5:30 PM	0	1	0	0	0	0	7	8	0	0	0	0	0	0	0	0	3	2	0	0	3	8	1	1	1	0	1	1	5	21
5:45 PM	0	1	0	0	0	0	6	7	0	0	1	0	0	0	1	1	8	1	0	1	10	21	0	0	0	0	2	0	2	31
6:00 PM	0	2	0	0	0	0	4	6	0	1	2	0	3	0	6	0	2	0	0	2	6	10	1	0	0	0	2	0	3	25
Total Volume	2	7	0	0	0	0	25	34	0	1	5	0	3	0	9	2	15	4	0	4	28	53	3	1	1	0	6	1	12	108
% Approach Total	5.9	20.6	0.0	0.0	0.0	0.0	73.5		0.0	11.1	55.6	0.0	33.3	0.0		3.8	28.3	7.5	0.0	7.5	52.8		25.0	8.3	8.3	0.0	50.0	8.3		
PHF	0.250	0.583	0.000	0.000	0.000	0.000	0.781	0.654	0.000	0.250	0.625	0.000	0.250	0.000	0.375	0.500	0.469	0.500	0.000	0.500	0.700	0.631	0.750	0.250	0.250	0.000	0.750	0.250	0.600	0.871
Entering Leg	2	7	0	0	0	0	25	34	0	1	5	0	3	0	9	2	15	4	0	4	28	53	3	1	1	0	6	1	12	108
Exiting Leg	41							6							47							14							108	
Total	75							15							100							26							216	

PDI File #: **196867 (12) pm**
 Location: **N: Third Street S: Third Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Third Street							Binney Street							Third Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	13	7	20	0	0	0	0	30	25	55	0	0	0	0	22	10	32	0	0	0	0	7	23	30	137
4:45 PM	0	0	0	0	17	14	31	0	0	0	0	42	18	60	0	0	0	0	17	8	25	0	0	0	0	17	19	36	152
Total	0	0	0	0	30	21	51	0	0	0	0	72	43	115	0	0	0	0	39	18	57	0	0	0	0	24	42	66	289
5:00 PM	0	0	0	0	28	36	64	0	0	0	0	57	60	117	0	0	0	0	12	12	24	0	0	0	0	15	34	49	254
5:15 PM	0	0	0	0	17	31	48	0	0	0	0	80	59	139	0	0	0	0	16	10	26	0	0	0	0	11	33	44	257
5:30 PM	0	0	0	0	16	27	43	0	0	0	0	44	42	86	0	0	0	0	23	17	40	0	0	0	0	27	24	51	220
5:45 PM	0	0	0	0	14	16	30	0	0	0	0	60	31	91	0	0	0	0	12	8	20	0	0	0	0	17	23	40	181
Total	0	0	0	0	75	110	185	0	0	0	0	241	192	433	0	0	0	0	63	47	110	0	0	0	0	70	114	184	912
6:00 PM	0	0	0	0	7	22	29	0	0	0	0	75	29	104	0	0	0	0	13	2	15	0	0	0	0	20	25	45	193
6:15 PM	0	0	0	0	12	30	42	0	0	0	0	36	38	74	0	0	0	0	11	2	13	0	0	0	0	18	19	37	166
Total	0	0	0	0	19	52	71	0	0	0	0	111	67	178	0	0	0	0	24	4	28	0	0	0	0	38	44	82	359
Grand Total	0	0	0	0	124	183	307	0	0	0	0	424	302	726	0	0	0	0	126	69	195	0	0	0	0	132	200	332	1560
Approach %	0	0	0	0	40.4	59.6		0	0	0	0	58.4	41.6		0	0	0	0	64.6	35.4		0	0	0	0	39.8	60.2		
Total %	0	0	0	0	7.95	11.7	19.7	0	0	0	0	27.2	19.4	46.5	0	0	0	0	8.08	4.42	12.5	0	0	0	0	8.46	12.8	21.3	
Exiting Leg Total	307							726							195							332							1560

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Third Street							Binney Street							Third Street							Binney Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	28	36	64	0	0	0	0	57	60	117	0	0	0	0	12	12	24	0	0	0	0	15	34	49	254
5:15 PM	0	0	0	0	17	31	48	0	0	0	0	80	59	139	0	0	0	0	16	10	26	0	0	0	0	11	33	44	257
5:30 PM	0	0	0	0	16	27	43	0	0	0	0	44	42	86	0	0	0	0	23	17	40	0	0	0	0	27	24	51	220
5:45 PM	0	0	0	0	14	16	30	0	0	0	0	60	31	91	0	0	0	0	12	8	20	0	0	0	0	17	23	40	181
Total Volume	0	0	0	0	75	110	185	0	0	0	0	241	192	433	0	0	0	0	63	47	110	0	0	0	0	70	114	184	912
% Approach Total	0.0	0.0	0.0	0.0	40.5	59.5		0.0	0.0	0.0	0.0	55.7	44.3		0.0	0.0	0.0	0.0	57.3	42.7		0.0	0.0	0.0	0.0	38.0	62.0		
PHF	0.000	0.000	0.000	0.000	0.670	0.764	0.723	0.000	0.000	0.000	0.000	0.753	0.800	0.779	0.000	0.000	0.000	0.000	0.685	0.691	0.688	0.000	0.000	0.000	0.000	0.648	0.838	0.902	0.887
Entering Leg	0	0	0	0	75	110	185	0	0	0	0	241	192	433	0	0	0	0	63	47	110	0	0	0	0	70	114	184	912
Exiting Leg	185							433							110							184							912
Total	370							866							220							368							1824

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	12	21	2	0	35	25	116	101	0	242	0	3	0	0	3	14	29	4	0	47	327
7:45 AM	10	25	4	0	39	51	119	96	0	266	2	2	3	0	7	11	41	6	0	58	370
Total	22	46	6	0	74	76	235	197	0	508	2	5	3	0	10	25	70	10	0	105	697
8:00 AM	10	21	4	0	35	41	147	65	0	253	0	1	2	0	3	17	28	5	0	50	341
8:15 AM	6	31	1	0	38	48	105	87	0	240	0	2	2	0	4	16	30	12	0	58	340
8:30 AM	13	19	5	0	37	37	139	96	0	272	0	3	1	0	4	15	26	14	0	55	368
8:45 AM	12	25	3	1	41	50	120	88	0	258	3	0	0	0	3	13	40	6	0	59	361
Total	41	96	13	1	151	176	511	336	0	1023	3	6	5	0	14	61	124	37	0	222	1410
9:00 AM	14	28	3	0	45	52	122	67	0	241	2	0	1	0	3	20	37	9	0	66	355
9:15 AM	4	30	3	0	37	55	126	67	0	248	2	2	1	0	5	28	29	6	0	63	353
Total	18	58	6	0	82	107	248	134	0	489	4	2	2	0	8	48	66	15	0	129	708
Grand Total	81	200	25	1	307	359	994	667	0	2020	9	13	10	0	32	134	260	62	0	456	2815
Approach %	26.4	65.1	8.1	0.3		17.8	49.2	33.0	0.0		28.1	40.6	31.3	0.0		29.4	57.0	13.6	0.0		
Total %	2.9	7.1	0.9	0.0	10.9	12.8	35.3	23.7	0.0	71.8	0.3	0.5	0.4	0.0	1.1	4.8	9.2	2.2	0.0	16.2	
Exiting Leg Total	435					294					1001					1085					2815

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	First Street					Binney Street					First Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	13	19	5	0	37	37	139	96	0	272	0	3	1	0	4	15	26	14	0	55	368
8:45 AM	12	25	3	1	41	50	120	88	0	258	3	0	0	0	3	13	40	6	0	59	361
9:00 AM	14	28	3	0	45	52	122	67	0	241	2	0	1	0	3	20	37	9	0	66	355
9:15 AM	4	30	3	0	37	55	126	67	0	248	2	2	1	0	5	28	29	6	0	63	353
Total Volume	43	102	14	1	160	194	507	318	0	1019	7	5	3	0	15	76	132	35	0	243	1437
% Approach Total	26.9	63.8	8.8	0.6		19.0	49.8	31.2	0.0		46.7	33.3	20.0	0.0		31.3	54.3	14.4	0.0		
PHF	0.768	0.850	0.700	0.250	0.889	0.882	0.912	0.828	0.000	0.937	0.583	0.417	0.750	0.000	0.750	0.679	0.825	0.625	0.000	0.920	0.976
Entering Leg	43	102	14	1	160	194	507	318	0	1019	7	5	3	0	15	76	132	35	0	243	1437
Exiting Leg	235					153					496					553					1437
Total	395					1172					511					796					2874

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	First Street					Binney Street					First Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	2	3	0	5	10	
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	3	0	7	8
Total	1	0	0	0	1	0	4	1	0	5	0	0	0	0	0	0	0	6	6	0	12	18
8:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	2	0	3	5
8:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	2	5
8:30 AM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	1	3	0	4	9
8:45 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	6
Total	6	0	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	4	9	0	13	25
9:00 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	4
9:15 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	4	6
Total	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	2	5	0	7	10
Grand Total	9	0	0	0	9	0	11	1	0	12	0	0	0	0	0	0	0	12	20	0	32	53
Approach %	100.0	0.0	0.0	0.0		0.0	91.7	8.3	0.0		0.0	0.0	0.0	0.0		0.0	37.5	62.5	0.0			
Total %	17.0	0.0	0.0	0.0	17.0	0.0	20.8	1.9	0.0	22.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.6	37.7	0.0	60.4	
Exiting Leg Total	20					12					1					20					53	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	First Street					Binney Street					First Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	0	0	0	1	0	3	1	0	4	0	0	0	0	0	0	2	3	0	5	10
7:45 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	3	0	7	8
8:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	2	0	3	5
8:15 AM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	2	0	2	5
Total Volume	3	0	0	0	3	0	7	1	0	8	0	0	0	0	0	0	7	10	0	17	28
% Approach Total	100.0	0.0	0.0	0.0		0.0	87.5	12.5	0.0		0.0	0.0	0.0	0.0		0.0	41.2	58.8	0.0		
PHF	0.750	0.000	0.000	0.000	0.750	0.000	0.583	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.438	0.833	0.000	0.607	0.700
Entering Leg	3	0	0	0	3	0	7	1	0	8	0	0	0	0	0	0	7	10	0	17	28
Exiting Leg	10					7					1					10					28
Total	13					15					1					27					56

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	First Street					Binney Street					First Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	5	0	0	0	5	1	12	0	0	13	0	0	0	0	0	0	6	0	0	6	24	
7:45 AM	1	0	0	0	1	0	10	0	0	10	0	0	0	0	0	0	1	5	1	0	7	18
Total	6	0	0	0	6	1	22	0	0	23	0	0	0	0	0	0	1	11	1	0	13	42
8:00 AM	2	0	0	0	2	1	12	2	0	15	0	0	0	0	0	0	0	5	1	0	6	23
8:15 AM	1	2	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	11	0	0	11	19
8:30 AM	3	0	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	5	1	0	6	15
8:45 AM	3	0	0	0	3	0	3	0	0	3	0	1	0	0	1	0	0	6	1	0	7	14
Total	9	2	0	0	11	1	26	2	0	29	0	1	0	0	1	0	0	27	3	0	30	71
9:00 AM	1	2	0	0	3	0	10	0	0	10	0	0	0	0	0	0	1	9	1	0	11	24
9:15 AM	4	0	1	0	5	0	9	0	0	9	0	0	0	0	0	0	0	9	0	0	9	23
Total	5	2	1	0	8	0	19	0	0	19	0	0	0	0	0	0	1	18	1	0	20	47
Grand Total	20	4	1	0	25	2	67	2	0	71	0	1	0	0	1	2	56	5	0	63	160	
Approach %	80.0	16.0	4.0	0.0		2.8	94.4	2.8	0.0		0.0	100.0	0.0	0.0		3.2	88.9	7.9	0.0			
Total %	12.5	2.5	0.6	0.0	15.6	1.3	41.9	1.3	0.0	44.4	0.0	0.6	0.0	0.0	0.6	1.3	35.0	3.1	0.0	39.4		
Exiting Leg Total	8					57					8					87					160	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	First Street					Binney Street					First Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	5	0	0	0	5	1	12	0	0	13	0	0	0	0	0	0	6	0	0	6	24
7:45 AM	1	0	0	0	1	0	10	0	0	10	0	0	0	0	0	1	5	1	0	7	18
8:00 AM	2	0	0	0	2	1	12	2	0	15	0	0	0	0	0	0	5	1	0	6	23
8:15 AM	1	2	0	0	3	0	5	0	0	5	0	0	0	0	0	0	11	0	0	11	19
Total Volume	9	2	0	0	11	2	39	2	0	43	0	0	0	0	0	1	27	2	0	30	84
% Approach Total	81.8	18.2	0.0	0.0		4.7	90.7	4.7	0.0		0.0	0.0	0.0	0.0		3.3	90.0	6.7	0.0		
PHF	0.450	0.250	0.000	0.000	0.550	0.500	0.813	0.250	0.000	0.717	0.000	0.000	0.000	0.000	0.000	0.250	0.614	0.500	0.000	0.682	0.875
Entering Leg	9	2	0	0	11	2	39	2	0	43	0	0	0	0	0	1	27	2	0	30	84
Exiting Leg	4					27					5					48					84
Total	15					70					5					78					168

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	First Street					Binney Street					First Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	5	0	0	0	5	9
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	4	7
Total	1	0	0	0	1	0	6	0	0	6	0	0	0	0	0	0	9	0	0	0	9	16
8:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	3	5
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	3
8:30 AM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	3	0	0	0	3	5
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1	2
Total	1	0	0	0	1	1	3	0	0	4	0	0	1	0	1	0	8	0	1	1	9	15
9:00 AM	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	0	2	0	0	0	2	5
9:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	2
Total	0	0	0	0	0	0	3	1	0	4	0	0	0	0	0	0	3	0	0	0	3	7
Grand Total	2	0	0	0	2	1	12	1	0	14	0	0	1	0	1	0	20	0	1	21	38	
Approach %	100.0	0.0	0.0	0.0		7.1	85.7	7.1	0.0		0.0	0.0	100.0	0.0		0.0	95.2	0.0	4.8			
Total %	5.3	0.0	0.0	0.0	5.3	2.6	31.6	2.6	0.0	36.8	0.0	0.0	2.6	0.0	2.6	0.0	52.6	0.0	2.6	55.3		
Exiting Leg Total	1					20					1					16					38	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	First Street					Binney Street					First Street					Binney Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
7:30 AM	1	0	0	0	1	0	3	0	0	3	0	0	0	0	0	0	5	0	0	0	5	9
7:45 AM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	4	0	0	0	4	7
8:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	3	0	0	0	3	5
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	0	2	3
Total Volume	2	0	0	0	2	0	8	0	0	8	0	0	0	0	0	0	14	0	0	0	14	24
% Approach Total	100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0			
PHF	0.500	0.000	0.000	0.000	0.500	0.000	0.667	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.700	0.000	0.000	0.700	0.667	
Entering Leg	2	0	0	0	2	0	8	0	0	8	0	0	0	0	0	0	14	0	0	0	14	24
Exiting Leg	0					14					0					10					24	
Total	2					22					0					24					48	

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	First Street							Binney Street							First Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	1	1	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	1	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	5
Total	2	1	0	0	0	3	6	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	7
8:00 AM	3	2	0	0	0	4	9	0	0	0	0	0	0	0	0	1	0	0	0	2	3	0	0	1	0	1	0	2	14
8:15 AM	2	4	0	0	1	4	11	0	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	14
8:30 AM	0	5	1	0	0	7	13	0	1	0	0	0	0	1	0	0	0	0	0	2	2	0	1	1	0	0	0	2	18
8:45 AM	0	1	0	0	0	4	5	1	0	1	0	0	2	4	1	0	0	0	0	4	5	0	0	0	0	0	0	0	14
Total	5	12	1	0	1	19	38	1	2	1	0	0	3	7	1	1	0	0	0	8	10	0	1	3	0	1	0	5	60
9:00 AM	0	1	0	0	0	3	4	1	0	0	0	0	1	2	0	1	0	0	1	2	4	0	0	1	0	0	0	1	11
9:15 AM	0	1	0	0	0	1	2	0	0	0	0	0	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0	0	4
Total	0	2	0	0	0	4	6	1	0	0	0	0	2	3	0	1	0	0	1	3	5	0	0	1	0	0	0	1	15
Grand Total	7	15	1	0	1	26	50	2	2	1	0	0	5	10	1	2	0	0	1	12	16	0	1	4	0	1	0	6	82
Approach %	14.0	30.0	2.0	0.0	2.0	52.0		20.0	20.0	10.0	0.0	0.0	50.0		6.3	12.5	0.0	0.0	6.3	75.0		0.0	16.7	66.7	0.0	16.7	0.0		
Total %	8.5	18.3	1.2	0.0	1.2	31.7	61.0	2.4	2.4	1.2	0.0	0.0	6.1	12.2	1.2	2.4	0.0	0.0	1.2	14.6	19.5	0.0	1.2	4.9	0.0	1.2	0.0	7.3	
Exiting Leg Total	35							8							29							10							82

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	First Street							Binney Street							First Street							Binney Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:00 AM	3	2	0	0	0	4	9	0	0	0	0	0	0	0	0	1	0	0	0	0	2	3	0	0	1	0	1	0	2	14
8:15 AM	2	4	0	0	1	4	11	0	1	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	14
8:30 AM	0	5	1	0	0	7	13	0	1	0	0	0	0	0	1	0	0	0	0	0	2	2	0	1	1	0	0	0	2	18
8:45 AM	0	1	0	0	0	4	5	1	0	1	0	0	0	2	4	1	0	0	0	0	4	5	0	0	0	0	0	0	0	14
Total Volume	5	12	1	0	1	19	38	1	2	1	0	0	3	7	1	1	0	0	0	8	10	0	1	3	0	1	0	5	60	
% Approach Total	13.2	31.6	2.6	0.0	2.6	50.0		14.3	28.6	14.3	0.0	0.0	42.9		10.0	10.0	0.0	0.0	0.0	80.0		0.0	20.0	60.0	0.0	20.0	0.0			
PHF	0.417	0.600	0.250	0.000	0.250	0.679	0.731	0.250	0.500	0.250	0.000	0.000	0.375	0.438	0.250	0.250	0.000	0.000	0.000	0.500	0.500	0.000	0.250	0.750	0.000	0.250	0.000	0.625	0.833	
Entering Leg	5	12	1	0	1	19	38	1	2	1	0	0	3	7	1	1	0	0	0	8	10	0	1	3	0	1	0	5	60	
Exiting Leg	25							6							21							8							60	
Total	63							13							31							13							120	

PDI File #: **196867 (14) am**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	First Street							Binney Street							First Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	4	12	16	0	0	0	0	9	3	12	0	0	0	0	5	1	6	0	0	0	0	5	22	27	61
7:45 AM	0	0	0	0	2	16	18	0	0	0	0	14	7	21	0	0	0	0	12	9	21	0	0	0	0	5	20	25	85
Total	0	0	0	0	6	28	34	0	0	0	0	23	10	33	0	0	0	0	17	10	27	0	0	0	0	10	42	52	146
8:00 AM	0	0	0	0	1	19	20	0	0	0	0	4	6	10	0	0	0	0	12	3	15	0	0	0	0	8	20	28	73
8:15 AM	0	0	0	0	5	25	30	0	0	0	0	16	6	22	0	0	0	0	16	2	18	0	0	0	0	10	37	47	117
8:30 AM	0	0	0	0	1	19	20	0	0	0	0	14	6	20	0	0	0	0	10	3	13	0	0	0	0	12	27	39	92
8:45 AM	0	0	0	0	3	18	21	0	0	0	0	14	6	20	0	0	0	0	16	2	18	0	0	0	0	9	29	38	97
Total	0	0	0	0	10	81	91	0	0	0	0	48	24	72	0	0	0	0	54	10	64	0	0	0	0	39	113	152	379
9:00 AM	0	0	0	0	1	20	21	0	0	0	0	7	8	15	0	0	0	0	4	8	12	0	0	0	0	8	23	31	79
9:15 AM	0	0	0	0	4	12	16	0	0	0	0	11	5	16	0	0	0	0	1	3	4	0	0	0	0	7	20	27	63
Total	0	0	0	0	5	32	37	0	0	0	0	18	13	31	0	0	0	0	5	11	16	0	0	0	0	15	43	58	142
Grand Total	0	0	0	0	21	141	162	0	0	0	0	89	47	136	0	0	0	0	76	31	107	0	0	0	0	64	198	262	667
Approach %	0	0	0	0	13	87		0	0	0	0	65.4	34.6		0	0	0	0	71	29		0	0	0	0	24.4	75.6		
Total %	0	0	0	0	3.15	21.1	24.3	0	0	0	0	13.3	7.05	20.4	0	0	0	0	11.4	4.65	16	0	0	0	0	9.6	29.7	39.3	
Exiting Leg Total	162							136							107							262							667

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	First Street							Binney Street							First Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	0	0	0	5	25	30	0	0	0	0	16	6	22	0	0	0	0	16	2	18	0	0	0	0	10	37	47	117
8:30 AM	0	0	0	0	1	19	20	0	0	0	0	14	6	20	0	0	0	0	10	3	13	0	0	0	0	12	27	39	92
8:45 AM	0	0	0	0	3	18	21	0	0	0	0	14	6	20	0	0	0	0	16	2	18	0	0	0	0	9	29	38	97
9:00 AM	0	0	0	0	1	20	21	0	0	0	0	7	8	15	0	0	0	0	4	8	12	0	0	0	0	8	23	31	79
Total Volume	0	0	0	0	10	82	92	0	0	0	0	51	26	77	0	0	0	0	46	15	61	0	0	0	0	39	116	155	385
% Approach Total	0.0	0.0	0.0	0.0	10.9	89.1		0.0	0.0	0.0	0.0	66.2	33.8		0.0	0.0	0.0	0.0	75.4	24.6		0.0	0.0	0.0	0.0	25.2	74.8		
PHF	0.000	0.000	0.000	0.000	0.500	0.820	0.767	0.000	0.000	0.000	0.000	0.797	0.813	0.875	0.000	0.000	0.000	0.000	0.719	0.469	0.847	0.000	0.000	0.000	0.000	0.813	0.784	0.824	0.823
Entering Leg	0	0	0	0	10	82	92	0	0	0	0	51	26	77	0	0	0	0	46	15	61	0	0	0	0	39	116	155	385
Exiting Leg	92							77							61							155							385
Total	184							154							122							310							770

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	6	44	3	0	53	43	107	7	0	157	5	4	1	0	10	22	38	24	0	84	304
4:45 PM	10	58	1	0	69	38	106	16	0	160	10	4	0	0	14	33	41	29	0	103	346
Total	16	102	4	0	122	81	213	23	0	317	15	8	1	0	24	55	79	53	0	187	650
5:00 PM	18	61	2	0	81	47	82	11	0	140	2	5	0	0	7	24	49	24	0	97	325
5:15 PM	13	65	3	0	81	56	119	5	0	180	3	4	0	0	7	21	34	30	0	85	353
5:30 PM	16	43	0	0	59	33	60	9	0	102	2	2	2	0	6	29	39	24	0	92	259
5:45 PM	8	39	0	0	47	45	59	9	0	113	1	2	0	0	3	16	36	29	0	81	244
Total	55	208	5	0	268	181	320	34	0	535	8	13	2	0	23	90	158	107	0	355	1181
6:00 PM	14	52	1	0	67	42	72	12	0	126	2	5	0	0	7	18	33	40	0	91	291
6:15 PM	14	60	0	0	74	39	72	5	0	116	1	4	1	0	6	17	31	20	0	68	264
Total	28	112	1	0	141	81	144	17	0	242	3	9	1	0	13	35	64	60	0	159	555
Grand Total	99	422	10	0	531	343	677	74	0	1094	26	30	4	0	60	180	301	220	0	701	2386
Approach %	18.6	79.5	1.9	0.0		31.4	61.9	6.8	0.0		43.3	50.0	6.7	0.0		25.7	42.9	31.4	0.0		
Total %	4.1	17.7	0.4	0.0	22.3	14.4	28.4	3.1	0.0	45.9	1.1	1.3	0.2	0.0	2.5	7.5	12.6	9.2	0.0	29.4	
Exiting Leg Total	593					337					676					780					2386
Cars	81	421	10	0	512	341	658	73	0	1072	26	29	4	0	59	180	285	185	0	650	2293
% Cars	81.8	99.8	100.0	0.0	96.4	99.4	97.2	98.6	0.0	98.0	100.0	96.7	100.0	0.0	98.3	100.0	94.7	84.1	0.0	92.7	96.1
Exiting Leg Total	555					321					674					743					2293
Heavy Vehicles	18	1	0	0	19	2	19	1	0	22	0	1	0	0	1	0	16	35	0	51	93
% Heavy Vehicles	18.2	0.2	0.0	0.0	3.6	0.6	2.8	1.4	0.0	2.0	0.0	3.3	0.0	0.0	1.7	0.0	5.3	15.9	0.0	7.3	3.9
Exiting Leg Total	38					16					2					37					93

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	6	44	3	0	53	43	107	7	0	157	5	4	1	0	10	22	38	24	0	84	304
4:45 PM	10	58	1	0	69	38	106	16	0	160	10	4	0	0	14	33	41	29	0	103	346
5:00 PM	18	61	2	0	81	47	82	11	0	140	2	5	0	0	7	24	49	24	0	97	325
5:15 PM	13	65	3	0	81	56	119	5	0	180	3	4	0	0	7	21	34	30	0	85	353
Total Volume	47	228	9	0	284	184	414	39	0	637	20	17	1	0	38	100	162	107	0	369	1328
% Approach Total	16.5	80.3	3.2	0.0		28.9	65.0	6.1	0.0		52.6	44.7	2.6	0.0		27.1	43.9	29.0	0.0		
PHF	0.653	0.877	0.750	0.000	0.877	0.821	0.870	0.609	0.000	0.885	0.500	0.850	0.250	0.000	0.679	0.758	0.827	0.892	0.000	0.896	0.941
Cars	37	227	9	0	273	184	403	39	0	626	20	17	1	0	38	100	155	88	0	343	1280
Cars %	78.7	99.6	100.0	0.0	96.1	100.0	97.3	100.0	0.0	98.3	100.0	100.0	100.0	0.0	100.0	100.0	95.7	82.2	0.0	93.0	96.4
Heavy Vehicles	10	1	0	0	11	0	11	0	0	11	0	0	0	0	0	0	7	19	0	26	48
Heavy Vehicles %	21.3	0.4	0.0	0.0	3.9	0.0	2.7	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	4.3	17.8	0.0	7.0	3.6
Cars Enter Leg	37	227	9	0	273	184	403	39	0	626	20	17	1	0	38	100	155	88	0	343	1280
Heavy Enter Leg	10	1	0	0	11	0	11	0	0	11	0	0	0	0	0	0	7	19	0	26	48
Total Entering Leg	47	228	9	0	284	184	414	39	0	637	20	17	1	0	38	100	162	107	0	369	1328
Cars Exiting Leg	289					184					366					441					1280
Heavy Exiting Leg	19					7					1					21					48
Total Exiting Leg	308					191					367					462					1328

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	4	44	3	0	51	43	103	7	0	153	5	4	1	0	10	22	36	19	0	77	291
4:45 PM	8	58	1	0	67	38	105	16	0	159	10	4	0	0	14	33	40	21	0	94	334
Total	12	102	4	0	118	81	208	23	0	312	15	8	1	0	24	55	76	40	0	171	625
5:00 PM	14	60	2	0	76	47	80	11	0	138	2	5	0	0	7	24	45	21	0	90	311
5:15 PM	11	65	3	0	79	56	115	5	0	176	3	4	0	0	7	21	34	27	0	82	344
5:30 PM	14	43	0	0	57	32	60	8	0	100	2	2	2	0	6	29	35	20	0	84	247
5:45 PM	6	39	0	0	45	44	56	9	0	109	1	2	0	0	3	16	32	25	0	73	230
Total	45	207	5	0	257	179	311	33	0	523	8	13	2	0	23	90	146	93	0	329	1132
6:00 PM	13	52	1	0	66	42	70	12	0	124	2	5	0	0	7	18	32	37	0	87	284
6:15 PM	11	60	0	0	71	39	69	5	0	113	1	3	1	0	5	17	31	15	0	63	252
Total	24	112	1	0	137	81	139	17	0	237	3	8	1	0	12	35	63	52	0	150	536
Grand Total	81	421	10	0	512	341	658	73	0	1072	26	29	4	0	59	180	285	185	0	650	2293
Approach %	15.8	82.2	2.0	0.0		31.8	61.4	6.8	0.0		44.1	49.2	6.8	0.0		27.7	43.8	28.5	0.0		
Total %	3.5	18.4	0.4	0.0	22.3	14.9	28.7	3.2	0.0	46.8	1.1	1.3	0.2	0.0	2.6	7.8	12.4	8.1	0.0	28.3	
Exiting Leg Total	555					321					674					743					2293

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	4	44	3	0	51	43	103	7	0	153	5	4	1	0	10	22	36	19	0	77	291
4:45 PM	8	58	1	0	67	38	105	16	0	159	10	4	0	0	14	33	40	21	0	94	334
5:00 PM	14	60	2	0	76	47	80	11	0	138	2	5	0	0	7	24	45	21	0	90	311
5:15 PM	11	65	3	0	79	56	115	5	0	176	3	4	0	0	7	21	34	27	0	82	344
Total Volume	37	227	9	0	273	184	403	39	0	626	20	17	1	0	38	100	155	88	0	343	1280
% Approach Total	13.6	83.2	3.3	0.0		29.4	64.4	6.2	0.0		52.6	44.7	2.6	0.0		29.2	45.2	25.7	0.0		
PHF	0.661	0.873	0.750	0.000	0.864	0.821	0.876	0.609	0.000	0.889	0.500	0.850	0.250	0.000	0.679	0.758	0.861	0.815	0.000	0.912	0.930
Entering Leg	37	227	9	0	273	184	403	39	0	626	20	17	1	0	38	100	155	88	0	343	1280
Exiting Leg	289					184					366					441					1280
Total	562					810					404					784					2560

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	First Street					Binney Street					First Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	3	0	3	8	
4:45 PM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	5	
Total	3	0	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	7	0	7	13	
5:00 PM	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	2	2	0	4	8
5:15 PM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	3	0	3	8	
5:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	4	0	6	8	
5:45 PM	2	0	0	0	2	1	3	0	0	4	0	0	0	0	0	0	0	1	3	0	4	10
Total	9	0	0	0	9	1	7	0	0	8	0	0	0	0	0	0	0	5	12	0	17	34
6:00 PM	1	0	0	0	1	0	2	0	0	2	0	0	0	0	0	0	0	0	2	0	2	5
6:15 PM	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	4	0	4	8
Total	4	0	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	6	0	6	13
Grand Total	16	0	0	0	16	1	13	0	0	14	0	0	0	0	0	0	0	5	25	0	30	60
Approach %	100.0	0.0	0.0	0.0		7.1	92.9	0.0	0.0		0.0	0.0	0.0	0.0		0.0	16.7	83.3	0.0			
Total %	26.7	0.0	0.0	0.0	26.7	1.7	21.7	0.0	0.0	23.3	0.0	0.0	0.0	0.0	0.0	0.0	8.3	41.7	0.0	50.0		
Exiting Leg Total	26					5					0					29					60	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	First Street					Binney Street					First Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	3	0	0	0	3	0	1	0	0	1	0	0	0	0	0	0	2	2	0	4	8
5:15 PM	2	0	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	3	0	3	8
5:30 PM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2	4	0	6	8
5:45 PM	2	0	0	0	2	1	3	0	0	4	0	0	0	0	0	0	1	3	0	4	10
Total Volume	9	0	0	0	9	1	7	0	0	8	0	0	0	0	0	0	5	12	0	17	34
% Approach Total	100.0	0.0	0.0	0.0		12.5	87.5	0.0	0.0		0.0	0.0	0.0	0.0		0.0	29.4	70.6	0.0		
PHF	0.750	0.000	0.000	0.000	0.750	0.250	0.583	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.750	0.000	0.708	0.850
Entering Leg	9	0	0	0	9	1	7	0	0	8	0	0	0	0	0	0	5	12	0	17	34
Exiting Leg					13					5										16	34
Total					22					13					0					33	68

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	First Street					Binney Street					First Street					Binney Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3	
4:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	4	0	5	7
Total	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	3	5	0	8	10
5:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	2	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	1	0	1	0	2	0	0	0	0	0	0	0	1	0	0	1	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total	1	1	0	0	2	1	1	1	0	3	0	0	0	0	0	0	0	3	2	0	5	10
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
6:15 PM	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	0	1	0	1	4
Total	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	1	2	0	3	6
Grand Total	2	1	0	0	3	1	4	1	0	6	0	1	0	0	1	0	7	9	0	16	26	
Approach %	66.7	33.3	0.0	0.0		16.7	66.7	16.7	0.0		0.0	100.0	0.0	0.0		0.0	43.8	56.3	0.0			
Total %	7.7	3.8	0.0	0.0	11.5	3.8	15.4	3.8	0.0	23.1	0.0	3.8	0.0	0.0	3.8	0.0	26.9	34.6	0.0	61.5		
Exiting Leg Total	11					7					2					6					26	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	First Street					Binney Street					First Street					Binney Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	3
4:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	4	0	5	7
5:00 PM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	1	1	0	2	5
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	2	1	0	0	3	0	2	0	0	2	0	0	0	0	0	0	4	6	0	10	15	
% Approach Total	66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	40.0	60.0	0.0			
PHF	0.500	0.250	0.000	0.000	0.375	0.000	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.375	0.000	0.500	0.536	
Entering Leg	2	1	0	0	3	0	2	0	0	2	0	0	0	0	0	0	4	6	0	10	15	
Exiting Leg	6					4					1					4					15	
Total	9					6					1					14					30	

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	First Street					Binney Street					First Street					Binney Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
4:45 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	1	0	0	1	0	0	0	0	0	0	0	1	0	1	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	4	1	0	5	7
Approach %	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	80.0	20.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	28.6	0.0	0.0	28.6	0.0	0.0	0.0	0.0	0.0	0.0	57.1	14.3	0.0	71.4	
Exiting Leg Total	1					4					0					2					7

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	First Street					Binney Street					First Street					Binney Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	4	0	0	4
% Approach Total	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	
Entering Leg	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	4	0	0	4	
Exiting Leg	0					4					0					1					
Total	0					5					0					5					

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	First Street							Binney Street							First Street							Binney Street							Total			
	from North							from East							from South							from West										
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total				
4:30 PM	0	1	0	0	0	0	3	4	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	1	0	0	0	1	7	
4:45 PM	0	0	1	0	0	0	0	1	1	0	0	0	0	0	1	2	0	1	0	0	0	1	4	6	1	1	1	0	0	0	3	12
Total	0	1	1	0	0	0	3	5	1	0	0	0	0	0	1	2	0	2	0	0	1	5	8	1	1	2	0	0	0	4	19	
5:00 PM	0	1	0	0	0	0	0	1	0	0	0	0	0	1	1	0	1	0	0	0	0	9	10	1	0	2	0	0	0	3	15	
5:15 PM	0	4	1	0	1	2	8		2	0	0	0	0	0	1	3	0	5	0	0	0	7	12	0	0	2	0	0	0	2	25	
5:30 PM	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	1	0	1	0	1	0	3	8	
5:45 PM	3	0	0	0	0	3	1	7	0	1	0	0	0	0	0	1	0	4	0	0	0	5	9	2	0	0	0	0	1	1	4	21
Total	3	5	1	0	6	4	19		2	1	0	0	0	0	2	5	0	11	0	0	0	22	33	4	0	5	0	2	1	12	69	
6:00 PM	2	1	0	0	1	2	6		0	0	0	0	0	0	0	0	0	1	0	0	0	4	5	0	0	2	0	2	0	4	15	
6:15 PM	0	1	0	0	4	2	7		0	0	0	0	0	0	1	1	0	1	0	0	0	1	2	1	0	1	0	1	0	3	13	
Total	2	2	0	0	5	4	13		0	0	0	0	0	0	1	1	0	2	0	0	0	5	7	1	0	3	0	3	0	7	28	
Grand Total	5	8	2	0	11	11	37		3	1	0	0	0	0	4	8	0	15	0	0	1	32	48	6	1	10	0	5	1	23	116	
Approach %	13.5	21.6	5.4	0.0	29.7	29.7			37.5	12.5	0.0	0.0	0.0	50.0			0.0	31.3	0.0	0.0	2.1	66.7		26.1	4.3	43.5	0.0	21.7	4.3			
Total %	4.3	6.9	1.7	0.0	9.5	9.5	31.9		2.6	0.9	0.0	0.0	0.0	3.4	6.9		0.0	12.9	0.0	0.0	0.9	27.6	41.4	5.2	0.9	8.6	0.0	4.3	0.9	19.8		
Exiting Leg Total	50							7							47							12							116			

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	First Street							Binney Street							First Street							Binney Street							Total		
	from North							from East							from South							from West									
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total			
5:00 PM	0	1	0	0	0	0	1	0	0	0	0	0	0	1	1	0	1	0	0	0	0	9	10	1	0	2	0	0	0	3	15
5:15 PM	0	4	1	0	1	2	8	2	0	0	0	0	0	1	3	0	5	0	0	0	0	7	12	0	0	2	0	0	0	2	25
5:30 PM	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	1	0	1	0	1	0	3	8	
5:45 PM	3	0	0	0	3	1	7	0	1	0	0	0	0	0	1	0	4	0	0	0	5	9	2	0	0	0	0	1	1	4	21
Total Volume	3	5	1	0	6	4	19	2	1	0	0	0	0	2	5	0	11	0	0	0	22	33	4	0	5	0	2	1	12	69	
% Approach Total	15.8	26.3	5.3	0.0	31.6	21.1		40.0	20.0	0.0	0.0	0.0	40.0		0.0	33.3	0.0	0.0	0.0	66.7		33.3	0.0	41.7	0.0	16.7	8.3				
PHF	0.250	0.313	0.250	0.000	0.500	0.500	0.594	0.250	0.250	0.000	0.000	0.000	0.500	0.417	0.000	0.550	0.000	0.000	0.000	0.611	0.688	0.500	0.000	0.625	0.000	0.500	0.250	0.750		0.690	
Entering Leg	3	5	1	0	6	4	19	2	1	0	0	0	0	2	5	0	11	0	0	0	22	33	4	0	5	0	2	1	12	69	
Exiting Leg	28							3							31							7							69		
Total	47							8							64							19							138		

PDI File #: **196867 (14) pm**
 Location: **N: First Street S: First Street**
 Location: **E: Binney Street W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	First Street							Binney Street							First Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	7	7	14	0	0	0	0	6	10	16	0	0	0	0	1	25	26	0	0	0	0	14	11	25	81
4:45 PM	0	0	0	0	11	11	22	0	0	0	0	8	13	21	0	0	0	0	12	18	30	0	0	0	0	21	16	37	110
Total	0	0	0	0	18	18	36	0	0	0	0	14	23	37	0	0	0	0	13	43	56	0	0	0	0	35	27	62	191
5:00 PM	0	0	0	0	21	12	33	0	0	0	0	5	15	20	0	0	0	0	5	38	43	0	0	0	0	11	23	34	130
5:15 PM	0	0	0	0	13	11	24	0	0	0	0	10	15	25	0	0	0	0	9	15	24	0	0	0	0	29	23	52	125
5:30 PM	0	0	0	0	8	20	28	0	0	0	0	6	22	28	0	0	0	0	0	20	20	0	0	0	0	34	21	55	131
5:45 PM	0	0	0	0	7	17	24	0	0	0	0	7	23	30	0	0	0	0	2	15	17	0	0	0	0	19	12	31	102
Total	0	0	0	0	49	60	109	0	0	0	0	28	75	103	0	0	0	0	16	88	104	0	0	0	0	93	79	172	488
6:00 PM	0	0	0	0	6	8	14	0	0	0	0	7	9	16	0	0	0	0	5	11	16	0	0	0	0	12	8	20	66
6:15 PM	0	0	0	0	5	12	17	0	0	0	0	4	14	18	0	0	0	0	3	16	19	0	0	0	0	13	19	32	86
Total	0	0	0	0	11	20	31	0	0	0	0	11	23	34	0	0	0	0	8	27	35	0	0	0	0	25	27	52	152
Grand Total	0	0	0	0	78	98	176	0	0	0	0	53	121	174	0	0	0	0	37	158	195	0	0	0	0	153	133	286	831
Approach %	0	0	0	0	44.3	55.7		0	0	0	0	30.5	69.5		0	0	0	0	19	81		0	0	0	0	53.5	46.5		
Total %	0	0	0	0	9.39	11.8	21.2	0	0	0	0	6.38	14.6	20.9	0	0	0	0	4.45	19	23.5	0	0	0	0	18.4	16	34.4	
Exiting Leg Total	176							174							195							286							831

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	First Street							Binney Street							First Street							Binney Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:45 PM	0	0	0	0	11	11	22	0	0	0	0	8	13	21	0	0	0	0	12	18	30	0	0	0	0	21	16	37	110
5:00 PM	0	0	0	0	21	12	33	0	0	0	0	5	15	20	0	0	0	0	5	38	43	0	0	0	0	11	23	34	130
5:15 PM	0	0	0	0	13	11	24	0	0	0	0	10	15	25	0	0	0	0	9	15	24	0	0	0	0	29	23	52	125
5:30 PM	0	0	0	0	8	20	28	0	0	0	0	6	22	28	0	0	0	0	0	20	20	0	0	0	0	34	21	55	131
Total Volume	0	0	0	0	53	54	107	0	0	0	0	29	65	94	0	0	0	0	26	91	117	0	0	0	0	95	83	178	496
% Approach Total	0.0	0.0	0.0	0.0	49.5	50.5		0.0	0.0	0.0	0.0	30.9	69.1		0.0	0.0	0.0	0.0	22.2	77.8		0.0	0.0	0.0	0.0	53.4	46.6		
PHF	0.000	0.000	0.000	0.000	0.631	0.675	0.811	0.000	0.000	0.000	0.000	0.725	0.739	0.839	0.000	0.000	0.000	0.000	0.542	0.599	0.680	0.000	0.000	0.000	0.000	0.699	0.902	0.809	0.947
Entering Leg	0	0	0	0	53	54	107	0	0	0	0	29	65	94	0	0	0	0	26	91	117	0	0	0	0	95	83	178	496
Exiting Leg	107							94							117							178							496
Total	214							188							234							356							992

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Class: **Cars and Heavy Vehicles (Combined)**

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	108	199	0	307	122	161	10	293	0	50	1	51	651
7:45 AM	93	287	0	380	148	181	9	338	0	58	0	58	776
Total	201	486	0	687	270	342	19	631	0	108	1	109	1427
8:00 AM	101	236	0	337	142	175	8	325	1	45	0	46	708
8:15 AM	81	243	1	325	134	166	19	319	0	42	0	42	686
8:30 AM	100	220	0	320	137	187	18	342	0	41	0	41	703
8:45 AM	97	237	1	335	147	167	27	341	0	52	0	52	728
Total	379	936	2	1317	560	695	72	1327	1	180	0	181	2825
9:00 AM	108	197	0	305	185	159	32	376	0	57	0	57	738
9:15 AM	101	228	0	329	172	161	26	359	0	47	0	47	735
Total	209	425	0	634	357	320	58	735	0	104	0	104	1473
Grand Total	789	1847	2	2638	1187	1357	149	2693	1	392	1	394	5725
Approach %	29.9	70.0	0.1		44.1	50.4	5.5		0.3	99.5	0.3		
Total %	13.8	32.3	0.0	46.1	20.7	23.7	2.6	47.0	0.0	6.8	0.0	6.9	
Exiting Leg Total				1581				1997				2147	5725
Cars	691	1820	2	2513	1183	1355	149	2687	1	302	1	304	5504
% Cars	87.6	98.5	100.0	95.3	99.7	99.9	100.0	99.8	100.0	77.0	100.0	77.2	96.1
Exiting Leg Total				1487				1970				2047	5504
Heavy Vehicles	98	27	0	125	4	2	0	6	0	90	0	90	221
% Heavy Vehicles	12.4	1.5	0.0	4.7	0.3	0.1	0.0	0.2	0.0	23.0	0.0	22.8	3.9
Exiting Leg Total				94				27				100	221

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
8:30 AM	100	220	0	320	137	187	18	342	0	41	0	41	703
8:45 AM	97	237	1	335	147	167	27	341	0	52	0	52	728
9:00 AM	108	197	0	305	185	159	32	376	0	57	0	57	738
9:15 AM	101	228	0	329	172	161	26	359	0	47	0	47	735
Total Volume	406	882	1	1289	641	674	103	1418	0	197	0	197	2904
% Approach Total	31.5	68.4	0.1		45.2	47.5	7.3		0.0	100.0	0.0		
PHF	0.940	0.930	0.250	0.962	0.866	0.901	0.805	0.943	0.000	0.864	0.000	0.864	0.984
Cars	365	874	1	1240	640	674	103	1417	0	157	0	157	2814
Cars %	89.9	99.1	100.0	96.2	99.8	100.0	100.0	99.9	0.0	79.7	0.0	79.7	96.9
Heavy Vehicles	41	8	0	49	1	0	0	1	0	40	0	40	90
Heavy Vehicles %	10.1	0.9	0.0	3.8	0.2	0.0	0.0	0.1	0.0	20.3	0.0	20.3	3.1
Cars Enter Leg	365	874	1	1240	640	674	103	1417	0	157	0	157	2814
Heavy Enter Leg	41	8	0	49	1	0	0	1	0	40	0	40	90
Total Entering Leg	406	882	1	1289	641	674	103	1418	0	197	0	197	2904
Cars Exiting Leg				798				977				1039	2814
Heavy Exiting Leg				41				8				41	90
Total Exiting Leg				839				985				1080	2904

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	88	194	0	282	122	161	10	293	0	36	1	37	612
7:45 AM	79	284	0	363	146	180	9	335	0	46	0	46	744
Total	167	478	0	645	268	341	19	628	0	82	1	83	1356
8:00 AM	87	229	0	316	142	174	8	324	1	34	0	35	675
8:15 AM	72	239	1	312	133	166	19	318	0	29	0	29	659
8:30 AM	89	219	0	308	136	187	18	341	0	32	0	32	681
8:45 AM	91	237	1	329	147	167	27	341	0	44	0	44	714
Total	339	924	2	1265	558	694	72	1324	1	139	0	140	2729
9:00 AM	96	192	0	288	185	159	32	376	0	45	0	45	709
9:15 AM	89	226	0	315	172	161	26	359	0	36	0	36	710
Total	185	418	0	603	357	320	58	735	0	81	0	81	1419
Grand Total	691	1820	2	2513	1183	1355	149	2687	1	302	1	304	5504
Approach %	27.5	72.4	0.1		44.0	50.4	5.5		0.3	99.3	0.3		
Total %	12.6	33.1	0.0	45.7	21.5	24.6	2.7	48.8	0.0	5.5	0.0	5.5	
Exiting Leg Total				1487				1970				2047	5504

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
8:30 AM	89	219	0	308	136	187	18	341	0	32	0	32	681
8:45 AM	91	237	1	329	147	167	27	341	0	44	0	44	714
9:00 AM	96	192	0	288	185	159	32	376	0	45	0	45	709
9:15 AM	89	226	0	315	172	161	26	359	0	36	0	36	710
Total Volume	365	874	1	1240	640	674	103	1417	0	157	0	157	2814
% Approach Total	29.4	70.5	0.1		45.2	47.6	7.3		0.0	100.0	0.0		
PHF	0.951	0.922	0.250	0.942	0.865	0.901	0.805	0.942	0.000	0.872	0.000	0.872	0.985
Entering Leg	365	874	1	1240	640	674	103	1417	0	157	0	157	2814
Exiting Leg				798				977				1039	2814
Total				2038				2394				1196	5628

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	20	5	0	25	0	0	0	0	0	14	0	14	39
7:45 AM	14	3	0	17	2	1	0	3	0	12	0	12	32
Total	34	8	0	42	2	1	0	3	0	26	0	26	71
8:00 AM	14	7	0	21	0	1	0	1	0	11	0	11	33
8:15 AM	9	4	0	13	1	0	0	1	0	13	0	13	27
8:30 AM	11	1	0	12	1	0	0	1	0	9	0	9	22
8:45 AM	6	0	0	6	0	0	0	0	0	8	0	8	14
Total	40	12	0	52	2	1	0	3	0	41	0	41	96
9:00 AM	12	5	0	17	0	0	0	0	0	12	0	12	29
9:15 AM	12	2	0	14	0	0	0	0	0	11	0	11	25
Total	24	7	0	31	0	0	0	0	0	23	0	23	54
Grand Total	98	27	0	125	4	2	0	6	0	90	0	90	221
Approach %	78.4	21.6	0.0		66.7	33.3	0.0		0.0	100.0	0.0		
Total %	44.3	12.2	0.0	56.6	1.8	0.9	0.0	2.7	0.0	40.7	0.0	40.7	
Exiting Leg Total				94				27				100	221
Buses	15	6	0	21	1	0	0	1	0	12	0	12	34
% Buses	15.3	22.2	0.0	16.8	25.0	0.0	0.0	16.7	0.0	13.3	0.0	13.3	15.4
Exiting Leg Total				13				6				15	34
Single-Unit Trucks	69	19	0	88	3	2	0	5	0	58	0	58	151
% Single-Unit	70.4	70.4	0.0	70.4	75.0	100.0	0.0	83.3	0.0	64.4	0.0	64.4	68.3
Exiting Leg Total				61				19				71	151
Articulated Trucks	14	2	0	16	0	0	0	0	0	20	0	20	36
% Articulated	14.3	7.4	0.0	12.8	0.0	0.0	0.0	0.0	0.0	22.2	0.0	22.2	16.3
Exiting Leg Total				20				2				14	36

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	20	5	0	25	0	0	0	0	0	14	0	14	39
7:45 AM	14	3	0	17	2	1	0	3	0	12	0	12	32
8:00 AM	14	7	0	21	0	1	0	1	0	11	0	11	33
8:15 AM	9	4	0	13	1	0	0	1	0	13	0	13	27
Total Volume	57	19	0	76	3	2	0	5	0	50	0	50	131
% Approach Total	75.0	25.0	0.0		60.0	40.0	0.0		0.0	100.0	0.0		
PHF	0.713	0.679	0.000	0.760	0.375	0.500	0.000	0.417	0.000	0.893	0.000	0.893	0.840
Buses	8	6	0	14	1	0	0	1	0	7	0	7	22
Buses %	14.0	31.6	0.0	18.4	33.3	0.0	0.0	20.0	0.0	14.0	0.0	14.0	16.8
Single-Unit Trucks	41	11	0	52	2	2	0	4	0	29	0	29	85
Single-Unit %	71.9	57.9	0.0	68.4	66.7	100.0	0.0	80.0	0.0	58.0	0.0	58.0	64.9
Articulated Trucks	8	2	0	10	0	0	0	0	0	14	0	14	24
Articulated %	14.0	10.5	0.0	13.2	0.0	0.0	0.0	0.0	0.0	28.0	0.0	28.0	18.3
Buses	8	6	0	14	1	0	0	1	0	7	0	7	22
Single-Unit Trucks	41	11	0	52	2	2	0	4	0	29	0	29	85
Articulated Trucks	8	2	0	10	0	0	0	0	0	14	0	14	24
Total Entering Leg	57	19	0	76	3	2	0	5	0	50	0	50	131
Buses				8				6				8	22
Single-Unit Trucks				31				11				43	85
Articulated Trucks				14				2				8	24
Total Exiting Leg				53				19				59	131

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	4	2	0	6	0	0	0	0	0	2	0	2	8
7:45 AM	1	1	0	2	1	0	0	1	0	4	0	4	7
Total	5	3	0	8	1	0	0	1	0	6	0	6	15
8:00 AM	1	1	0	2	0	0	0	0	0	1	0	1	3
8:15 AM	2	2	0	4	0	0	0	0	0	0	0	0	4
8:30 AM	4	0	0	4	0	0	0	0	0	1	0	1	5
8:45 AM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total	8	3	0	11	0	0	0	0	0	4	0	4	15
9:00 AM	0	0	0	0	0	0	0	0	0	2	0	2	2
9:15 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total	2	0	0	2	0	0	0	0	0	2	0	2	4
Grand Total	15	6	0	21	1	0	0	1	0	12	0	12	34
Approach %	71.4	28.6	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
Total %	44.1	17.6	0.0	61.8	2.9	0.0	0.0	2.9	0.0	35.3	0.0	35.3	
Exiting Leg Total	13				6				15				34

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	4	2	0	6	0	0	0	0	0	2	0	2	8
7:45 AM	1	1	0	2	1	0	0	1	0	4	0	4	7
8:00 AM	1	1	0	2	0	0	0	0	0	1	0	1	3
8:15 AM	2	2	0	4	0	0	0	0	0	0	0	0	4
Total Volume	8	6	0	14	1	0	0	1	0	7	0	7	22
% Approach Total	57.1	42.9	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.750	0.000	0.583	0.250	0.000	0.000	0.250	0.000	0.438	0.000	0.438	0.688
Entering Leg	8	6	0	14	1	0	0	1	0	7	0	7	22
Exiting Leg	8				6				8				22
Total	22				7				15				44

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Single-Unit Trucks

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	13	2	0	15	0	0	0	0	0	7	0	7	22
7:45 AM	10	2	0	12	1	1	0	2	0	5	0	5	19
Total	23	4	0	27	1	1	0	2	0	12	0	12	41
8:00 AM	12	5	0	17	0	1	0	1	0	6	0	6	24
8:15 AM	6	2	0	8	1	0	0	1	0	11	0	11	20
8:30 AM	5	1	0	6	1	0	0	1	0	5	0	5	12
8:45 AM	4	0	0	4	0	0	0	0	0	6	0	6	10
Total	27	8	0	35	2	1	0	3	0	28	0	28	66
9:00 AM	9	5	0	14	0	0	0	0	0	8	0	8	22
9:15 AM	10	2	0	12	0	0	0	0	0	10	0	10	22
Total	19	7	0	26	0	0	0	0	0	18	0	18	44
Grand Total	69	19	0	88	3	2	0	5	0	58	0	58	151
Approach %	78.4	21.6	0.0		60.0	40.0	0.0		0.0	100.0	0.0		
Total %	45.7	12.6	0.0	58.3	2.0	1.3	0.0	3.3	0.0	38.4	0.0	38.4	
Exiting Leg Total	61				19				71				151

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	13	2	0	15	0	0	0	0	0	7	0	7	22
7:45 AM	10	2	0	12	1	1	0	2	0	5	0	5	19
8:00 AM	12	5	0	17	0	1	0	1	0	6	0	6	24
8:15 AM	6	2	0	8	1	0	0	1	0	11	0	11	20
Total Volume	41	11	0	52	2	2	0	4	0	29	0	29	85
% Approach Total	78.8	21.2	0.0		50.0	50.0	0.0		0.0	100.0	0.0		
PHF	0.788	0.550	0.000	0.765	0.500	0.500	0.000	0.500	0.000	0.659	0.000	0.659	0.885
Entering Leg	41	11	0	52	2	2	0	4	0	29	0	29	85
Exiting Leg	31				11				43				85
Total	83				15				72				170

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Land Boulevard					Land Boulevard					Binney Street					Total
	from North					from South					from West					
	Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total			
7:30 AM	3	1	0	4		0	0	0	0	0	5	0	5	9		
7:45 AM	3	0	0	3		0	0	0	0	0	3	0	3	6		
Total	6	1	0	7		0	0	0	0	0	8	0	8	15		
8:00 AM	1	1	0	2		0	0	0	0	0	4	0	4	6		
8:15 AM	1	0	0	1		0	0	0	0	0	2	0	2	3		
8:30 AM	2	0	0	2		0	0	0	0	0	3	0	3	5		
8:45 AM	1	0	0	1		0	0	0	0	0	0	0	0	1		
Total	5	1	0	6		0	0	0	0	0	9	0	9	15		
9:00 AM	3	0	0	3		0	0	0	0	0	2	0	2	5		
9:15 AM	0	0	0	0		0	0	0	0	0	1	0	1	1		
Total	3	0	0	3		0	0	0	0	0	3	0	3	6		
Grand Total	14	2	0	16		0	0	0	0	0	20	0	20	36		
Approach %	87.5	12.5	0.0			0.0	0.0	0.0		0.0	100.0	0.0				
Total %	38.9	5.6	0.0	44.4		0.0	0.0	0.0	0.0	0.0	55.6	0.0	55.6			
Exiting Leg Total	20					2					14					36

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
7:30 AM	3	1	0	4	0	0	0	0	0	5	0	5	9
7:45 AM	3	0	0	3	0	0	0	0	0	3	0	3	6
8:00 AM	1	1	0	2	0	0	0	0	0	4	0	4	6
8:15 AM	1	0	0	1	0	0	0	0	0	2	0	2	3
Total Volume	8	2	0	10	0	0	0	0	0	14	0	14	24
% Approach Total	80.0	20.0	0.0		0.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.667	0.500	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.700	0.000	0.700	0.667
Entering Leg	8	2	0	10	0	0	0	0	0	14	0	14	24
Exiting Leg				14				2				8	24
Total				24				2				22	48

PDI File #: 196867 (15) am
 Location: N: Land Boulevard S: Land Boulevard
 Location: W: Binney Street
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Prelidzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM



Bicycles (on Roadway and Crosswalks)

	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	1	1	0	0	0	1	0	1	0	0	0	0	0	0	2
7:45 AM	2	0	0	0	2	4	0	0	0	1	0	1	0	1	0	1	1	3	8
Total	2	0	0	0	3	5	0	0	0	2	0	2	0	1	0	1	1	3	10
8:00 AM	4	2	0	0	1	7	0	1	0	1	1	3	0	0	0	0	0	0	10
8:15 AM	1	1	0	1	2	5	0	1	0	1	0	2	0	0	0	0	0	0	7
8:30 AM	10	0	0	1	8	19	0	0	0	0	0	0	0	3	0	0	0	3	22
8:45 AM	3	0	0	0	2	5	2	1	0	0	0	3	0	2	0	0	0	2	10
Total	18	3	0	2	13	36	2	3	0	2	1	8	0	5	0	0	0	5	49
9:00 AM	3	0	0	0	2	5	1	1	0	2	0	4	0	1	0	0	0	1	10
9:15 AM	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	4	0	0	0	2	6	1	1	0	2	0	4	0	1	0	0	0	1	11
Grand Total	24	3	0	2	18	47	3	4	0	6	1	14	0	7	0	1	1	9	70
Approach %	51.1	6.4	0.0	4.3	38.3		21.4	28.6	0.0	42.9	7.1		0.0	77.8	0.0	11.1	11.1		
Total %	34.3	4.3	0.0	2.9	25.7	67.1	4.3	5.7	0.0	8.6	1.4	20.0	0.0	10.0	0.0	1.4	1.4	12.9	
Exiting Leg Total	30						10						30						70

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
8:00 AM	4	2	0	0	1	7	0	1	0	1	1	3	0	0	0	0	0	0	10
8:15 AM	1	1	0	1	2	5	0	1	0	1	0	2	0	0	0	0	0	0	7
8:30 AM	10	0	0	1	8	19	0	0	0	0	0	0	0	3	0	0	0	3	22
8:45 AM	3	0	0	0	2	5	2	1	0	0	0	3	0	2	0	0	0	2	10
Total Volume	18	3	0	2	13	36	2	3	0	2	1	8	0	5	0	0	0	5	49
% Approach Total	50.0	8.3	0.0	5.6	36.1		25.0	37.5	0.0	25.0	12.5		0.0	100.0	0.0	0.0	0.0		
PHF	0.450	0.375	0.000	0.500	0.406	0.474	0.250	0.750	0.000	0.500	0.250	0.667	0.000	0.417	0.000	0.000	0.000	0.417	0.557
Entering Leg	18	3	0	2	13	36	2	3	0	2	1	8	0	5	0	0	0	5	49
Exiting Leg	22						6						21						49
Total	58						14						26						98

PDI File #: **196867 (15) am**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	4	1	5	0	0	0	10	1	11	0	0	0	0	7	7	23
7:45 AM	0	0	0	1	3	4	0	0	0	11	5	16	0	0	0	0	8	8	28
Total	0	0	0	5	4	9	0	0	0	21	6	27	0	0	0	0	15	15	51
8:00 AM	0	0	0	0	3	3	0	0	0	8	4	12	0	0	0	0	7	7	22
8:15 AM	0	0	0	3	3	6	0	0	0	17	5	22	0	0	0	3	12	15	43
8:30 AM	0	0	0	3	7	10	0	0	0	7	6	13	0	0	0	2	6	8	31
8:45 AM	0	0	0	1	5	6	0	0	0	11	6	17	0	0	0	4	4	8	31
Total	0	0	0	7	18	25	0	0	0	43	21	64	0	0	0	9	29	38	127
9:00 AM	0	0	0	1	3	4	0	0	0	5	7	12	0	0	0	1	10	11	27
9:15 AM	0	0	0	0	2	2	0	0	0	9	8	17	0	0	0	3	4	7	26
Total	0	0	0	1	5	6	0	0	0	14	15	29	0	0	0	4	14	18	53
Grand Total	0	0	0	13	27	40	0	0	0	78	42	120	0	0	0	13	58	71	231
Approach %	0	0	0	32.5	67.5		0	0	0	65	35		0	0	0	18.31	81.69		
Total %	0	0	0	5.6277	11.688	17.316	0	0	0	33.766	18.182	51.948	0	0	0	5.6277	25.108	30.736	
Exiting Leg Total	40						120						71						231

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	0	0	3	3	6	0	0	0	17	5	22	0	0	0	3	12	15	43
8:30 AM	0	0	0	3	7	10	0	0	0	7	6	13	0	0	0	2	6	8	31
8:45 AM	0	0	0	1	5	6	0	0	0	11	6	17	0	0	0	4	4	8	31
9:00 AM	0	0	0	1	3	4	0	0	0	5	7	12	0	0	0	1	10	11	27
Total Volume	0	0	0	8	18	26	0	0	0	40	24	64	0	0	0	10	32	42	132
% Approach Total	0.0	0.0	0.0	30.8	69.2		0.0	0.0	0.0	62.5	37.5		0.0	0.0	0.0	23.8	76.2		
PHF	0.000	0.000	0.000	0.667	0.643	0.650	0.000	0.000	0.000	0.588	0.857	0.727	0.000	0.000	0.000	0.625	0.667	0.700	0.767
Entering Leg	0	0	0	8	18	26	0	0	0	40	24	64	0	0	0	10	32	42	132
Exiting Leg	26						64						42						132
Total	52						128						84						264

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	45	160	0	205	198	116	7	321	1	45	0	46	572
4:45 PM	27	195	0	222	151	131	14	296	0	35	0	35	553
Total	72	355	0	427	349	247	21	617	1	80	0	81	1125
5:00 PM	26	186	0	212	119	109	11	239	2	40	0	42	493
5:15 PM	32	178	0	210	171	160	12	343	1	47	0	48	601
5:30 PM	34	152	0	186	103	65	6	174	0	31	0	31	391
5:45 PM	34	161	0	195	181	82	5	268	0	28	0	28	491
Total	126	677	0	803	574	416	34	1024	3	146	0	149	1976
6:00 PM	39	121	0	160	107	84	12	203	4	34	0	38	401
6:15 PM	37	142	0	179	178	83	6	267	1	27	0	28	474
Total	76	263	0	339	285	167	18	470	5	61	0	66	875
Grand Total	274	1295	0	1569	1208	830	73	2111	9	287	0	296	3976
Approach %	17.5	82.5	0.0		57.2	39.3	3.5		3.0	97.0	0.0		
Total %	6.9	32.6	0.0	39.5	30.4	20.9	1.8	53.1	0.2	7.2	0.0	7.4	
Exiting Leg Total				1495				1377				1104	3976
Cars	254	1288	0	1542	1202	827	73	2102	9	273	0	282	3926
% Cars	92.7	99.5	0.0	98.3	99.5	99.6	100.0	99.6	100.0	95.1	0.0	95.3	98.7
Exiting Leg Total				1475				1370				1081	3926
Heavy Vehicles	20	7	0	27	6	3	0	9	0	14	0	14	50
% Heavy Vehicles	7.3	0.5	0.0	1.7	0.5	0.4	0.0	0.4	0.0	4.9	0.0	4.7	1.3
Exiting Leg Total				20				7				23	50

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	45	160	0	205	198	116	7	321	1	45	0	46	572
4:45 PM	27	195	0	222	151	131	14	296	0	35	0	35	553
5:00 PM	26	186	0	212	119	109	11	239	2	40	0	42	493
5:15 PM	32	178	0	210	171	160	12	343	1	47	0	48	601
Total Volume	130	719	0	849	639	516	44	1199	4	167	0	171	2219
% Approach Total	15.3	84.7	0.0		53.3	43.0	3.7		2.3	97.7	0.0		
PHF	0.722	0.922	0.000	0.956	0.807	0.806	0.786	0.874	0.500	0.888	0.000	0.891	0.923
Cars	120	715	0	835	635	516	44	1195	4	161	0	165	2195
Cars %	92.3	99.4	0.0	98.4	99.4	100.0	100.0	99.7	100.0	96.4	0.0	96.5	98.9
Heavy Vehicles	10	4	0	14	4	0	0	4	0	6	0	6	24
Heavy Vehicles %	7.7	0.6	0.0	1.6	0.6	0.0	0.0	0.3	0.0	3.6	0.0	3.5	1.1
Cars Enter Leg	120	715	0	835	635	516	44	1195	4	161	0	165	2195
Heavy Enter Leg	10	4	0	14	4	0	0	4	0	6	0	6	24
Total Entering Leg	130	719	0	849	639	516	44	1199	4	167	0	171	2219
Cars Exiting Leg				796				763				636	2195
Heavy Exiting Leg				10				4				10	24
Total Exiting Leg				806				767				646	2219

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	41	159	0	200	197	116	7	320	1	43	0	44	564
4:45 PM	26	192	0	218	148	131	14	293	0	35	0	35	546
Total	67	351	0	418	345	247	21	613	1	78	0	79	1110
5:00 PM	24	186	0	210	119	109	11	239	2	39	0	41	490
5:15 PM	29	178	0	207	171	160	12	343	1	44	0	45	595
5:30 PM	33	151	0	184	103	64	6	173	0	29	0	29	386
5:45 PM	31	160	0	191	180	80	5	265	0	23	0	23	479
Total	117	675	0	792	573	413	34	1020	3	135	0	138	1950
6:00 PM	36	121	0	157	107	84	12	203	4	33	0	37	397
6:15 PM	34	141	0	175	177	83	6	266	1	27	0	28	469
Total	70	262	0	332	284	167	18	469	5	60	0	65	866
Grand Total	254	1288	0	1542	1202	827	73	2102	9	273	0	282	3926
Approach %	16.5	83.5	0.0		57.2	39.3	3.5		3.2	96.8	0.0		
Total %	6.5	32.8	0.0	39.3	30.6	21.1	1.9	53.5	0.2	7.0	0.0	7.2	
Exiting Leg Total				1475				1370				1081	3926

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	41	159	0	200	197	116	7	320	1	43	0	44	564
4:45 PM	26	192	0	218	148	131	14	293	0	35	0	35	546
5:00 PM	24	186	0	210	119	109	11	239	2	39	0	41	490
5:15 PM	29	178	0	207	171	160	12	343	1	44	0	45	595
Total Volume	120	715	0	835	635	516	44	1195	4	161	0	165	2195
% Approach Total	14.4	85.6	0.0		53.1	43.2	3.7		2.4	97.6	0.0		
PHF	0.732	0.931	0.000	0.958	0.806	0.806	0.786	0.871	0.500	0.915	0.000	0.917	0.922
Entering Leg	120	715	0	835	635	516	44	1195	4	161	0	165	2195
Exiting Leg				796				763				636	2195
Total				1631				1958				801	4390

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	4	1	0	5	1	0	0	1	0	2	0	2	8
4:45 PM	1	3	0	4	3	0	0	3	0	0	0	0	7
Total	5	4	0	9	4	0	0	4	0	2	0	2	15
5:00 PM	2	0	0	2	0	0	0	0	0	1	0	1	3
5:15 PM	3	0	0	3	0	0	0	0	0	3	0	3	6
5:30 PM	1	1	0	2	0	1	0	1	0	2	0	2	5
5:45 PM	3	1	0	4	1	2	0	3	0	5	0	5	12
Total	9	2	0	11	1	3	0	4	0	11	0	11	26
6:00 PM	3	0	0	3	0	0	0	0	0	1	0	1	4
6:15 PM	3	1	0	4	1	0	0	1	0	0	0	0	5
Total	6	1	0	7	1	0	0	1	0	1	0	1	9
Grand Total	20	7	0	27	6	3	0	9	0	14	0	14	50
Approach %	74.1	25.9	0.0		66.7	33.3	0.0		0.0	100.0	0.0		
Total %	40.0	14.0	0.0	54.0	12.0	6.0	0.0	18.0	0.0	28.0	0.0	28.0	
Exiting Leg Total	20				7				23				50
Buses	13	3	0	16	0	2	0	2	0	5	0	5	23
% Buses	65.0	42.9	0.0	59.3	0.0	66.7	0.0	22.2	0.0	35.7	0.0	35.7	46.0
Exiting Leg Total	5				3				15				23
Single-Unit Trucks	5	4	0	9	5	1	0	6	0	6	0	6	21
% Single-Unit	25.0	57.1	0.0	33.3	83.3	33.3	0.0	66.7	0.0	42.9	0.0	42.9	42.0
Exiting Leg Total	11				4				6				21
Articulated Trucks	2	0	0	2	1	0	0	1	0	3	0	3	6
% Articulated	10.0	0.0	0.0	7.4	16.7	0.0	0.0	11.1	0.0	21.4	0.0	21.4	12.0
Exiting Leg Total	4				0				2				6

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
5:15 PM	3	0	0	3	0	0	0	0	0	3	0	3	6
5:30 PM	1	1	0	2	0	1	0	1	0	2	0	2	5
5:45 PM	3	1	0	4	1	2	0	3	0	5	0	5	12
6:00 PM	3	0	0	3	0	0	0	0	0	1	0	1	4
Total Volume	10	2	0	12	1	3	0	4	0	11	0	11	27
% Approach Total	83.3	16.7	0.0		25.0	75.0	0.0		0.0	100.0	0.0		
PHF	0.833	0.500	0.000	0.750	0.250	0.375	0.000	0.333	0.000	0.550	0.000	0.550	0.563
Buses	8	1	0	9	0	2	0	2	0	5	0	5	16
Buses %	80.0	50.0	0.0	75.0	0.0	66.7	0.0	50.0	0.0	45.5	0.0	45.5	59.3
Single-Unit Trucks	1	1	0	2	0	1	0	1	0	4	0	4	7
Single-Unit %	10.0	50.0	0.0	16.7	0.0	33.3	0.0	25.0	0.0	36.4	0.0	36.4	25.9
Articulated Trucks	1	0	0	1	1	0	0	1	0	2	0	2	4
Articulated %	10.0	0.0	0.0	8.3	100.0	0.0	0.0	25.0	0.0	18.2	0.0	18.2	14.8
Buses	8	1	0	9	0	2	0	2	0	5	0	5	16
Single-Unit Trucks	1	1	0	2	0	1	0	1	0	4	0	4	7
Articulated Trucks	1	0	0	1	1	0	0	1	0	2	0	2	4
Total Entering Leg	10	2	0	12	1	3	0	4	0	11	0	11	27
Buses	5				1				10				16
Single-Unit Trucks	4				1				2				7
Articulated Trucks	3				0				1				4
Total Exiting Leg	12				2				13				27

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	3	1	0	4	0	0	0	0	0	0	0	0	4
4:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	1
Total	3	2	0	5	0	0	0	0	0	0	0	0	5
5:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
5:30 PM	0	1	0	1	0	0	0	0	0	2	0	2	3
5:45 PM	3	0	0	3	0	2	0	2	0	1	0	1	6
Total	6	1	0	7	0	2	0	2	0	5	0	5	14
6:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
6:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	4	0	0	4	0	0	0	0	0	0	0	0	4
Grand Total	13	3	0	16	0	2	0	2	0	5	0	5	23
Approach %	81.3	18.8	0.0		0.0	100.0	0.0		0.0	100.0	0.0		
Total %	56.5	13.0	0.0	69.6	0.0	8.7	0.0	8.7	0.0	21.7	0.0	21.7	
Exiting Leg Total	5				3				15				23

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
5:15 PM	2	0	0	2	0	0	0	0	0	2	0	2	4
5:30 PM	0	1	0	1	0	0	0	0	0	2	0	2	3
5:45 PM	3	0	0	3	0	2	0	2	0	1	0	1	6
6:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
Total Volume	8	1	0	9	0	2	0	2	0	5	0	5	16
% Approach Total	88.9	11.1	0.0		0.0	100.0	0.0		0.0	100.0	0.0		
PHF	0.667	0.250	0.000	0.750	0.000	0.250	0.000	0.250	0.000	0.625	0.000	0.625	0.667
Entering Leg	8	1	0	9	0	2	0	2	0	5	0	5	16
Exiting Leg				5				1				10	16
Total				14				3				15	32

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Class:

Single-Unit Trucks

	Land Boulevard					Land Boulevard					Binney Street					Total
	from North					from South					from West					
	Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		Right	Left	U-Turn	Total		
4:30 PM	0	0	0	0		1	0	0	1		0	2	0	2		3
4:45 PM	1	2	0	3		3	0	0	3		0	0	0	0		6
Total	1	2	0	3		4	0	0	4		0	2	0	2		9
5:00 PM	1	0	0	1		0	0	0	0		0	0	0	0		1
5:15 PM	0	0	0	0		0	0	0	0		0	1	0	1		1
5:30 PM	1	0	0	1		0	1	0	1		0	0	0	0		2
5:45 PM	0	1	0	1		0	0	0	0		0	2	0	2		3
Total	2	1	0	3		0	1	0	1		0	3	0	3		7
6:00 PM	0	0	0	0		0	0	0	0		0	1	0	1		1
6:15 PM	2	1	0	3		1	0	0	1		0	0	0	0		4
Total	2	1	0	3		1	0	0	1		0	1	0	1		5
Grand Total	5	4	0	9		5	1	0	6		0	6	0	6		21
Approach %	55.6	44.4	0.0			83.3	16.7	0.0			0.0	100.0	0.0			
Total %	23.8	19.0	0.0	42.9		23.8	4.8	0.0	28.6		0.0	28.6	0.0	28.6		
Exiting Leg Total	11					4					6					21

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
4:30 PM	0	0	0	0	1	0	0	1	0	2	0	2	3
4:45 PM	1	2	0	3	3	0	0	3	0	0	0	0	6
5:00 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	2	2	0	4	4	0	0	4	0	3	0	3	11
% Approach Total	50.0	50.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.500	0.250	0.000	0.333	0.333	0.000	0.000	0.333	0.000	0.375	0.000	0.375	0.458
Entering Leg	2	2	0	4	4	0	0	4	0	3	0	3	11
Exiting Leg				7				2				2	11
Total	11				6				5				22

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Land Boulevard				Land Boulevard				Binney Street				Total	
	from North				from South				from West					
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total		
4:30 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	1	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	1	0	2	0	2	2	3
Total	1	0	0	1	1	0	0	1	0	3	0	3	3	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	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
Grand Total	2	0	0	2	1	0	0	1	0	3	0	3	3	6
Approach %	100.0	0.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0			
Total %	33.3	0.0	0.0	33.3	16.7	0.0	0.0	16.7	0.0	50.0	0.0	50.0		
Exiting Leg Total	4				0				2				6	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Land Boulevard				Land Boulevard				Binney Street				Total
	from North				from South				from West				
	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	
5:00 PM	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	1	0	0	1	0	2	0	2	3
Total Volume	1	0	0	1	1	0	0	1	0	3	0	3	5
% Approach Total	100.0	0.0	0.0		100.0	0.0	0.0		0.0	100.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.000	0.375	0.000	0.375	0.417
Entering Leg	1	0	0	1	1	0	0	1	0	3	0	3	5
Exiting Leg				4				0				1	5
Total				5				1				4	10

PDI File #: 196867 (15) pm
 Location: N: Land Boulevard S: Land Boulevard
 Location: W: Binney Street
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Prelidzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM



Bicycles (on Roadway and Crosswalks)

	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	3	0	0	0	0	3	0	0	0	0	0	0	0	1	0	0	0	1	4
4:45 PM	1	0	0	1	1	3	0	0	0	0	3	3	0	1	0	0	0	1	7
Total	4	0	0	1	1	6	0	0	0	0	3	3	0	2	0	0	0	2	11
5:00 PM	0	0	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	4
5:15 PM	1	0	0	1	2	4	0	0	0	0	4	4	0	2	0	0	0	2	10
5:30 PM	3	2	0	1	1	7	0	0	0	0	1	1	0	0	0	0	0	0	8
5:45 PM	1	1	0	1	0	3	1	0	0	0	1	2	0	2	0	0	0	2	7
Total	5	3	0	3	3	14	1	0	0	0	10	11	0	4	0	0	0	4	29
6:00 PM	3	0	0	1	0	4	1	0	0	0	3	4	0	3	0	1	0	4	12
6:15 PM	2	0	0	0	2	4	1	0	0	0	1	2	0	0	0	0	0	0	6
Total	5	0	0	1	2	8	2	0	0	0	4	6	0	3	0	1	0	4	18
Grand Total	14	3	0	5	6	28	3	0	0	0	17	20	0	9	0	1	0	10	58
Approach %	50.0	10.7	0.0	17.9	21.4		15.0	0.0	0.0	0.0	85.0		0.0	90.0	0.0	10.0	0.0		
Total %	24.1	5.2	0.0	8.6	10.3	48.3	5.2	0.0	0.0	0.0	29.3	34.5	0.0	15.5	0.0	1.7	0.0	17.2	
Exiting Leg Total	23						20						15						58

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Land Boulevard						Land Boulevard						Binney Street						
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	Total
5:15 PM	1	0	0	1	2	4	0	0	0	0	4	4	0	2	0	0	0	2	10
5:30 PM	3	2	0	1	1	7	0	0	0	0	1	1	0	0	0	0	0	0	8
5:45 PM	1	1	0	1	0	3	1	0	0	0	1	2	0	2	0	0	0	2	7
6:00 PM	3	0	0	1	0	4	1	0	0	0	3	4	0	3	0	1	0	4	12
Total Volume	8	3	0	4	3	18	2	0	0	0	9	11	0	7	0	1	0	8	37
% Approach Total	44.4	16.7	0.0	22.2	16.7		18.2	0.0	0.0	0.0	81.8		0.0	87.5	0.0	12.5	0.0		
PHF	0.667	0.375	0.000	1.000	0.375	0.643	0.500	0.000	0.000	0.000	0.563	0.688	0.000	0.583	0.000	0.250	0.000	0.500	0.771
Entering Leg	8	3	0	4	3	18	2	0	0	0	9	11	0	7	0	1	0	8	37
Exiting Leg	16						12						9						37
Total	34						23						17						74

PDI File #: **196867 (15) pm**
 Location: **N: Land Boulevard S: Land Boulevard**
 Location: **W: Binney Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	3	6	9	0	0	0	3	12	15	0	0	0	6	9	15	39
4:45 PM	0	0	0	7	1	8	0	0	0	6	7	13	0	0	0	15	8	23	44
Total	0	0	0	10	7	17	0	0	0	9	19	28	0	0	0	21	17	38	83
5:00 PM	0	0	0	12	6	18	0	0	0	7	17	24	0	0	0	19	10	29	71
5:15 PM	0	0	0	10	4	14	0	0	0	6	11	17	0	0	0	8	8	16	47
5:30 PM	0	0	0	12	9	21	0	0	0	3	6	9	0	0	0	15	6	21	51
5:45 PM	0	0	0	5	14	19	0	0	0	5	4	9	0	0	0	9	4	13	41
Total	0	0	0	39	33	72	0	0	0	21	38	59	0	0	0	51	28	79	210
6:00 PM	0	0	0	5	4	9	0	0	0	3	9	12	0	0	0	8	3	11	32
6:15 PM	0	0	0	5	3	8	0	0	0	3	3	6	0	0	0	4	5	9	23
Total	0	0	0	10	7	17	0	0	0	6	12	18	0	0	0	12	8	20	55
Grand Total	0	0	0	59	47	106	0	0	0	36	69	105	0	0	0	84	53	137	348
Approach %	0	0	0	55.66	44.34		0	0	0	34.286	65.714		0	0	0	61.314	38.686		
Total %	0	0	0	16.954	13.506	30.46	0	0	0	10.345	19.828	30.172	0	0	0	24.138	15.23	39.368	
Exiting Leg Total	106						105						137						348

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Land Boulevard						Land Boulevard						Binney Street						Total
	from North						from South						from West						
	Right	Thru	U-Turn	CW-EB	CW-WB	Total	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Left	U-Turn	CW-NB	CW-SB	Total	
4:45 PM	0	0	0	7	1	8	0	0	0	6	7	13	0	0	0	15	8	23	44
5:00 PM	0	0	0	12	6	18	0	0	0	7	17	24	0	0	0	19	10	29	71
5:15 PM	0	0	0	10	4	14	0	0	0	6	11	17	0	0	0	8	8	16	47
5:30 PM	0	0	0	12	9	21	0	0	0	3	6	9	0	0	0	15	6	21	51
Total Volume	0	0	0	41	20	61	0	0	0	22	41	63	0	0	0	57	32	89	213
% Approach Total	0.0	0.0	0.0	67.2	32.8		0.0	0.0	0.0	34.9	65.1		0.0	0.0	0.0	64.0	36.0		
PHF	0.000	0.000	0.000	0.854	0.556	0.726	0.000	0.000	0.000	0.786	0.603	0.656	0.000	0.000	0.000	0.750	0.800	0.767	0.750
Entering Leg	0	0	0	41	20	61	0	0	0	22	41	63	0	0	0	57	32	89	213
Exiting Leg	61						63						89						213
Total	122						126						178						426

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	43	64	10	0	117	14	44	8	0	66	8	41	11	1	61	6	66	46	0	118	362
7:45 AM	60	94	8	0	162	9	47	13	0	69	12	57	9	0	78	12	54	48	0	114	423
Total	103	158	18	0	279	23	91	21	0	135	20	98	20	1	139	18	120	94	0	232	785
8:00 AM	56	69	13	0	138	15	43	7	0	65	22	50	9	0	81	8	74	40	0	122	406
8:15 AM	44	73	8	0	125	7	49	13	0	69	17	41	9	0	67	6	64	38	0	108	369
8:30 AM	31	77	12	0	120	9	47	15	0	71	1	42	11	0	54	13	66	23	0	102	347
8:45 AM	52	62	6	0	120	8	55	15	0	78	21	59	10	0	90	8	73	44	0	125	413
Total	183	281	39	0	503	39	194	50	0	283	61	192	39	0	292	35	277	145	0	457	1535
9:00 AM	47	67	16	0	130	15	41	7	0	63	16	57	5	0	78	8	68	39	0	115	386
9:15 AM	50	70	12	0	132	11	42	12	1	66	19	35	8	1	63	5	79	38	0	122	383
Total	97	137	28	0	262	26	83	19	1	129	35	92	13	1	141	13	147	77	0	237	769
Grand Total	383	576	85	0	1044	88	368	90	1	547	116	382	72	2	572	66	544	316	0	926	3089
Approach %	36.7	55.2	8.1	0.0		16.1	67.3	16.5	0.2		20.3	66.8	12.6	0.3		7.1	58.7	34.1	0.0		
Total %	12.4	18.6	2.8	0.0	33.8	2.8	11.9	2.9	0.0	17.7	3.8	12.4	2.3	0.1	18.5	2.1	17.6	10.2	0.0	30.0	
Exiting Leg Total	786					746					734					823					3089
Cars	356	492	60	0	908	55	332	73	1	461	93	325	59	2	479	54	504	293	0	851	2699
% Cars	93.0	85.4	70.6	0.0	87.0	62.5	90.2	81.1	100.0	84.3	80.2	85.1	81.9	100.0	83.7	81.8	92.6	92.7	0.0	91.9	87.4
Exiting Leg Total	673					658					621					747					2699
Heavy Vehicles	27	84	25	0	136	33	36	17	0	86	23	57	13	0	93	12	40	23	0	75	390
% Heavy Vehicles	7.0	14.6	29.4	0.0	13.0	37.5	9.8	18.9	0.0	15.7	19.8	14.9	18.1	0.0	16.3	18.2	7.4	7.3	0.0	8.1	12.6
Exiting Leg Total	113					88					113					76					390

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	43	64	10	0	117	14	44	8	0	66	8	41	11	1	61	6	66	46	0	118	362
7:45 AM	60	94	8	0	162	9	47	13	0	69	12	57	9	0	78	12	54	48	0	114	423
8:00 AM	56	69	13	0	138	15	43	7	0	65	22	50	9	0	81	8	74	40	0	122	406
8:15 AM	44	73	8	0	125	7	49	13	0	69	17	41	9	0	67	6	64	38	0	108	369
Total Volume	203	300	39	0	542	45	183	41	0	269	59	189	38	1	287	32	258	172	0	462	1560
% Approach Total	37.5	55.4	7.2	0.0		16.7	68.0	15.2	0.0		20.6	65.9	13.2	0.3		6.9	55.8	37.2	0.0		
PHF	0.846	0.798	0.750	0.000	0.836	0.750	0.934	0.788	0.000	0.975	0.670	0.829	0.864	0.250	0.886	0.667	0.872	0.896	0.000	0.947	0.922
Cars	188	254	24	0	466	27	166	33	0	226	46	160	33	1	240	25	237	161	0	423	1355
Cars %	92.6	84.7	61.5	0.0	86.0	60.0	90.7	80.5	0.0	84.0	78.0	84.7	86.8	100.0	83.6	78.1	91.9	93.6	0.0	91.6	86.9
Heavy Vehicles	15	46	15	0	76	18	17	8	0	43	13	29	5	0	47	7	21	11	0	39	205
Heavy Vehicles %	7.4	15.3	38.5	0.0	14.0	40.0	9.3	19.5	0.0	16.0	22.0	15.3	13.2	0.0	16.4	21.9	8.1	6.4	0.0	8.4	13.1
Cars Enter Leg	188	254	24	0	466	27	166	33	0	226	46	160	33	1	240	25	237	161	0	423	1355
Heavy Enter Leg	15	46	15	0	76	18	17	8	0	43	13	29	5	0	47	7	21	11	0	39	205
Total Entering Leg	203	300	39	0	542	45	183	41	0	269	59	189	38	1	287	32	258	172	0	462	1560
Cars Exiting Leg					348					307					313					387	1355
Heavy Exiting Leg					58					49					61					37	205
Total Exiting Leg					406					356					374					424	1560

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	37	49	6	0	92	9	37	6	0	52	6	31	10	1	48	6	60	43	0	109	301
7:45 AM	56	82	3	0	141	6	44	10	0	60	10	49	8	0	67	8	47	45	0	100	368
Total	93	131	9	0	233	15	81	16	0	112	16	80	18	1	115	14	107	88	0	209	669
8:00 AM	53	60	8	0	121	9	40	5	0	54	16	47	7	0	70	5	69	38	0	112	357
8:15 AM	42	63	7	0	112	3	45	12	0	60	14	33	8	0	55	6	61	35	0	102	329
8:30 AM	29	64	10	0	103	5	43	13	0	61	0	36	9	0	45	11	61	21	0	93	302
8:45 AM	52	56	5	0	113	5	51	13	0	69	18	52	9	0	79	6	69	41	0	116	377
Total	176	243	30	0	449	22	179	43	0	244	48	168	33	0	249	28	260	135	0	423	1365
9:00 AM	41	60	12	0	113	10	35	6	0	51	13	47	3	0	63	8	62	33	0	103	330
9:15 AM	46	58	9	0	113	8	37	8	1	54	16	30	5	1	52	4	75	37	0	116	335
Total	87	118	21	0	226	18	72	14	1	105	29	77	8	1	115	12	137	70	0	219	665
Grand Total	356	492	60	0	908	55	332	73	1	461	93	325	59	2	479	54	504	293	0	851	2699
Approach %	39.2	54.2	6.6	0.0		11.9	72.0	15.8	0.2		19.4	67.8	12.3	0.4		6.3	59.2	34.4	0.0		
Total %	13.2	18.2	2.2	0.0	33.6	2.0	12.3	2.7	0.0	17.1	3.4	12.0	2.2	0.1	17.7	2.0	18.7	10.9	0.0	31.5	
Exiting Leg Total	673					658					621					747					2699

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway									
	from North					from East					from South					from West									
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total					
8:00 AM	53	60	8	0	121	9	40	5	0	54	16	47	7	0	70	5	69	38	0	112	357				
8:15 AM	42	63	7	0	112	3	45	12	0	60	14	33	8	0	55	6	61	35	0	102	329				
8:30 AM	29	64	10	0	103	5	43	13	0	61	0	36	9	0	45	11	61	21	0	93	302				
8:45 AM	52	56	5	0	113	5	51	13	0	69	18	52	9	0	79	6	69	41	0	116	377				
Total Volume	176	243	30	0	449	22	179	43	0	244	48	168	33	0	249	28	260	135	0	423	1365				
% Approach Total	39.2	54.1	6.7	0.0		9.0	73.4	17.6	0.0		19.3	67.5	13.3	0.0		6.6	61.5	31.9	0.0						
PHF	0.830	0.949	0.750	0.000	0.928	0.611	0.877	0.827	0.000	0.884	0.667	0.808	0.917	0.000	0.788	0.636	0.942	0.823	0.000	0.912	0.905				
Entering Leg	176	243	30	0	449	22	179	43	0	244	48	168	33	0	249	28	260	135	0	423	1365				
Exiting Leg																									
Total	774					582					563					811					2730				

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	6	15	4	0	25	5	7	2	0	14	2	10	1	0	13	0	6	3	0	9	61
7:45 AM	4	12	5	0	21	3	3	3	0	9	2	8	1	0	11	4	7	3	0	14	55
Total	10	27	9	0	46	8	10	5	0	23	4	18	2	0	24	4	13	6	0	23	116
8:00 AM	3	9	5	0	17	6	3	2	0	11	6	3	2	0	11	3	5	2	0	10	49
8:15 AM	2	10	1	0	13	4	4	1	0	9	3	8	1	0	12	0	3	3	0	6	40
8:30 AM	2	13	2	0	17	4	4	2	0	10	1	6	2	0	9	2	5	2	0	9	45
8:45 AM	0	6	1	0	7	3	4	2	0	9	3	7	1	0	11	2	4	3	0	9	36
Total	7	38	9	0	54	17	15	7	0	39	13	24	6	0	43	7	17	10	0	34	170
9:00 AM	6	7	4	0	17	5	6	1	0	12	3	10	2	0	15	0	6	6	0	12	56
9:15 AM	4	12	3	0	19	3	5	4	0	12	3	5	3	0	11	1	4	1	0	6	48
Total	10	19	7	0	36	8	11	5	0	24	6	15	5	0	26	1	10	7	0	18	104
Grand Total	27	84	25	0	136	33	36	17	0	86	23	57	13	0	93	12	40	23	0	75	390
Approach %	19.9	61.8	18.4	0.0		38.4	41.9	19.8	0.0		24.7	61.3	14.0	0.0		16.0	53.3	30.7	0.0		
Total %	6.9	21.5	6.4	0.0	34.9	8.5	9.2	4.4	0.0	22.1	5.9	14.6	3.3	0.0	23.8	3.1	10.3	5.9	0.0	19.2	
Exiting Leg Total	113					88					113					76					390
Buses	8	14	17	0	39	15	17	2	0	34	9	6	9	0	24	2	30	11	0	43	140
% Buses	29.6	16.7	68.0	0.0	28.7	45.5	47.2	11.8	0.0	39.5	39.1	10.5	69.2	0.0	25.8	16.7	75.0	47.8	0.0	57.3	35.9
Exiting Leg Total	32					56					18					34					140
Single-Unit Trucks	18	63	7	0	88	18	17	14	0	49	11	38	4	0	53	8	10	11	0	29	219
% Single-Unit	66.7	75.0	28.0	0.0	64.7	54.5	47.2	82.4	0.0	57.0	47.8	66.7	30.8	0.0	57.0	66.7	25.0	47.8	0.0	38.7	56.2
Exiting Leg Total	67					28					85					39					219
Articulated Trucks	1	7	1	0	9	0	2	1	0	3	3	13	0	0	16	2	0	1	0	3	31
% Articulated	3.7	8.3	4.0	0.0	6.6	0.0	5.6	5.9	0.0	3.5	13.0	22.8	0.0	0.0	17.2	16.7	0.0	4.3	0.0	4.0	7.9
Exiting Leg Total	14					4					10					3					31

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	6	15	4	0	25	5	7	2	0	14	2	10	1	0	13	0	6	3	0	9	61
7:45 AM	4	12	5	0	21	3	3	3	0	9	2	8	1	0	11	4	7	3	0	14	55
8:00 AM	3	9	5	0	17	6	3	2	0	11	6	3	2	0	11	3	5	2	0	10	49
8:15 AM	2	10	1	0	13	4	4	1	0	9	3	8	1	0	12	0	3	3	0	6	40
Total Volume	15	46	15	0	76	18	17	8	0	43	13	29	5	0	47	7	21	11	0	39	205
% Approach Total	19.7	60.5	19.7	0.0		41.9	39.5	18.6	0.0		27.7	61.7	10.6	0.0		17.9	53.8	28.2	0.0		
PHF	0.625	0.767	0.750	0.000	0.760	0.750	0.607	0.667	0.000	0.768	0.542	0.725	0.625	0.000	0.904	0.438	0.750	0.917	0.000	0.696	0.840
Buses	3	8	9	0	20	9	10	1	0	20	6	3	5	0	14	1	13	5	0	19	73
Buses %	20.0	17.4	60.0	0.0	26.3	50.0	58.8	12.5	0.0	46.5	46.2	10.3	100.0	0.0	29.8	14.3	61.9	45.5	0.0	48.7	35.6
Single-Unit Trucks	12	32	5	0	49	9	7	6	0	22	5	17	0	0	22	5	8	5	0	18	111
Single-Unit %	80.0	69.6	33.3	0.0	64.5	50.0	41.2	75.0	0.0	51.2	38.5	58.6	0.0	0.0	46.8	71.4	38.1	45.5	0.0	46.2	54.1
Articulated Trucks	0	6	1	0	7	0	0	1	0	1	2	9	0	0	11	1	0	1	0	2	21
Articulated %	0.0	13.0	6.7	0.0	9.2	0.0	0.0	12.5	0.0	2.3	15.4	31.0	0.0	0.0	23.4	14.3	0.0	9.1	0.0	5.1	10.2
Buses	3	8	9	0	20	9	10	1	0	20	6	3	5	0	14	1	13	5	0	19	73
Single-Unit Trucks	12	32	5	0	49	9	7	6	0	22	5	17	0	0	22	5	8	5	0	18	111
Articulated Trucks	0	6	1	0	7	0	0	1	0	1	2	9	0	0	11	1	0	1	0	2	21
Total Entering Leg	15	46	15	0	76	18	17	8	0	43	13	29	5	0	47	7	21	11	0	39	205
Buses	17					28					10					18					73
Single-Unit Trucks	31					18					43					19					111
Articulated Trucks	10					3					8					0					21
Total Exiting Leg	58					49					61					37					205

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	3	2	0	6	4	3	0	0	7	0	2	1	0	3	0	4	2	0	6	22
7:45 AM	1	2	3	0	6	2	2	1	0	5	1	0	1	0	2	1	4	1	0	6	19
Total	2	5	5	0	12	6	5	1	0	12	1	2	2	0	5	1	8	3	0	12	41
8:00 AM	1	1	3	0	5	2	1	0	0	3	4	0	2	0	6	0	3	1	0	4	18
8:15 AM	0	2	1	0	3	1	4	0	0	5	1	1	1	0	3	0	2	1	0	3	14
8:30 AM	2	3	2	0	7	2	1	0	0	3	0	1	1	0	2	0	4	1	0	5	17
8:45 AM	0	1	1	0	2	1	2	1	0	4	0	1	1	0	2	0	4	2	0	6	14
Total	3	7	7	0	17	6	8	1	0	15	5	3	5	0	13	0	13	5	0	18	63
9:00 AM	2	1	4	0	7	2	2	0	0	4	1	0	1	0	2	0	6	2	0	8	21
9:15 AM	1	1	1	0	3	1	2	0	0	3	2	1	1	0	4	1	3	1	0	5	15
Total	3	2	5	0	10	3	4	0	0	7	3	1	2	0	6	1	9	3	0	13	36
Grand Total	8	14	17	0	39	15	17	2	0	34	9	6	9	0	24	2	30	11	0	43	140
Approach %	20.5	35.9	43.6	0.0		44.1	50.0	5.9	0.0		37.5	25.0	37.5	0.0		4.7	69.8	25.6	0.0		
Total %	5.7	10.0	12.1	0.0	27.9	10.7	12.1	1.4	0.0	24.3	6.4	4.3	6.4	0.0	17.1	1.4	21.4	7.9	0.0	30.7	
Exiting Leg Total	32					56					18					34					140

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	3	2	0	6	4	3	0	0	7	0	2	1	0	3	0	4	2	0	6	22
7:45 AM	1	2	3	0	6	2	2	1	0	5	1	0	1	0	2	1	4	1	0	6	19
8:00 AM	1	1	3	0	5	2	1	0	0	3	4	0	2	0	6	0	3	1	0	4	18
8:15 AM	0	2	1	0	3	1	4	0	0	5	1	1	1	0	3	0	2	1	0	3	14
Total Volume	3	8	9	0	20	9	10	1	0	20	6	3	5	0	14	1	13	5	0	19	73
% Approach Total	15.0	40.0	45.0	0.0		45.0	50.0	5.0	0.0		42.9	21.4	35.7	0.0		5.3	68.4	26.3	0.0		
PHF	0.750	0.667	0.750	0.000	0.833	0.563	0.625	0.250	0.000	0.714	0.375	0.375	0.625	0.000	0.583	0.250	0.813	0.625	0.000	0.792	0.830
Entering Leg	3	8	9	0	20	9	10	1	0	20	6	3	5	0	14	1	13	5	0	19	73
Exiting Leg					17					28					10					18	73
Total					37					48					24					37	146

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	5	10	1	0	16	1	4	2	0	7	1	3	0	0	4	0	2	1	0	3	30
7:45 AM	3	8	2	0	13	1	1	2	0	4	1	7	0	0	8	2	3	1	0	6	31
Total	8	18	3	0	29	2	5	4	0	11	2	10	0	0	12	2	5	2	0	9	61
8:00 AM	2	8	2	0	12	4	2	1	0	7	2	1	0	0	3	3	2	1	0	6	28
8:15 AM	2	6	0	0	8	3	0	1	0	4	1	6	0	0	7	0	1	2	0	3	22
8:30 AM	0	9	0	0	9	2	3	2	0	7	1	5	1	0	7	2	1	1	0	4	27
8:45 AM	0	5	0	0	5	2	2	1	0	5	2	6	0	0	8	1	0	1	0	2	20
Total	4	28	2	0	34	11	7	5	0	23	6	18	1	0	25	6	4	5	0	15	97
9:00 AM	4	6	0	0	10	3	4	1	0	8	2	8	1	0	11	0	0	4	0	4	33
9:15 AM	2	11	2	0	15	2	1	4	0	7	1	2	2	0	5	0	1	0	0	1	28
Total	6	17	2	0	25	5	5	5	0	15	3	10	3	0	16	0	1	4	0	5	61
Grand Total	18	63	7	0	88	18	17	14	0	49	11	38	4	0	53	8	10	11	0	29	219
Approach %	20.5	71.6	8.0	0.0		36.7	34.7	28.6	0.0		20.8	71.7	7.5	0.0		27.6	34.5	37.9	0.0		
Total %	8.2	28.8	3.2	0.0	40.2	8.2	7.8	6.4	0.0	22.4	5.0	17.4	1.8	0.0	24.2	3.7	4.6	5.0	0.0	13.2	
Exiting Leg Total	67					28					85					39					219

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	5	10	1	0	16	1	4	2	0	7	1	3	0	0	4	0	2	1	0	3	30
7:45 AM	3	8	2	0	13	1	1	2	0	4	1	7	0	0	8	2	3	1	0	6	31
8:00 AM	2	8	2	0	12	4	2	1	0	7	2	1	0	0	3	3	2	1	0	6	28
8:15 AM	2	6	0	0	8	3	0	1	0	4	1	6	0	0	7	0	1	2	0	3	22
Total Volume	12	32	5	0	49	9	7	6	0	22	5	17	0	0	22	5	8	5	0	18	111
% Approach Total	24.5	65.3	10.2	0.0		40.9	31.8	27.3	0.0		22.7	77.3	0.0	0.0		27.8	44.4	27.8	0.0		
PHF	0.600	0.800	0.625	0.000	0.766	0.563	0.438	0.750	0.000	0.786	0.625	0.607	0.000	0.000	0.688	0.417	0.667	0.625	0.000	0.750	0.895
Entering Leg	12	32	5	0	49	9	7	6	0	22	5	17	0	0	22	5	8	5	0	18	111
Exiting Leg					31					18					43					19	111
Total					80					40					65					37	222

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	2	1	0	3	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	9
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	5
Total	0	4	1	0	5	0	0	0	0	0	1	6	0	0	7	1	0	1	0	2	14
8:00 AM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	3
8:15 AM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
8:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Total	0	3	0	0	3	0	0	1	0	1	2	3	0	0	5	1	0	0	0	1	10
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
9:15 AM	1	0	0	0	1	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	5
Total	1	0	0	0	1	0	2	0	0	2	0	4	0	0	4	0	0	0	0	0	7
Grand Total	1	7	1	0	9	0	2	1	0	3	3	13	0	0	16	2	0	1	0	3	31
Approach %	11.1	77.8	11.1	0.0		0.0	66.7	33.3	0.0		18.8	81.3	0.0	0.0		66.7	0.0	33.3	0.0		
Total %	3.2	22.6	3.2	0.0	29.0	0.0	6.5	3.2	0.0	9.7	9.7	41.9	0.0	0.0	51.6	6.5	0.0	3.2	0.0	9.7	
Exiting Leg Total	14					4					10					3					31

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	2	1	0	3	0	0	0	0	0	1	5	0	0	6	0	0	0	0	0	9
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	5
8:00 AM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	3
8:15 AM	0	2	0	0	2	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	4
Total Volume	0	6	1	0	7	0	0	1	0	1	2	9	0	0	11	1	0	1	0	2	21
% Approach Total	0.0	85.7	14.3	0.0		0.0	0.0	100.0	0.0		18.2	81.8	0.0	0.0		50.0	0.0	50.0	0.0		
PHF	0.000	0.750	0.250	0.000	0.583	0.000	0.000	0.250	0.000	0.250	0.500	0.450	0.000	0.000	0.458	0.250	0.000	0.250	0.000	0.250	0.583
Entering Leg	0	6	1	0	7	0	0	1	0	1	2	9	0	0	11	1	0	1	0	2	21
Exiting Leg	10					3					8					0					21
Total	17					4					19					2					42

PDI File #: **196867 (19) am**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Galileo Galilei Way							Broadway							Galileo Galilei Way							Broadway							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:30 AM	0	0	0	0	0	0	1	1	0	1	0	0	0	0	1	1	0	0	0	1	0	2	2	27	1	0	0	0	30	34
7:45 AM	0	4	0	0	0	0	6	10	0	0	1	0	0	0	1	0	3	2	0	0	0	5	0	34	2	0	0	0	36	52
Total	0	4	0	0	0	0	7	11	0	1	1	0	0	0	2	1	3	2	0	1	0	7	2	61	3	0	0	0	66	86
8:00 AM	2	2	0	0	0	0	6	10	0	0	0	0	0	0	0	0	2	1	0	0	3	6	2	58	2	0	0	0	62	78
8:15 AM	1	2	0	0	0	0	3	6	0	0	0	0	0	0	0	2	5	2	0	1	1	11	2	65	5	0	0	0	72	89
8:30 AM	0	8	1	0	0	0	0	9	0	4	0	0	0	0	4	1	0	2	0	1	2	6	5	68	1	0	0	0	74	93
8:45 AM	0	13	0	0	0	0	1	14	0	4	0	0	0	1	5	3	6	1	0	1	6	17	11	79	0	0	1	1	92	128
Total	3	25	1	0	0	0	10	39	0	8	0	0	0	1	9	6	13	6	0	3	12	40	20	270	8	0	1	1	300	388
9:00 AM	0	12	0	0	0	0	1	13	0	2	0	0	0	1	3	1	7	2	0	0	6	16	6	84	2	0	0	0	92	124
9:15 AM	2	9	0	0	0	0	0	11	0	5	0	0	0	0	5	0	3	2	0	0	3	8	8	82	1	0	0	0	91	115
Total	2	21	0	0	0	0	1	24	0	7	0	0	0	1	8	1	10	4	0	0	9	24	14	166	3	0	0	0	183	239
Grand Total	5	50	1	0	0	0	18	74	0	16	1	0	0	2	19	8	26	12	0	4	21	71	36	497	14	0	1	1	549	713
Approach %	6.8	67.6	1.4	0.0	0.0	0.0	24.3		0.0	84.2	5.3	0.0	0.0	10.5		11.3	36.6	16.9	0.0	5.6	29.6		6.6	90.5	2.6	0.0	0.2	0.2		
Total %	0.7	7.0	0.1	0.0	0.0	0.0	2.5	10.4	0.0	2.2	0.1	0.0	0.0	0.3	2.7	1.1	3.6	1.7	0.0	0.6	2.9	10.0	5.0	69.7	2.0	0.0	0.1	0.1	77.0	
Exiting Leg Total	58							508							112							35							713	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way							Broadway							Galileo Galilei Way							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:30 AM	0	8	1	0	0	0	9	0	4	0	0	0	0	4	1	0	2	0	1	2	6	5	68	1	0	0	0	74	93
8:45 AM	0	13	0	0	0	0	14	0	4	0	0	0	1	5	3	6	1	0	1	6	17	11	79	0	0	1	1	92	128
9:00 AM	0	12	0	0	0	0	13	0	2	0	0	0	1	3	1	7	2	0	0	6	16	6	84	2	0	0	0	92	124
9:15 AM	2	9	0	0	0	0	11	0	5	0	0	0	0	5	0	3	2	0	0	3	8	8	82	1	0	0	0	91	115
Total Volume	2	42	1	0	0	2	47	0	15	0	0	0	2	17	5	16	7	0	2	17	47	30	313	4	0	1	1	349	460
% Approach Total	4.3	89.4	2.1	0.0	0.0	4.3		0.0	88.2	0.0	0.0	0.0	11.8		10.6	34.0	14.9	0.0	4.3	36.2		8.6	89.7	1.1	0.0	0.3	0.3		
PHF	0.250	0.808	0.250	0.000	0.000	0.500	0.839	0.000	0.750	0.000	0.000	0.000	0.500	0.850	0.417	0.571	0.875	0.000	0.500	0.708	0.691	0.682	0.932	0.500	0.000	0.250	0.250	0.948	0.898
Entering Leg	2	42	1	0	0	2	47	0	15	0	0	0	2	17	5	16	7	0	2	17	47	30	313	4	0	1	1	349	460
Exiting Leg	22							321							91							26							460
Total	69							338							138							375							920

PDI File #: 196867 (19) am
 Location: N: Galileo Galilei Way S: Galileo Galilei Way
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 7:30 AM
 End Time: 9:30 AM
 Class:



Pedestrians

	Galileo Galilei Way								Broadway								Galileo Galilei Way								Broadway								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
7:30 AM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	70	43	113	0	0	0	0	32	20	52	166			
7:45 AM	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	78	54	132	0	0	0	0	35	26	61	195			
Total	0	0	0	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	148	97	245	0	0	0	0	67	46	113	361				
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	129	57	186	0	0	0	0	58	32	90	276				
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99	92	191	0	0	0	0	40	48	88	279				
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158	83	241	0	0	0	0	65	48	113	354				
8:45 AM	0	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	169	96	265	0	0	0	0	57	36	93	362			
Total	0	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	555	328	883	0	0	0	0	220	164	384	1271			
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	155	92	247	0	0	0	0	48	45	93	341			
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	134	90	224	0	0	0	0	38	35	73	298			
Total	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0	289	182	471	0	0	0	0	86	80	166	639			
Grand Total	0	0	0	0	1	4	5	0	0	0	0	2	2	4	0	0	0	0	992	607	1599	0	0	0	0	373	290	663	2271				
Approach %	0	0	0	0	20	80		0	0	0	0	50	50		0	0	0	0	62	38		0	0	0	0	56.3	43.7						
Total %	0	0	0	0	0.04	0.18	0.22	0	0	0	0	0.09	0.09	0.18	0	0	0	0	43.7	26.7	70.4	0	0	0	0	16.4	12.8	29.2					
Exiting Leg Total	5							4							1599							663							2271				

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way								Broadway								Galileo Galilei Way								Broadway								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158	83	241	0	0	0	0	65	48	113	354				
8:45 AM	0	0	0	0	0	0	2	2	0	0	0	0	1	1	2	0	0	0	0	169	96	265	0	0	0	0	57	36	93	362			
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	155	92	247	0	0	0	0	48	45	93	341			
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	134	90	224	0	0	0	0	38	35	73	298			
Total Volume	0	0	0	0	0	0	2	2	0	0	0	0	2	2	4	0	0	0	0	616	361	977	0	0	0	0	208	164	372	1355			
% Approach Total	0.0	0.0	0.0	0.0	0.0	0.0	100.0		0.0	0.0	0.0	0.0	50.0	50.0		0.0	0.0	0.0	0.0	63.1	36.9		0.0	0.0	0.0	0.0	55.9	44.1					
PHF	0.000	0.000	0.000	0.000	0.000	0.250	0.250		0.000	0.000	0.000	0.000	0.500	0.500	0.500	0.000	0.000	0.000	0.000	0.911	0.940	0.922	0.000	0.000	0.000	0.000	0.800	0.854	0.823	0.936			
Entering Leg	0	0	0	0	0	0	2	2	0	0	0	0	2	2	4	0	0	0	0	616	361	977	0	0	0	0	208	164	372	1355			
Exiting Leg	2								4								977								372								1355
Total	4								8								1954								744								2710

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	43	60	8	0	111	10	65	15	0	90	10	58	18	0	86	4	89	21	0	114	401
4:45 PM	42	68	11	0	121	8	58	19	1	86	12	62	21	0	95	3	72	20	0	95	397
Total	85	128	19	0	232	18	123	34	1	176	22	120	39	0	181	7	161	41	0	209	798
5:00 PM	39	73	8	0	120	6	70	29	0	105	18	82	23	0	123	6	61	32	0	99	447
5:15 PM	51	95	7	0	153	5	72	20	0	97	21	105	22	0	148	6	80	20	0	106	504
5:30 PM	47	84	9	0	140	7	65	23	0	95	22	92	22	0	136	0	81	19	0	100	471
5:45 PM	47	67	10	0	124	13	71	11	0	95	25	117	6	1	149	7	74	37	0	118	486
Total	184	319	34	0	537	31	278	83	0	392	86	396	73	1	556	19	296	108	0	423	1908
6:00 PM	41	78	11	0	130	9	50	13	0	72	24	90	23	0	137	3	78	28	0	109	448
6:15 PM	43	69	7	0	119	4	61	16	0	81	22	61	26	1	110	9	59	26	0	94	404
Total	84	147	18	0	249	13	111	29	0	153	46	151	49	1	247	12	137	54	0	203	852
Grand Total	353	594	71	0	1018	62	512	146	1	721	154	667	161	2	984	38	594	203	0	835	3558
Approach %	34.7	58.3	7.0	0.0		8.6	71.0	20.2	0.1		15.7	67.8	16.4	0.2		4.6	71.1	24.3	0.0		
Total %	9.9	16.7	2.0	0.0	28.6	1.7	14.4	4.1	0.0	20.3	4.3	18.7	4.5	0.1	27.7	1.1	16.7	5.7	0.0	23.5	
Exiting Leg Total	932					820					780					1026					3558
Cars	347	577	52	0	976	46	500	144	1	691	148	640	149	2	939	38	555	203	0	796	3402
% Cars	98.3	97.1	73.2	0.0	95.9	74.2	97.7	98.6	100.0	95.8	96.1	96.0	92.5	100.0	95.4	100.0	93.4	100.0	0.0	95.3	95.6
Exiting Leg Total	889					756					761					996					3402
Heavy Vehicles	6	17	19	0	42	16	12	2	0	30	6	27	12	0	45	0	39	0	0	39	156
% Heavy Vehicles	1.7	2.9	26.8	0.0	4.1	25.8	2.3	1.4	0.0	4.2	3.9	4.0	7.5	0.0	4.6	0.0	6.6	0.0	0.0	4.7	4.4
Exiting Leg Total	43					64					19					30					156

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	51	95	7	0	153	5	72	20	0	97	21	105	22	0	148	6	80	20	0	106	504
5:30 PM	47	84	9	0	140	7	65	23	0	95	22	92	22	0	136	0	81	19	0	100	471
5:45 PM	47	67	10	0	124	13	71	11	0	95	25	117	6	1	149	7	74	37	0	118	486
6:00 PM	41	78	11	0	130	9	50	13	0	72	24	90	23	0	137	3	78	28	0	109	448
Total Volume	186	324	37	0	547	34	258	67	0	359	92	404	73	1	570	16	313	104	0	433	1909
% Approach Total	34.0	59.2	6.8	0.0		9.5	71.9	18.7	0.0		16.1	70.9	12.8	0.2		3.7	72.3	24.0	0.0		
PHF	0.912	0.853	0.841	0.000	0.894	0.654	0.896	0.728	0.000	0.925	0.920	0.863	0.793	0.250	0.956	0.571	0.966	0.703	0.000	0.917	0.947
Cars	183	317	26	0	526	26	250	66	0	342	89	395	68	1	553	16	297	104	0	417	1838
Cars %	98.4	97.8	70.3	0.0	96.2	76.5	96.9	98.5	0.0	95.3	96.7	97.8	93.2	100.0	97.0	100.0	94.9	100.0	0.0	96.3	96.3
Heavy Vehicles	3	7	11	0	21	8	8	1	0	17	3	9	5	0	17	0	16	0	0	16	71
Heavy Vehicles %	1.6	2.2	29.7	0.0	3.8	23.5	3.1	1.5	0.0	4.7	3.3	2.2	6.8	0.0	3.0	0.0	5.1	0.0	0.0	3.7	3.7
Cars Enter Leg	183	317	26	0	526	26	250	66	0	342	89	395	68	1	553	16	297	104	0	417	1838
Heavy Enter Leg	3	7	11	0	21	8	8	1	0	17	3	9	5	0	17	0	16	0	0	16	71
Total Entering Leg	186	324	37	0	547	34	258	67	0	359	92	404	73	1	570	16	313	104	0	433	1909
Cars Exiting Leg	525					412					400					501					1838
Heavy Exiting Leg	17					30					8					16					71
Total Exiting Leg	542					442					408					517					1909

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	42	56	7	0	105	8	63	15	0	86	9	50	17	0	76	4	82	21	0	107	374
4:45 PM	42	68	9	0	119	6	58	18	1	83	11	58	18	0	87	3	65	20	0	88	377
Total	84	124	16	0	224	14	121	33	1	169	20	108	35	0	163	7	147	41	0	195	751
5:00 PM	38	70	5	0	113	4	70	29	0	103	18	77	22	0	117	6	58	32	0	96	429
5:15 PM	50	92	5	0	147	4	68	19	0	91	20	104	21	0	145	6	76	20	0	102	485
5:30 PM	47	84	6	0	137	5	63	23	0	91	21	90	20	0	131	0	76	19	0	95	454
5:45 PM	45	66	7	0	118	11	70	11	0	92	25	112	6	1	144	7	70	37	0	114	468
Total	180	312	23	0	515	24	271	82	0	377	84	383	69	1	537	19	280	108	0	407	1836
6:00 PM	41	75	8	0	124	6	49	13	0	68	23	89	21	0	133	3	75	28	0	106	431
6:15 PM	42	66	5	0	113	2	59	16	0	77	21	60	24	1	106	9	53	26	0	88	384
Total	83	141	13	0	237	8	108	29	0	145	44	149	45	1	239	12	128	54	0	194	815
Grand Total	347	577	52	0	976	46	500	144	1	691	148	640	149	2	939	38	555	203	0	796	3402
Approach %	35.6	59.1	5.3	0.0		6.7	72.4	20.8	0.1		15.8	68.2	15.9	0.2		4.8	69.7	25.5	0.0		
Total %	10.2	17.0	1.5	0.0	28.7	1.4	14.7	4.2	0.0	20.3	4.4	18.8	4.4	0.1	27.6	1.1	16.3	6.0	0.0	23.4	
Exiting Leg Total	889					756					761					996					3402

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	50	92	5	0	147	4	68	19	0	91	20	104	21	0	145	6	76	20	0	102	485
5:30 PM	47	84	6	0	137	5	63	23	0	91	21	90	20	0	131	0	76	19	0	95	454
5:45 PM	45	66	7	0	118	11	70	11	0	92	25	112	6	1	144	7	70	37	0	114	468
6:00 PM	41	75	8	0	124	6	49	13	0	68	23	89	21	0	133	3	75	28	0	106	431
Total Volume	183	317	26	0	526	26	250	66	0	342	89	395	68	1	553	16	297	104	0	417	1838
% Approach Total	34.8	60.3	4.9	0.0		7.6	73.1	19.3	0.0		16.1	71.4	12.3	0.2		3.8	71.2	24.9	0.0		
PHF	0.915	0.861	0.813	0.000	0.895	0.591	0.893	0.717	0.000	0.929	0.890	0.882	0.810	0.250	0.953	0.571	0.977	0.703	0.000	0.914	0.947
Entering Leg	183	317	26	0	526	26	250	66	0	342	89	395	68	1	553	16	297	104	0	417	1838
Exiting Leg	525					412					400					501					1838
Total	1051					754					953					918					3676

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	4	1	0	6	2	2	0	0	4	1	8	1	0	10	0	7	0	0	7	27
4:45 PM	0	0	2	0	2	2	0	1	0	3	1	4	3	0	8	0	7	0	0	7	20
Total	1	4	3	0	8	4	2	1	0	7	2	12	4	0	18	0	14	0	0	14	47
5:00 PM	1	3	3	0	7	2	0	0	0	2	0	5	1	0	6	0	3	0	0	3	18
5:15 PM	1	3	2	0	6	1	4	1	0	6	1	1	1	0	3	0	4	0	0	4	19
5:30 PM	0	0	3	0	3	2	2	0	0	4	1	2	2	0	5	0	5	0	0	5	17
5:45 PM	2	1	3	0	6	2	1	0	0	3	0	5	0	0	5	0	4	0	0	4	18
Total	4	7	11	0	22	7	7	1	0	15	2	13	4	0	19	0	16	0	0	16	72
6:00 PM	0	3	3	0	6	3	1	0	0	4	1	1	2	0	4	0	3	0	0	3	17
6:15 PM	1	3	2	0	6	2	2	0	0	4	1	1	2	0	4	0	6	0	0	6	20
Total	1	6	5	0	12	5	3	0	0	8	2	2	4	0	8	0	9	0	0	9	37
Grand Total	6	17	19	0	42	16	12	2	0	30	6	27	12	0	45	0	39	0	0	39	156
Approach %	14.3	40.5	45.2	0.0		53.3	40.0	6.7	0.0		13.3	60.0	26.7	0.0		0.0	100.0	0.0	0.0		
Total %	3.8	10.9	12.2	0.0	26.9	10.3	7.7	1.3	0.0	19.2	3.8	17.3	7.7	0.0	28.8	0.0	25.0	0.0	0.0	25.0	
Exiting Leg Total	43					64					19					30					156
Buses	2	14	15	0	31	14	9	1	0	24	3	11	11	0	25	0	32	0	0	32	112
% Buses	33.3	82.4	78.9	0.0	73.8	87.5	75.0	50.0	0.0	80.0	50.0	40.7	91.7	0.0	55.6	0.0	82.1	0.0	0.0	82.1	71.8
Exiting Leg Total	25					50					15					22					112
Single-Unit Trucks	4	2	3	0	9	2	3	1	0	6	3	13	1	0	17	0	6	0	0	6	38
% Single-Unit	66.7	11.8	15.8	0.0	21.4	12.5	25.0	50.0	0.0	20.0	50.0	48.1	8.3	0.0	37.8	0.0	15.4	0.0	0.0	15.4	24.4
Exiting Leg Total	15					12					3					8					38
Articulated Trucks	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	6
% Articulated	0.0	5.9	5.3	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	6.7	0.0	2.6	0.0	0.0	2.6	3.8
Exiting Leg Total	3					2					1					0					6

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	4	1	0	6	2	2	0	0	4	1	8	1	0	10	0	7	0	0	7	27
4:45 PM	0	0	2	0	2	2	0	1	0	3	1	4	3	0	8	0	7	0	0	7	20
5:00 PM	1	3	3	0	7	2	0	0	0	2	0	5	1	0	6	0	3	0	0	3	18
5:15 PM	1	3	2	0	6	1	4	1	0	6	1	1	1	0	3	0	4	0	0	4	19
Total Volume	3	10	8	0	21	7	6	2	0	15	3	18	6	0	27	0	21	0	0	21	84
% Approach Total	14.3	47.6	38.1	0.0		46.7	40.0	13.3	0.0		11.1	66.7	22.2	0.0		0.0	100.0	0.0	0.0		
PHF	0.750	0.625	0.667	0.000	0.750	0.875	0.375	0.500	0.000	0.625	0.750	0.563	0.500	0.000	0.675	0.000	0.750	0.000	0.000	0.750	0.778
Buses	2	8	7	0	17	7	3	1	0	11	1	7	6	0	14	0	17	0	0	17	59
Buses %	66.7	80.0	87.5	0.0	81.0	100.0	50.0	50.0	0.0	73.3	33.3	38.9	100.0	0.0	51.9	0.0	81.0	0.0	0.0	81.0	70.2
Single-Unit Trucks	1	1	1	0	3	0	3	1	0	4	2	9	0	0	11	0	4	0	0	4	22
Single-Unit %	33.3	10.0	12.5	0.0	14.3	0.0	50.0	50.0	0.0	26.7	66.7	50.0	0.0	0.0	40.7	0.0	19.0	0.0	0.0	19.0	26.2
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Articulated %	0.0	10.0	0.0	0.0	4.8	0.0	0.0	0.0	0.0	0.0	0.0	11.1	0.0	0.0	7.4	0.0	0.0	0.0	0.0	0.0	3.6
Buses	2	8	7	0	17	7	3	1	0	11	1	7	6	0	14	0	17	0	0	17	59
Single-Unit Trucks	1	1	1	0	3	0	3	1	0	4	2	9	0	0	11	0	4	0	0	4	22
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	3
Total Entering Leg	3	10	8	0	21	7	6	2	0	15	3	18	6	0	27	0	21	0	0	21	84
Buses	14					25					9					11					59
Single-Unit Trucks	9					7					2					4					22
Articulated Trucks	2					0					1					0					3
Total Exiting Leg	25					32					12					15					84

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	2	1	0	3	2	1	0	0	3	0	3	1	0	4	0	5	0	0	5	15
4:45 PM	0	0	2	0	2	2	0	0	0	2	1	2	3	0	6	0	6	0	0	6	16
Total	0	2	3	0	5	4	1	0	0	5	1	5	4	0	10	0	11	0	0	11	31
5:00 PM	1	3	2	0	6	2	0	0	0	2	0	2	1	0	3	0	2	0	0	2	13
5:15 PM	1	3	2	0	6	1	2	1	0	4	0	0	1	0	1	0	4	0	0	4	15
5:30 PM	0	0	2	0	2	2	2	0	0	4	1	1	2	0	4	0	3	0	0	3	13
5:45 PM	0	1	3	0	4	1	1	0	0	2	0	3	0	0	3	0	3	0	0	3	12
Total	2	7	9	0	18	6	5	1	0	12	1	6	4	0	11	0	12	0	0	12	53
6:00 PM	0	3	2	0	5	2	1	0	0	3	1	0	1	0	2	0	3	0	0	3	13
6:15 PM	0	2	1	0	3	2	2	0	0	4	0	0	2	0	2	0	6	0	0	6	15
Total	0	5	3	0	8	4	3	0	0	7	1	0	3	0	4	0	9	0	0	9	28
Grand Total	2	14	15	0	31	14	9	1	0	24	3	11	11	0	25	0	32	0	0	32	112
Approach %	6.5	45.2	48.4	0.0		58.3	37.5	4.2	0.0		12.0	44.0	44.0	0.0		0.0	100.0	0.0	0.0		
Total %	1.8	12.5	13.4	0.0	27.7	12.5	8.0	0.9	0.0	21.4	2.7	9.8	9.8	0.0	22.3	0.0	28.6	0.0	0.0	28.6	
Exiting Leg Total	25					50					15					22					112

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	2	1	0	3	2	1	0	0	3	0	3	1	0	4	0	5	0	0	5	15
4:45 PM	0	0	2	0	2	2	0	0	0	2	1	2	3	0	6	0	6	0	0	6	16
5:00 PM	1	3	2	0	6	2	0	0	0	2	0	2	1	0	3	0	2	0	0	2	13
5:15 PM	1	3	2	0	6	1	2	1	0	4	0	0	1	0	1	0	4	0	0	4	15
Total Volume	2	8	7	0	17	7	3	1	0	11	1	7	6	0	14	0	17	0	0	17	59
% Approach Total	11.8	47.1	41.2	0.0		63.6	27.3	9.1	0.0		7.1	50.0	42.9	0.0		0.0	100.0	0.0	0.0		
PHF	0.500	0.667	0.875	0.000	0.708	0.875	0.375	0.250	0.000	0.688	0.250	0.583	0.500	0.000	0.583	0.000	0.708	0.000	0.000	0.708	0.922
Entering Leg	2	8	7	0	17	7	3	1	0	11	1	7	6	0	14	0	17	0	0	17	59
Exiting Leg	14					25					9					11					59
Total	31					36					23					28					118

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	0	0	2	0	1	0	0	1	1	4	0	0	5	0	2	0	0	2	10
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	1	0	0	1	4
Total	1	1	0	0	2	0	1	1	0	2	1	6	0	0	7	0	3	0	0	3	14
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	4
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	1	0	0	2	0	0	0	0	0	4
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	3
5:45 PM	2	0	0	0	2	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	4
Total	2	0	1	0	3	1	2	0	0	3	1	5	0	0	6	0	3	0	0	3	15
6:00 PM	0	0	1	0	1	1	0	0	0	1	0	1	1	0	2	0	0	0	0	0	4
6:15 PM	1	1	1	0	3	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	5
Total	1	1	2	0	4	1	0	0	0	1	1	2	1	0	4	0	0	0	0	0	9
Grand Total	4	2	3	0	9	2	3	1	0	6	3	13	1	0	17	0	6	0	0	6	38
Approach %	44.4	22.2	33.3	0.0		33.3	50.0	16.7	0.0		17.6	76.5	5.9	0.0		0.0	100.0	0.0	0.0		
Total %	10.5	5.3	7.9	0.0	23.7	5.3	7.9	2.6	0.0	15.8	7.9	34.2	2.6	0.0	44.7	0.0	15.8	0.0	0.0	15.8	
Exiting Leg Total	15					12					3					8					38

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	0	0	2	0	1	0	0	1	1	4	0	0	5	0	2	0	0	2	10
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	2	0	0	2	0	1	0	0	1	4
5:00 PM	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	4
5:15 PM	0	0	0	0	0	0	2	0	0	2	1	1	0	0	2	0	0	0	0	0	4
Total Volume	1	1	1	0	3	0	3	1	0	4	2	9	0	0	11	0	4	0	0	4	22
% Approach Total	33.3	33.3	33.3	0.0		0.0	75.0	25.0	0.0		18.2	81.8	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.250	0.250	0.250	0.000	0.375	0.000	0.375	0.250	0.000	0.500	0.500	0.563	0.000	0.000	0.550	0.000	0.500	0.000	0.000	0.500	0.550
Entering Leg	1	1	1	0	3	0	3	1	0	4	2	9	0	0	11	0	4	0	0	4	22
Exiting Leg					9					7					2					4	22
Total	12					11					13					8					44

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
Total	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	1	1	0	2	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	6
Approach %	0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
Total %	0.0	16.7	16.7	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	50.0	0.0	0.0	50.0	0.0	16.7	0.0	0.0	16.7	
Exiting Leg Total	3					2					1					0					6

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way					Broadway					Galileo Galilei Way					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
Total Volume	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	4
% Approach Total	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.500	0.000	0.250	0.000	0.000	0.250	0.500
Entering Leg	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	4
Exiting Leg	2					2					0					0					4
Total	3					2					2					1					8

PDI File #: **196867 (19) pm**
 Location: **N: Galileo Galilei Way S: Galileo Galilei Way**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Galileo Galilei Way							Broadway							Galileo Galilei Way							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	1	3	0	0	0	29	33	0	1	1	0	0	0	2	1	2	3	0	1	1	8	2	1	1	0	1	0	5	48
4:45 PM	2	3	0	0	0	0	25	30	0	2	0	0	0	0	2	1	7	5	0	0	0	13	0	7	0	0	0	7	52
Total	3	6	0	0	0	54	63	0	3	1	0	0	0	4	2	9	8	0	1	1	21	2	8	1	0	1	0	12	100
5:00 PM	2	6	0	0	0	52	60	0	2	1	0	0	0	3	1	8	8	0	1	2	20	0	3	0	0	0	0	3	86
5:15 PM	5	2	0	0	0	64	71	0	3	2	0	0	0	5	1	6	8	0	3	0	18	0	0	1	0	0	1	2	96
5:30 PM	0	6	0	0	0	77	83	0	0	1	0	0	0	1	0	20	10	0	2	5	37	1	0	1	0	0	0	2	123
5:45 PM	3	7	0	0	0	82	92	0	0	2	0	0	0	2	0	9	4	0	1	20	34	0	0	1	0	0	0	1	129
Total	10	21	0	0	0	275	306	0	5	6	0	0	0	11	2	43	30	0	7	27	109	1	3	3	0	0	1	8	434
6:00 PM	1	2	2	0	0	50	55	0	0	1	0	0	0	1	0	10	17	0	6	8	41	0	0	0	0	0	0	0	97
6:15 PM	0	9	0	0	0	49	58	0	0	2	0	0	0	2	0	3	13	0	2	5	23	0	0	0	0	0	1	1	84
Total	1	11	2	0	0	99	113	0	0	3	0	0	0	3	0	13	30	0	8	13	64	0	0	0	0	0	1	1	181
Grand Total	14	38	2	0	0	428	482	0	8	10	0	0	0	18	4	65	68	0	16	41	194	3	11	4	0	1	2	21	715
Approach %	2.9	7.9	0.4	0.0	0.0	88.8		0.0	44.4	55.6	0.0	0.0	0.0		2.1	33.5	35.1	0.0	8.2	21.1		14.3	52.4	19.0	0.0	4.8	9.5		
Total %	2.0	5.3	0.3	0.0	0.0	59.9	67.4	0.0	1.1	1.4	0.0	0.0	0.0	2.5	0.6	9.1	9.5	0.0	2.2	5.7	27.1	0.4	1.5	0.6	0.0	0.1	0.3	2.9	
Exiting Leg Total	497							17							108							93							715

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Galileo Galilei Way							Broadway							Galileo Galilei Way							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:15 PM	5	2	0	0	0	64	71	0	3	2	0	0	0	5	1	6	8	0	3	0	18	0	0	1	0	0	1	2	96
5:30 PM	0	6	0	0	0	77	83	0	0	1	0	0	0	1	0	20	10	0	2	5	37	1	0	1	0	0	0	2	123
5:45 PM	3	7	0	0	0	82	92	0	0	2	0	0	0	2	0	9	4	0	1	20	34	0	0	1	0	0	0	1	129
6:00 PM	1	2	2	0	0	50	55	0	0	1	0	0	0	1	0	10	17	0	6	8	41	0	0	0	0	0	0	0	97
Total Volume	9	17	2	0	0	273	301	0	3	6	0	0	0	9	1	45	39	0	12	33	130	1	0	3	0	0	1	5	445
% Approach Total	3.0	5.6	0.7	0.0	0.0	90.7		0.0	33.3	66.7	0.0	0.0	0.0		0.8	34.6	30.0	0.0	9.2	25.4		20.0	0.0	60.0	0.0	0.0	20.0		
PHF	0.450	0.607	0.250	0.000	0.000	0.832	0.818	0.000	0.250	0.750	0.000	0.000	0.000	0.450	0.250	0.563	0.574	0.000	0.500	0.413	0.793	0.250	0.000	0.750	0.000	0.000	0.250	0.625	0.862
Entering Leg	9	17	2	0	0	273	301	0	3	6	0	0	0	9	1	45	39	0	12	33	130	1	0	3	0	0	1	5	445
Exiting Leg	321							3							69							52							445
Total	622							12							199							57							890

PDI File #: 196867 (19) pm
 Location: N: Galileo Galilei Way S: Galileo Galilei Way
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Pedestrians

	Galileo Galilei Way								Broadway								Galileo Galilei Way								Broadway								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	105	159	0	0	0	0	15	50	65	224			
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	47	98	145	0	0	0	0	18	49	67	213			
Total	0	0	0	0	0	1	1		0	0	0	0	0	0	0	0	0	0	101	203	304	0	0	0	0	33	99	132	437				
5:00 PM	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0	0	65	173	238	0	0	0	0	47	88	135	373				
5:15 PM	0	0	0	0	1	1	2		0	0	0	0	1	1	2	0	0	0	92	136	228	0	0	0	0	46	77	123	355				
5:30 PM	0	0	0	0	0	3	3		0	0	0	0	0	0	0	0	0	0	102	117	219	0	0	0	0	37	58	95	317				
5:45 PM	0	0	0	0	1	5	6		0	0	0	0	4	0	4	0	0	0	108	128	236	0	0	0	0	36	48	84	330				
Total	0	0	0	0	2	9	11		0	0	0	0	5	1	6	0	0	0	367	554	921	0	0	0	0	166	271	437	1375				
6:00 PM	0	0	0	0	0	2	2		0	0	0	0	0	0	0	0	0	0	73	90	163	0	0	0	0	23	32	55	220				
6:15 PM	0	0	0	0	0	6	6		0	0	0	0	0	0	0	0	0	0	83	84	167	0	0	0	0	31	41	72	245				
Total	0	0	0	0	0	8	8		0	0	0	0	0	0	0	0	0	0	156	174	330	0	0	0	0	54	73	127	465				
Grand Total	0	0	0	0	2	18	20		0	0	0	0	5	1	6	0	0	0	624	931	1555	0	0	0	0	253	443	696	2277				
Approach %	0	0	0	0	10	90		0	0	0	0	83.3	16.7		0	0	0	0	40.1	59.9		0	0	0	0	36.4	63.6						
Total %	0	0	0	0	0.09	0.79	0.88		0	0	0	0	0.22	0.04	0.26		0	0	0	27.4	40.9	68.3	0	0	0	0	11.1	19.5		30.6			
Exiting Leg Total	20							6							1555							696							2277				

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way							Broadway							Galileo Galilei Way							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	173	238	0	0	0	0	47	88	135	373
5:15 PM	0	0	0	0	1	1	2	0	0	0	0	1	1	2	0	0	0	0	92	136	228	0	0	0	0	46	77	123	355
5:30 PM	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	102	117	219	0	0	0	0	37	58	95	317
5:45 PM	0	0	0	0	1	5	6	0	0	0	0	4	0	4	0	0	0	0	108	128	236	0	0	0	0	36	48	84	330
Total Volume	0	0	0	0	2	9	11	0	0	0	0	5	1	6	0	0	0	0	367	554	921	0	0	0	0	166	271	437	1375
% Approach Total	0.0	0.0	0.0	0.0	18.2	81.8		0.0	0.0	0.0	0.0	83.3	16.7		0.0	0.0	0.0	0.0	39.8	60.2		0.0	0.0	0.0	0.0	38.0	62.0		
PHF	0.000	0.000	0.000	0.000	0.500	0.450	0.458	0.000	0.000	0.000	0.000	0.313	0.250	0.375	0.000	0.000	0.000	0.000	0.850	0.801	0.967	0.000	0.000	0.000	0.000	0.883	0.770	0.809	0.922
Entering Leg	0	0	0	0	2	9	11	0	0	0	0	5	1	6	0	0	0	0	367	554	921	0	0	0	0	166	271	437	1375
Exiting Leg	11							6							921							437							1375
Total	22							12							1842							874							2750

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	44	42	0	86	25	0	6	0	31	22	52	0	0	74	191
7:45 AM	0	0	0	0	0	0	58	42	1	101	32	0	12	0	44	12	66	0	0	78	223
Total	0	0	0	0	0	0	102	84	1	187	57	0	18	0	75	34	118	0	0	152	414
8:00 AM	0	0	0	0	0	0	47	34	0	81	28	0	5	0	33	16	87	0	0	103	217
8:15 AM	0	0	0	0	0	0	63	52	2	117	35	0	13	0	48	19	79	0	0	98	263
8:30 AM	0	0	0	0	0	0	50	55	1	106	30	0	4	0	34	21	71	0	0	92	232
8:45 AM	0	0	0	0	0	0	60	48	1	109	33	0	9	0	42	10	89	0	0	99	250
Total	0	0	0	0	0	0	220	189	4	413	126	0	31	0	157	66	326	0	0	392	962
9:00 AM	0	0	0	0	0	0	45	41	0	86	36	0	12	0	48	14	89	0	0	103	237
9:15 AM	0	0	0	0	0	0	54	51	1	106	38	0	15	0	53	22	85	0	0	107	266
Total	0	0	0	0	0	0	99	92	1	192	74	0	27	0	101	36	174	0	0	210	503
Grand Total	0	0	0	0	0	0	421	365	6	792	257	0	76	0	333	136	618	0	0	754	1879
Approach %	0.0	0.0	0.0	0.0		0.0	53.2	46.1	0.8		77.2	0.0	22.8	0.0		18.0	82.0	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	22.4	19.4	0.3	42.2	13.7	0.0	4.0	0.0	17.7	7.2	32.9	0.0	0.0	40.1	
Exiting Leg Total	0					881					501					497					1879
Cars	0	0	0	0	0	0	385	343	6	734	232	0	40	0	272	102	565	0	0	667	1673
% Cars	0.0	0.0	0.0	0.0	0.0	0.0	91.4	94.0	100.0	92.7	90.3	0.0	52.6	0.0	81.7	75.0	91.4	0.0	0.0	88.5	89.0
Exiting Leg Total	0					803					445					425					1673
Heavy Vehicles	0	0	0	0	0	0	36	22	0	58	25	0	36	0	61	34	53	0	0	87	206
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	8.6	6.0	0.0	7.3	9.7	0.0	47.4	0.0	18.3	25.0	8.6	0.0	0.0	11.5	11.0
Exiting Leg Total	0					78					56					72					206

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
8:30 AM	0	0	0	0	0	0	50	55	1	106	30	0	4	0	34	21	71	0	0	92	232	
8:45 AM	0	0	0	0	0	0	60	48	1	109	33	0	9	0	42	10	89	0	0	99	250	
9:00 AM	0	0	0	0	0	0	45	41	0	86	36	0	12	0	48	14	89	0	0	103	237	
9:15 AM	0	0	0	0	0	0	54	51	1	106	38	0	15	0	53	22	85	0	0	107	266	
Total Volume	0	0	0	0	0	0	209	195	3	407	137	0	40	0	177	67	334	0	0	401	985	
% Approach Total	0.0	0.0	0.0	0.0		0.0	51.4	47.9	0.7		77.4	0.0	22.6	0.0		16.7	83.3	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.871	0.886	0.750	0.933	0.901	0.000	0.667	0.000	0.835	0.761	0.938	0.000	0.000	0.937	0.926	
Cars	0	0	0	0	0	0	193	183	3	379	122	0	20	0	142	51	312	0	0	363	884	
Cars %	0.0	0.0	0.0	0.0	0.0	0.0	92.3	93.8	100.0	93.1	89.1	0.0	50.0	0.0	80.2	76.1	93.4	0.0	0.0	90.5	89.7	
Heavy Vehicles	0	0	0	0	0	0	16	12	0	28	15	0	20	0	35	16	22	0	0	38	101	
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	7.7	6.2	0.0	6.9	10.9	0.0	50.0	0.0	19.8	23.9	6.6	0.0	0.0	9.5	10.3	
Cars Enter Leg	0	0	0	0	0	0	193	183	3	379	122	0	20	0	142	51	312	0	0	363	884	
Heavy Enter Leg	0	0	0	0	0	0	16	12	0	28	15	0	20	0	35	16	22	0	0	38	101	
Total Entering Leg	0	0	0	0	0	0	209	195	3	407	137	0	40	0	177	67	334	0	0	401	985	
Cars Exiting Leg																						
Heavy Exiting Leg																						
Total Exiting Leg																						

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	38	41	0	79	24	0	2	0	26	13	46	0	0	59	164
7:45 AM	0	0	0	0	0	0	55	41	1	97	28	0	8	0	36	8	58	0	0	66	199
Total	0	0	0	0	0	0	93	82	1	176	52	0	10	0	62	21	104	0	0	125	363
8:00 AM	0	0	0	0	0	0	41	30	0	71	27	0	4	0	31	14	76	0	0	90	192
8:15 AM	0	0	0	0	0	0	58	48	2	108	31	0	6	0	37	16	73	0	0	89	234
8:30 AM	0	0	0	0	0	0	45	53	1	99	26	0	2	0	28	15	66	0	0	81	208
8:45 AM	0	0	0	0	0	0	59	46	1	106	31	0	4	0	35	9	83	0	0	92	233
Total	0	0	0	0	0	0	203	177	4	384	115	0	16	0	131	54	298	0	0	352	867
9:00 AM	0	0	0	0	0	0	42	39	0	81	33	0	6	0	39	10	82	0	0	92	212
9:15 AM	0	0	0	0	0	0	47	45	1	93	32	0	8	0	40	17	81	0	0	98	231
Total	0	0	0	0	0	0	89	84	1	174	65	0	14	0	79	27	163	0	0	190	443
Grand Total	0	0	0	0	0	0	385	343	6	734	232	0	40	0	272	102	565	0	0	667	1673
Approach %	0.0	0.0	0.0	0.0		0.0	52.5	46.7	0.8		85.3	0.0	14.7	0.0		15.3	84.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	23.0	20.5	0.4	43.9	13.9	0.0	2.4	0.0	16.3	6.1	33.8	0.0	0.0	39.9	
Exiting Leg Total	0					803					445					425					1673

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
8:15 AM	0	0	0	0	0	0	58	48	2	108	31	0	6	0	37	16	73	0	0	89	234	
8:30 AM	0	0	0	0	0	0	45	53	1	99	26	0	2	0	28	15	66	0	0	81	208	
8:45 AM	0	0	0	0	0	0	59	46	1	106	31	0	4	0	35	9	83	0	0	92	233	
9:00 AM	0	0	0	0	0	0	42	39	0	81	33	0	6	0	39	10	82	0	0	92	212	
Total Volume	0	0	0	0	0	0	204	186	4	394	121	0	18	0	139	50	304	0	0	354	887	
% Approach Total	0.0	0.0	0.0	0.0		0.0	51.8	47.2	1.0		87.1	0.0	12.9	0.0		14.1	85.9	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.864	0.877	0.500	0.912	0.917	0.000	0.750	0.000	0.891	0.781	0.916	0.000	0.000	0.962	0.948	
Entering Leg	0	0	0	0	0	0	204	186	4	394	121	0	18	0	139	50	304	0	0	354	887	
Exiting Leg																					222	887
Total	0					823					375					576					1774	

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	6	1	0	7	1	0	4	0	5	9	6	0	0	15	27
7:45 AM	0	0	0	0	0	0	3	1	0	4	4	0	4	0	8	4	8	0	0	12	24
Total	0	0	0	0	0	0	9	2	0	11	5	0	8	0	13	13	14	0	0	27	51
8:00 AM	0	0	0	0	0	0	6	4	0	10	1	0	1	0	2	2	11	0	0	13	25
8:15 AM	0	0	0	0	0	0	5	4	0	9	4	0	7	0	11	3	6	0	0	9	29
8:30 AM	0	0	0	0	0	0	5	2	0	7	4	0	2	0	6	6	5	0	0	11	24
8:45 AM	0	0	0	0	0	0	1	2	0	3	2	0	5	0	7	1	6	0	0	7	17
Total	0	0	0	0	0	0	17	12	0	29	11	0	15	0	26	12	28	0	0	40	95
9:00 AM	0	0	0	0	0	0	3	2	0	5	3	0	6	0	9	4	7	0	0	11	25
9:15 AM	0	0	0	0	0	0	7	6	0	13	6	0	7	0	13	5	4	0	0	9	35
Total	0	0	0	0	0	0	10	8	0	18	9	0	13	0	22	9	11	0	0	20	60
Grand Total	0	0	0	0	0	0	36	22	0	58	25	0	36	0	61	34	53	0	0	87	206
Approach %	0.0	0.0	0.0	0.0		0.0	62.1	37.9	0.0		41.0	0.0	59.0	0.0		39.1	60.9	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	17.5	10.7	0.0	28.2	12.1	0.0	17.5	0.0	29.6	16.5	25.7	0.0	0.0	42.2	
Exiting Leg Total	0					78					56					72					206
Buses	0	0	0	0	0	0	3	3	0	6	2	0	26	0	28	24	33	0	0	57	91
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	8.3	13.6	0.0	10.3	8.0	0.0	72.2	0.0	45.9	70.6	62.3	0.0	0.0	65.5	44.2
Exiting Leg Total	0					35					27					29					91
Single-Unit Trucks	0	0	0	0	0	0	30	18	0	48	15	0	10	0	25	9	18	0	0	27	100
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	83.3	81.8	0.0	82.8	60.0	0.0	27.8	0.0	41.0	26.5	34.0	0.0	0.0	31.0	48.5
Exiting Leg Total	0					33					27					40					100
Articulated Trucks	0	0	0	0	0	0	3	1	0	4	8	0	0	0	8	1	2	0	0	3	15
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	8.3	4.5	0.0	6.9	32.0	0.0	0.0	0.0	13.1	2.9	3.8	0.0	0.0	3.4	7.3
Exiting Leg Total	0					10					2					3					15

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	6	1	0	7	1	0	4	0	5	9	6	0	0	15	27
7:45 AM	0	0	0	0	0	0	3	1	0	4	4	0	4	0	8	4	8	0	0	12	24
8:00 AM	0	0	0	0	0	0	6	4	0	10	1	0	1	0	2	2	11	0	0	13	25
8:15 AM	0	0	0	0	0	0	5	4	0	9	4	0	7	0	11	3	6	0	0	9	29
Total Volume	0	0	0	0	0	0	20	10	0	30	10	0	16	0	26	18	31	0	0	49	105
% Approach Total	0.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0		38.5	0.0	61.5	0.0		36.7	63.3	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.833	0.625	0.000	0.750	0.625	0.000	0.571	0.000	0.591	0.500	0.705	0.000	0.000	0.817	0.905
Buses	0	0	0	0	0	0	2	1	0	3	1	0	14	0	15	10	17	0	0	27	45
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	10.0	10.0	0.0	10.0	10.0	0.0	87.5	0.0	57.7	55.6	54.8	0.0	0.0	55.1	42.9
Single-Unit Trucks	0	0	0	0	0	0	17	8	0	25	3	0	2	0	5	7	13	0	0	20	50
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	85.0	80.0	0.0	83.3	30.0	0.0	12.5	0.0	19.2	38.9	41.9	0.0	0.0	40.8	47.6
Articulated Trucks	0	0	0	0	0	0	1	1	0	2	6	0	0	0	6	1	1	0	0	2	10
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	5.0	10.0	0.0	6.7	60.0	0.0	0.0	0.0	23.1	5.6	3.2	0.0	0.0	4.1	9.5
Buses	0	0	0	0	0	0	2	1	0	3	1	0	14	0	15	10	17	0	0	27	45
Single-Unit Trucks	0	0	0	0	0	0	17	8	0	25	3	0	2	0	5	7	13	0	0	20	50
Articulated Trucks	0	0	0	0	0	0	1	1	0	2	6	0	0	0	6	1	1	0	0	2	10
Total Entering Leg	0	0	0	0	0	0	20	10	0	30	10	0	16	0	26	18	31	0	0	49	105
Buses	0					18					11					16					45
Single-Unit Trucks	0					16					15					19					50
Articulated Trucks	0					7					2					1					10
Total Exiting Leg	0					41					28					36					105

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	3	3	0	0	6	10
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	3	0	4	3	4	0	0	7	12
Total	0	0	0	0	0	0	1	0	0	1	1	0	7	0	8	6	7	0	0	13	22
8:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	2	7	0	0	9	12
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	2	3	0	0	5	11
8:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	6	3	0	0	9	12
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	1	4	0	0	5	8
Total	0	0	0	0	0	0	2	1	0	3	1	0	11	0	12	11	17	0	0	28	43
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	4	6	0	0	10	14
9:15 AM	0	0	0	0	0	0	0	2	0	2	0	0	4	0	4	3	3	0	0	6	12
Total	0	0	0	0	0	0	0	2	0	2	0	0	8	0	8	7	9	0	0	16	26
Grand Total	0	0	0	0	0	0	3	3	0	6	2	0	26	0	28	24	33	0	0	57	91
Approach %	0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		7.1	0.0	92.9	0.0		42.1	57.9	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	3.3	3.3	0.0	6.6	2.2	0.0	28.6	0.0	30.8	26.4	36.3	0.0	0.0	62.6	
Exiting Leg Total	0					35					27					29					91

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	0	0	0	0	0	0	1	0	0	1	1	0	3	0	4	3	4	0	0	7	12
8:00 AM	0	0	0	0	0	0	1	1	0	2	0	0	1	0	1	2	7	0	0	9	12
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	2	3	0	0	5	11
8:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	1	0	2	6	3	0	0	9	12
Total Volume	0	0	0	0	0	0	3	1	0	4	2	0	11	0	13	13	17	0	0	30	47
% Approach Total	0.0	0.0	0.0	0.0		0.0	75.0	25.0	0.0		15.4	0.0	84.6	0.0		43.3	56.7	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.250	0.000	0.500	0.500	0.000	0.458	0.000	0.542	0.542	0.607	0.000	0.000	0.833	0.979
Entering Leg	0	0	0	0	0	0	3	1	0	4	2	0	11	0	13	13	17	0	0	30	47
Exiting Leg	0					19					14					14					47
Total	0					23					27					44					94

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	5	3	0	0	8	16
7:45 AM	0	0	0	0	0	0	2	1	0	3	1	0	1	0	2	1	4	0	0	5	10
Total	0	0	0	0	0	0	8	2	0	10	2	0	1	0	3	6	7	0	0	13	26
8:00 AM	0	0	0	0	0	0	4	3	0	7	0	0	0	0	0	0	4	0	0	4	11
8:15 AM	0	0	0	0	0	0	5	3	0	8	1	0	1	0	2	1	2	0	0	3	13
8:30 AM	0	0	0	0	0	0	4	2	0	6	2	0	1	0	3	0	2	0	0	2	11
8:45 AM	0	0	0	0	0	0	1	2	0	3	1	0	2	0	3	0	1	0	0	1	7
Total	0	0	0	0	0	0	14	10	0	24	4	0	4	0	8	1	9	0	0	10	42
9:00 AM	0	0	0	0	0	0	3	2	0	5	3	0	2	0	5	0	1	0	0	1	11
9:15 AM	0	0	0	0	0	0	5	4	0	9	6	0	3	0	9	2	1	0	0	3	21
Total	0	0	0	0	0	0	8	6	0	14	9	0	5	0	14	2	2	0	0	4	32
Grand Total	0	0	0	0	0	0	30	18	0	48	15	0	10	0	25	9	18	0	0	27	100
Approach %	0.0	0.0	0.0	0.0		0.0	62.5	37.5	0.0		60.0	0.0	40.0	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	30.0	18.0	0.0	48.0	15.0	0.0	10.0	0.0	25.0	9.0	18.0	0.0	0.0	27.0	
Exiting Leg Total	0					33					27					40					100

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
7:30 AM	0	0	0	0	0	0	6	1	0	7	1	0	0	0	1	5	3	0	0	8	16	
7:45 AM	0	0	0	0	0	0	2	1	0	3	1	0	1	0	2	1	4	0	0	5	10	
8:00 AM	0	0	0	0	0	0	4	3	0	7	0	0	0	0	0	0	4	0	0	4	11	
8:15 AM	0	0	0	0	0	0	5	3	0	8	1	0	1	0	2	1	2	0	0	3	13	
Total Volume	0	0	0	0	0	0	17	8	0	25	3	0	2	0	5	7	13	0	0	20	50	
% Approach Total	0.0	0.0	0.0	0.0		0.0	68.0	32.0	0.0		60.0	0.0	40.0	0.0		35.0	65.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.708	0.667	0.000	0.781	0.750	0.000	0.500	0.000	0.625	0.350	0.813	0.000	0.000	0.625	0.781	
Entering Leg	0	0	0	0	0	0	17	8	0	25	3	0	2	0	5	7	13	0	0	20	50	
Exiting Leg																					19	50
Total	0					41					20					39					100	

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	1
8:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	0	3	0	1	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	2
Total	0	0	0	0	0	0	1	1	0	2	6	0	0	0	0	6	0	2	0	0	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	3	1	0	4	8	0	0	0	8	1	2	0	0	3	15
Approach %	0.0	0.0	0.0	0.0		0.0	75.0	25.0	0.0		100.0	0.0	0.0	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	20.0	6.7	0.0	26.7	53.3	0.0	0.0	0.0	53.3	6.7	13.3	0.0	0.0	20.0	
Exiting Leg Total	0					10					2					3					15

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Pedestrian Walkway					Broadway					Ames Street					Broadway						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	2
8:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	1	0	1	3	0	0	0	3	0	1	0	0	0	1	5
Total Volume	0	0	0	0	0	0	1	1	0	2	6	0	0	0	6	1	1	0	0	2	10	
% Approach Total	0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		100.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500	0.500	0.000	0.000	0.000	0.500	0.250	0.250	0.000	0.000	0.500	0.500	
Entering Leg	0	0	0	0	0	0	1	1	0	2	6	0	0	0	6	1	1	0	0	2	10	
Exiting Leg					0					7					2					1	10	
Total					0					9					8					3	20	

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Pedestrian Walkway							Broadway							Ames Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	2	0	0	0	0	2	1	2	1	0	1	0	5	1	0	1	0	0	0	2	0	33	0	0	0	0	33	42
7:45 AM	0	0	0	0	0	0	0	1	6	0	0	1	0	8	0	1	0	0	1	1	3	4	40	0	0	0	0	44	55
Total	0	2	0	0	0	0	2	2	8	1	0	2	0	13	1	1	1	0	1	1	5	4	73	0	0	0	0	77	97
8:00 AM	0	2	0	0	0	0	2	0	5	2	0	0	0	7	0	0	1	0	0	1	2	3	66	0	0	0	0	69	80
8:15 AM	0	2	0	0	0	0	2	0	3	0	0	0	0	3	3	1	0	0	0	1	5	9	70	0	0	0	0	79	89
8:30 AM	0	5	0	0	0	0	5	0	2	3	0	0	0	5	2	1	0	0	0	3	6	5	87	0	0	0	1	93	109
8:45 AM	0	6	1	0	0	0	7	0	3	0	0	0	0	3	1	1	2	0	0	3	7	12	73	0	0	0	0	85	102
Total	0	15	1	0	0	0	16	0	13	5	0	0	0	18	6	3	3	0	0	8	20	29	296	0	0	0	1	326	380
9:00 AM	0	3	3	0	0	0	6	0	2	2	0	0	0	4	1	1	0	0	0	1	3	9	68	0	0	0	0	77	90
9:15 AM	0	5	1	0	0	0	6	0	5	1	0	0	0	6	1	3	0	0	0	0	4	8	42	0	0	0	0	50	66
Total	0	8	4	0	0	0	12	0	7	3	0	0	0	10	2	4	0	0	0	1	7	17	110	0	0	0	0	127	156
Grand Total	0	25	5	0	0	0	30	2	28	9	0	2	0	41	9	8	4	0	1	10	32	50	479	0	0	0	1	530	633
Approach %	0.0	83.3	16.7	0.0	0.0	0.0		4.9	68.3	22.0	0.0	4.9	0.0		28.1	25.0	12.5	0.0	3.1	31.3		9.4	90.4	0.0	0.0	0.0	0.2		
Total %	0.0	3.9	0.8	0.0	0.0	0.0	4.7	0.3	4.4	1.4	0.0	0.3	0.0	6.5	1.4	1.3	0.6	0.0	0.2	1.6	5.1	7.9	75.7	0.0	0.0	0.0	0.2	83.7	
Exiting Leg Total	10							495							95							33							633

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Pedestrian Walkway							Broadway							Ames Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	2	0	0	0	0	2	0	3	0	0	0	0	3	3	1	0	0	0	1	5	9	70	0	0	0	0	79	89
8:30 AM	0	5	0	0	0	0	5	0	2	3	0	0	0	5	2	1	0	0	0	3	6	5	87	0	0	0	1	93	109
8:45 AM	0	6	1	0	0	0	7	0	3	0	0	0	0	3	1	1	2	0	0	3	7	12	73	0	0	0	0	85	102
9:00 AM	0	3	3	0	0	0	6	0	2	2	0	0	0	4	1	1	0	0	0	1	3	9	68	0	0	0	0	77	90
Total Volume	0	16	4	0	0	0	20	0	10	5	0	0	0	15	7	4	2	0	0	8	21	35	298	0	0	0	1	334	390
% Approach Total	0.0	80.0	20.0	0.0	0.0	0.0		0.0	66.7	33.3	0.0	0.0	0.0		33.3	19.0	9.5	0.0	0.0	38.1		10.5	89.2	0.0	0.0	0.0	0.3		
PHF	0.000	0.667	0.333	0.000	0.000	0.000	0.714	0.000	0.833	0.417	0.000	0.000	0.000	0.750	0.583	1.000	0.250	0.000	0.000	0.667	0.750	0.729	0.856	0.000	0.000	0.000	0.250	0.898	0.894
Entering Leg	0	16	4	0	0	0	20	0	10	5	0	0	0	15	7	4	2	0	0	8	21	35	298	0	0	0	1	334	390
Exiting Leg	4							309							64							13							390
Total	24							324							85							347							780

PDI File #: **196867 (20) am**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Pedestrian Walkway							Broadway							Ames Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	4	4	8	0	0	0	0	9	22	31	0	0	0	0	79	29	108	0	0	0	0	21	11	32	179
7:45 AM	0	0	0	0	3	5	8	0	0	0	0	11	13	24	0	0	0	0	86	41	127	0	0	0	0	11	9	20	179
Total	0	0	0	0	7	9	16	0	0	0	0	20	35	55	0	0	0	0	165	70	235	0	0	0	0	32	20	52	358
8:00 AM	0	0	0	0	9	3	12	0	0	0	0	8	14	22	0	0	0	0	93	54	147	0	0	0	0	35	12	47	228
8:15 AM	0	0	0	0	4	6	10	0	0	0	0	18	16	34	0	0	0	0	103	63	166	0	0	0	0	33	18	51	261
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	16	19	35	0	0	0	0	179	64	243	0	0	0	0	39	19	58	336
8:45 AM	0	0	0	0	1	3	4	0	0	0	0	24	10	34	0	0	0	0	91	56	147	0	0	0	0	38	26	64	249
Total	0	0	0	0	14	12	26	0	0	0	0	66	59	125	0	0	0	0	466	237	703	0	0	0	0	145	75	220	1074
9:00 AM	0	0	0	0	0	4	4	0	0	0	0	14	8	22	0	0	0	0	135	42	177	0	0	0	0	32	20	52	255
9:15 AM	0	0	0	0	3	0	3	0	0	0	0	24	14	38	0	0	0	0	103	41	144	0	0	0	0	27	19	46	231
Total	0	0	0	0	3	4	7	0	0	0	0	38	22	60	0	0	0	0	238	83	321	0	0	0	0	59	39	98	486
Grand Total	0	0	0	0	24	25	49	0	0	0	0	124	116	240	0	0	0	0	869	390	1259	0	0	0	0	236	134	370	1918
Approach %	0	0	0	0	49	51		0	0	0	0	51.7	48.3		0	0	0	0	69	31		0	0	0	0	63.8	36.2		
Total %	0	0	0	0	1.25	1.3	2.55	0	0	0	0	6.47	6.05	12.5	0	0	0	0	45.3	20.3	65.6	0	0	0	0	12.3	6.99	19.3	
Exiting Leg Total	49							240							1259							370							1918

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Pedestrian Walkway							Broadway							Ames Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:15 AM	0	0	0	0	4	6	10	0	0	0	0	18	16	34	0	0	0	0	103	63	166	0	0	0	0	33	18	51	261
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	16	19	35	0	0	0	0	179	64	243	0	0	0	0	39	19	58	336
8:45 AM	0	0	0	0	1	3	4	0	0	0	0	24	10	34	0	0	0	0	91	56	147	0	0	0	0	38	26	64	249
9:00 AM	0	0	0	0	0	4	4	0	0	0	0	14	8	22	0	0	0	0	135	42	177	0	0	0	0	32	20	52	255
Total Volume	0	0	0	0	5	13	18	0	0	0	0	72	53	125	0	0	0	0	508	225	733	0	0	0	0	142	83	225	1101
% Approach Total	0.0	0.0	0.0	0.0	27.8	72.2		0.0	0.0	0.0	0.0	57.6	42.4		0.0	0.0	0.0	0.0	69.3	30.7		0.0	0.0	0.0	0.0	63.1	36.9		
PHF	0.000	0.000	0.000	0.000	0.313	0.542	0.450	0.000	0.000	0.000	0.000	0.750	0.697	0.893	0.000	0.000	0.000	0.000	0.709	0.879	0.754	0.000	0.000	0.000	0.000	0.910	0.798	0.879	0.819
Entering Leg	0	0	0	0	5	13	18	0	0	0	0	72	53	125	0	0	0	0	508	225	733	0	0	0	0	142	83	225	1101
Exiting Leg	18							125							733							225							1101
Total	36							250							1466							450							2202

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	47	37	4	88	32	0	16	0	48	10	89	0	0	99	235
4:45 PM	0	0	0	0	0	0	58	24	1	83	25	0	10	1	36	12	90	0	0	102	221
Total	0	0	0	0	0	0	105	61	5	171	57	0	26	1	84	22	179	0	0	201	456
5:00 PM	0	0	0	0	0	0	69	29	3	101	34	0	13	0	47	12	75	0	0	87	235
5:15 PM	0	0	0	0	0	0	58	30	0	88	49	0	22	0	71	10	90	0	0	100	259
5:30 PM	0	0	0	0	0	0	56	40	1	97	41	0	13	1	55	16	96	0	0	112	264
5:45 PM	0	0	0	0	0	0	45	47	0	92	50	0	17	0	67	14	90	0	0	104	263
Total	0	0	0	0	0	0	228	146	4	378	174	0	65	1	240	52	351	0	0	403	1021
6:00 PM	0	0	0	0	0	0	43	31	0	74	44	0	11	0	55	14	107	0	0	121	250
6:15 PM	0	0	0	0	0	0	47	27	0	74	43	0	18	0	61	14	71	0	0	85	220
Total	0	0	0	0	0	0	90	58	0	148	87	0	29	0	116	28	178	0	0	206	470
Grand Total	0	0	0	0	0	0	423	265	9	697	318	0	120	2	440	102	708	0	0	810	1947
Approach %	0.0	0.0	0.0	0.0		0.0	60.7	38.0	1.3		72.3	0.0	27.3	0.5		12.6	87.4	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	21.7	13.6	0.5	35.8	16.3	0.0	6.2	0.1	22.6	5.2	36.4	0.0	0.0	41.6	
Exiting Leg Total	0					1035					369					543					1947
Cars	0	0	0	0	0	0	422	255	9	686	308	0	96	2	406	78	665	0	0	743	1835
% Cars	0.0	0.0	0.0	0.0	0.0	0.0	99.8	96.2	100.0	98.4	96.9	0.0	80.0	100.0	92.3	76.5	93.9	0.0	0.0	91.7	94.2
Exiting Leg Total	0					982					335					518					1835
Heavy Vehicles	0	0	0	0	0	0	1	10	0	11	10	0	24	0	34	24	43	0	0	67	112
% Heavy Vehicles	0.0	0.0	0.0	0.0	0.0	0.0	0.2	3.8	0.0	1.6	3.1	0.0	20.0	0.0	7.7	23.5	6.1	0.0	0.0	8.3	5.8
Exiting Leg Total	0					53					34					25					112

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
5:15 PM	0	0	0	0	0	0	58	30	0	88	49	0	22	0	71	10	90	0	0	100	259	
5:30 PM	0	0	0	0	0	0	56	40	1	97	41	0	13	1	55	16	96	0	0	112	264	
5:45 PM	0	0	0	0	0	0	45	47	0	92	50	0	17	0	67	14	90	0	0	104	263	
6:00 PM	0	0	0	0	0	0	43	31	0	74	44	0	11	0	55	14	107	0	0	121	250	
Total Volume	0	0	0	0	0	0	202	148	1	351	184	0	63	1	248	54	383	0	0	437	1036	
% Approach Total	0.0	0.0	0.0	0.0		0.0	57.5	42.2	0.3		74.2	0.0	25.4	0.4		12.4	87.6	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.871	0.787	0.250	0.905	0.920	0.000	0.716	0.250	0.873	0.844	0.895	0.000	0.000	0.903	0.981	
Cars	0	0	0	0	0	0	201	143	1	345	177	0	53	1	231	41	364	0	0	405	981	
Cars %	0.0	0.0	0.0	0.0	0.0	0.0	99.5	96.6	100.0	98.3	96.2	0.0	84.1	100.0	93.1	75.9	95.0	0.0	0.0	92.7	94.7	
Heavy Vehicles	0	0	0	0	0	0	1	5	0	6	7	0	10	0	17	13	19	0	0	32	55	
Heavy Vehicles %	0.0	0.0	0.0	0.0	0.0	0.0	0.5	3.4	0.0	1.7	3.8	0.0	15.9	0.0	6.9	24.1	5.0	0.0	0.0	7.3	5.3	
Cars Enter Leg	0	0	0	0	0	0	201	143	1	345	177	0	53	1	231	41	364	0	0	405	981	
Heavy Enter Leg	0	0	0	0	0	0	1	5	0	6	7	0	10	0	17	13	19	0	0	32	55	
Total Entering Leg	0	0	0	0	0	0	202	148	1	351	184	0	63	1	248	54	383	0	0	437	1036	
Cars Exiting Leg																						
Heavy Exiting Leg																						
Total Exiting Leg																						

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	47	35	4	86	31	0	11	0	42	8	83	0	0	91	219
4:45 PM	0	0	0	0	0	0	58	22	1	81	25	0	8	1	34	9	82	0	0	91	206
Total	0	0	0	0	0	0	105	57	5	167	56	0	19	1	76	17	165	0	0	182	425
5:00 PM	0	0	0	0	0	0	69	28	3	100	33	0	10	0	43	10	69	0	0	79	222
5:15 PM	0	0	0	0	0	0	57	29	0	86	48	0	20	0	68	8	86	0	0	94	248
5:30 PM	0	0	0	0	0	0	56	37	1	94	38	0	10	1	49	10	90	0	0	100	243
5:45 PM	0	0	0	0	0	0	45	46	0	91	48	0	14	0	62	12	85	0	0	97	250
Total	0	0	0	0	0	0	227	140	4	371	167	0	54	1	222	40	330	0	0	370	963
6:00 PM	0	0	0	0	0	0	43	31	0	74	43	0	9	0	52	11	103	0	0	114	240
6:15 PM	0	0	0	0	0	0	47	27	0	74	42	0	14	0	56	10	67	0	0	77	207
Total	0	0	0	0	0	0	90	58	0	148	85	0	23	0	108	21	170	0	0	191	447
Grand Total	0	0	0	0	0	0	422	255	9	686	308	0	96	2	406	78	665	0	0	743	1835
Approach %	0.0	0.0	0.0	0.0		0.0	61.5	37.2	1.3		75.9	0.0	23.6	0.5		10.5	89.5	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	23.0	13.9	0.5	37.4	16.8	0.0	5.2	0.1	22.1	4.3	36.2	0.0	0.0	40.5	
Exiting Leg Total	0					982					335					518					1835

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	0	0	0	0	0	0	57	29	0	86	48	0	20	0	68	8	86	0	0	94	248
5:30 PM	0	0	0	0	0	0	56	37	1	94	38	0	10	1	49	10	90	0	0	100	243
5:45 PM	0	0	0	0	0	0	45	46	0	91	48	0	14	0	62	12	85	0	0	97	250
6:00 PM	0	0	0	0	0	0	43	31	0	74	43	0	9	0	52	11	103	0	0	114	240
Total Volume	0	0	0	0	0	0	201	143	1	345	177	0	53	1	231	41	364	0	0	405	981
% Approach Total	0.0	0.0	0.0	0.0		0.0	58.3	41.4	0.3		76.6	0.0	22.9	0.4		10.1	89.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.882	0.777	0.250	0.918	0.922	0.000	0.663	0.250	0.849	0.854	0.883	0.000	0.000	0.888	0.981
Entering Leg	0	0	0	0	0	0	201	143	1	345	177	0	53	1	231	41	364	0	0	405	981
Exiting Leg	0					542					185					254					981
Total	0					887					416					659					1962

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	2	0	2	1	0	5	0	6	2	6	0	0	8	16
4:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	3	8	0	0	11	15
Total	0	0	0	0	0	0	0	4	0	4	1	0	7	0	8	5	14	0	0	19	31
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	3	0	4	2	6	0	0	8	13
5:15 PM	0	0	0	0	0	0	1	1	0	2	1	0	2	0	3	2	4	0	0	6	11
5:30 PM	0	0	0	0	0	0	0	3	0	3	3	0	3	0	6	6	6	0	0	12	21
5:45 PM	0	0	0	0	0	0	0	1	0	1	2	0	3	0	5	2	5	0	0	7	13
Total	0	0	0	0	0	0	1	6	0	7	7	0	11	0	18	12	21	0	0	33	58
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	3	4	0	0	7	10
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	4	0	5	4	4	0	0	8	13
Total	0	0	0	0	0	0	0	0	0	0	2	0	6	0	8	7	8	0	0	15	23
Grand Total	0	0	0	0	0	0	1	10	0	11	10	0	24	0	34	24	43	0	0	67	112
Approach %	0.0	0.0	0.0	0.0		0.0	9.1	90.9	0.0		29.4	0.0	70.6	0.0		35.8	64.2	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.9	8.9	0.0	9.8	8.9	0.0	21.4	0.0	30.4	21.4	38.4	0.0	0.0	59.8	
Exiting Leg Total	0					53					34					25					112
Buses	0	0	0	0	0	0	0	7	0	7	3	0	22	0	25	18	36	0	0	54	86
% Buses	0.0	0.0	0.0	0.0	0.0	0.0	0.0	70.0	0.0	63.6	30.0	0.0	91.7	0.0	73.5	75.0	83.7	0.0	0.0	80.6	76.8
Exiting Leg Total	0					39					25					22					86
Single-Unit Trucks	0	0	0	0	0	0	1	3	0	4	6	0	2	0	8	5	7	0	0	12	24
% Single-Unit	0.0	0.0	0.0	0.0	0.0	0.0	100.0	30.0	0.0	36.4	60.0	0.0	8.3	0.0	23.5	20.8	16.3	0.0	0.0	17.9	21.4
Exiting Leg Total	0					13					8					3					24
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
% Articulated	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	2.9	4.2	0.0	0.0	0.0	1.5	1.8
Exiting Leg Total	0					1					1					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	3	8	0	0	11	15
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	3	0	4	2	6	0	0	8	13
5:15 PM	0	0	0	0	0	0	1	1	0	2	1	0	2	0	3	2	4	0	0	6	11
5:30 PM	0	0	0	0	0	0	0	3	0	3	3	0	3	0	6	6	6	0	0	12	21
Total Volume	0	0	0	0	0	0	1	7	0	8	5	0	10	0	15	13	24	0	0	37	60
% Approach Total	0.0	0.0	0.0	0.0		0.0	12.5	87.5	0.0		33.3	0.0	66.7	0.0		35.1	64.9	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.583	0.000	0.667	0.417	0.000	0.833	0.000	0.625	0.542	0.750	0.000	0.000	0.771	0.714
Buses	0	0	0	0	0	0	0	5	0	5	3	0	10	0	13	10	21	0	0	31	49
Buses %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	71.4	0.0	62.5	60.0	0.0	100.0	0.0	86.7	76.9	87.5	0.0	0.0	83.8	81.7
Single-Unit Trucks	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	2	3	0	0	5	9
Single-Unit %	0.0	0.0	0.0	0.0	0.0	0.0	100.0	28.6	0.0	37.5	20.0	0.0	0.0	0.0	6.7	15.4	12.5	0.0	0.0	13.5	15.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.0	0.0	6.7	7.7	0.0	0.0	0.0	2.7	3.3
Buses	0	0	0	0	0	0	0	5	0	5	3	0	10	0	13	10	21	0	0	31	49
Single-Unit Trucks	0	0	0	0	0	0	1	2	0	3	1	0	0	0	1	2	3	0	0	5	9
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Total Entering Leg	0	0	0	0	0	0	1	7	0	8	5	0	10	0	15	13	24	0	0	37	60
Buses	0					24					15					10					49
Single-Unit Trucks	0					4					4					1					9
Articulated Trucks	0					1					1					0					2
Total Exiting Leg	0					29					20					11					60

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	3	0	3	2	3	0	0	5	9
4:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	3	8	0	0	11	15
Total	0	0	0	0	0	0	0	3	0	3	0	0	5	0	5	5	11	0	0	16	24
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	3	0	4	2	5	0	0	7	12
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	2	3	0	0	5	8
5:30 PM	0	0	0	0	0	0	0	2	0	2	1	0	3	0	4	3	5	0	0	8	14
5:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	3	0	3	2	4	0	0	6	10
Total	0	0	0	0	0	0	0	4	0	4	3	0	11	0	14	9	17	0	0	26	44
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2	4	0	0	6	8
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	4	0	4	2	4	0	0	6	10
Total	0	0	0	0	0	0	0	0	0	0	0	0	6	0	6	4	8	0	0	12	18
Grand Total	0	0	0	0	0	0	0	7	0	7	3	0	22	0	25	18	36	0	0	54	86
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		12.0	0.0	88.0	0.0		33.3	66.7	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.1	0.0	8.1	3.5	0.0	25.6	0.0	29.1	20.9	41.9	0.0	0.0	62.8	
Exiting Leg Total	0					39					25					22					86

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	0	0	0	0	0	0	2	0	2	0	0	2	0	2	3	8	0	0	11	15
5:00 PM	0	0	0	0	0	0	0	1	0	1	1	0	3	0	4	2	5	0	0	7	12
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	2	3	0	0	5	8
5:30 PM	0	0	0	0	0	0	0	2	0	2	1	0	3	0	4	3	5	0	0	8	14
Total Volume	0	0	0	0	0	0	0	5	0	5	3	0	10	0	13	10	21	0	0	31	49
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		23.1	0.0	76.9	0.0		32.3	67.7	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.625	0.000	0.625	0.750	0.000	0.833	0.000	0.813	0.833	0.656	0.000	0.000	0.705	0.817
Entering Leg	0	0	0	0	0	0	0	5	0	5	3	0	10	0	13	10	21	0	0	31	49
Exiting Leg	0					24					15					10					49
Total	0					29					28					41					98

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	2	0	3	0	3	0	0	3	7
4:45 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	1	0	1	1	0	2	0	3	0	3	0	0	3	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	2	1	0	0	3	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	3
Total	0	0	0	0	0	0	1	2	0	3	3	0	0	0	3	2	4	0	0	6	12
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	3
Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	3	0	0	0	3	5
Grand Total	0	0	0	0	0	0	1	3	0	4	6	0	2	0	8	5	7	0	0	12	24
Approach %	0.0	0.0	0.0	0.0		0.0	25.0	75.0	0.0		75.0	0.0	25.0	0.0		41.7	58.3	0.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	4.2	12.5	0.0	16.7	25.0	0.0	8.3	0.0	33.3	20.8	29.2	0.0	0.0	50.0	
Exiting Leg Total	0					13					8					3					24

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:15 PM	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	2	1	0	0	3	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	1	0	0	1	3
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Total Volume	0	0	0	0	0	0	1	2	0	3	4	0	0	0	4	3	3	0	0	6	13
% Approach Total	0.0	0.0	0.0	0.0		0.0	33.3	66.7	0.0		100.0	0.0	0.0	0.0		50.0	50.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.500	0.000	0.375	0.500	0.000	0.000	0.000	0.500	0.375	0.750	0.000	0.000	0.500	0.650
Entering Leg	0	0	0	0	0	0	1	2	0	3	4	0	0	0	4	3	3	0	0	6	13
Exiting Leg	0					7					5					1					13
Total	0					10					9					7					26

PDI File #: **196867 (20) pm**
 Location: **N: Pedestrian Walkway S: Ames Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Approach %	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		100.0	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	50.0	0.0	0.0	0.0	50.0	50.0	0.0	0.0	0.0	50.0	
Exiting Leg Total	0					1					1					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Pedestrian Walkway					Broadway					Ames Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Total Volume	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
% Approach Total	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.250	0.000	0.000	0.000	0.250	0.250
Entering Leg	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	2
Exiting Leg	0					1					1					0					2
Total	0					1					2					1					4

PDI File #: 196867 (20) pm
 Location: N: Pedestrian Walkway S: Ames Street
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Bicycles (on Roadway and Crosswalks)

	Pedestrian Walkway							Broadway							Ames Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	2	0	0	0	2	0	26	2	0	0	0	28	0	1	1	0	0	0	2	0	3	0	0	1	0	4	36
4:45 PM	0	1	1	0	0	0	2	0	23	2	0	1	0	26	1	2	4	0	1	1	9	2	11	1	0	0	0	14	51
Total	0	1	3	0	0	0	4	0	49	4	0	1	0	54	1	3	5	0	1	1	11	2	14	1	0	1	0	18	87
5:00 PM	0	1	1	0	0	0	2	3	43	4	0	0	0	50	1	3	10	0	1	0	15	0	3	0	0	1	1	5	72
5:15 PM	0	2	0	0	0	0	2	2	61	2	0	0	0	65	3	3	6	0	0	0	12	3	4	0	0	0	1	8	87
5:30 PM	0	3	0	0	0	0	3	1	70	3	0	0	0	74	1	5	10	0	1	0	17	1	7	0	0	1	0	9	103
5:45 PM	0	0	1	0	0	0	1	0	66	4	0	1	0	71	0	4	7	0	0	1	12	1	13	0	0	4	1	19	103
Total	0	6	2	0	0	0	8	6	240	13	0	1	0	260	5	15	33	0	2	1	56	5	27	0	0	6	3	41	365
6:00 PM	0	1	0	0	0	0	1	1	45	2	0	0	0	48	1	3	6	0	0	0	10	1	12	0	0	0	0	13	72
6:15 PM	0	1	1	0	0	0	2	2	44	0	0	0	1	47	0	4	10	0	0	1	15	0	5	0	0	2	0	7	71
Total	0	2	1	0	0	0	3	3	89	2	0	0	1	95	1	7	16	0	0	1	25	1	17	0	0	2	0	20	143
Grand Total	0	9	6	0	0	0	15	9	378	19	0	2	1	409	7	25	54	0	3	3	92	8	58	1	0	9	3	79	595
Approach %	0.0	60.0	40.0	0.0	0.0	0.0		2.2	92.4	4.6	0.0	0.5	0.2		7.6	27.2	58.7	0.0	3.3	3.3		10.1	73.4	1.3	0.0	11.4	3.8		
Total %	0.0	1.5	1.0	0.0	0.0	0.0	2.5	1.5	63.5	3.2	0.0	0.3	0.2	68.7	1.2	4.2	9.1	0.0	0.5	0.5	15.5	1.3	9.7	0.2	0.0	1.5	0.5	13.3	
Exiting Leg Total	35							74							42							444							595

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Pedestrian Walkway							Broadway							Ames Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	1	1	0	0	0	2	3	43	4	0	0	0	50	1	3	10	0	1	0	15	0	3	0	0	1	1	5	72
5:15 PM	0	2	0	0	0	0	2	2	61	2	0	0	0	65	3	3	6	0	0	0	12	3	4	0	0	0	1	8	87
5:30 PM	0	3	0	0	0	0	3	1	70	3	0	0	0	74	1	5	10	0	1	0	17	1	7	0	0	1	0	9	103
5:45 PM	0	0	1	0	0	0	1	0	66	4	0	1	0	71	0	4	7	0	0	1	12	1	13	0	0	4	1	19	103
Total Volume	0	6	2	0	0	0	8	6	240	13	0	1	0	260	5	15	33	0	2	1	56	5	27	0	0	6	3	41	365
% Approach Total	0.0	75.0	25.0	0.0	0.0	0.0		2.3	92.3	5.0	0.0	0.4	0.0		8.9	26.8	58.9	0.0	3.6	1.8		12.2	65.9	0.0	0.0	14.6	7.3		
PHF	0.000	0.500	0.500	0.000	0.000	0.000	0.667	0.500	0.857	0.813	0.000	0.250	0.000	0.878	0.417	0.750	0.825	0.000	0.500	0.250	0.824	0.417	0.519	0.000	0.000	0.375	0.750	0.539	0.886
Entering Leg	0	6	2	0	0	0	8	6	240	13	0	1	0	260	5	15	33	0	2	1	56	5	27	0	0	6	3	41	365
Exiting Leg	21							35							27							282							365
Total	29							295							83							323							730

PDI File #: 196867 (20) pm
 Location: N: Pedestrian Walkway S: Ames Street
 Location: E: Broadway W: Broadway
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Pedestrians

	Pedestrian Walkway							Broadway							Ames Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	2	0	2	0	0	0	0	33	5	38	0	0	0	0	30	95	125	0	0	0	0	9	21	30	195
4:45 PM	0	0	0	0	3	0	3	0	0	0	0	25	15	40	0	0	0	0	35	108	143	0	0	0	0	8	27	35	221
Total	0	0	0	0	5	0	5	0	0	0	0	58	20	78	0	0	0	0	65	203	268	0	0	0	0	17	48	65	416
5:00 PM	0	0	0	0	3	0	3	0	0	0	0	25	28	53	0	0	0	0	38	166	204	0	0	0	0	14	30	44	304
5:15 PM	0	0	0	0	1	0	1	0	0	0	0	20	15	35	0	0	0	0	57	154	211	0	0	0	0	9	24	33	280
5:30 PM	0	0	0	0	2	0	2	0	0	0	0	33	22	55	0	0	0	0	81	111	192	0	0	0	0	10	17	27	276
5:45 PM	0	0	0	0	3	3	6	0	0	0	0	29	18	47	0	0	0	0	70	112	182	0	0	0	0	23	8	31	266
Total	0	0	0	0	9	3	12	0	0	0	0	107	83	190	0	0	0	0	246	543	789	0	0	0	0	56	79	135	1126
6:00 PM	0	0	0	0	6	0	6	0	0	0	0	36	14	50	0	0	0	0	73	100	173	0	0	0	0	11	11	22	251
6:15 PM	0	0	0	0	2	0	2	0	0	0	0	23	17	40	0	0	0	0	56	83	139	0	0	0	0	11	22	33	214
Total	0	0	0	0	8	0	8	0	0	0	0	59	31	90	0	0	0	0	129	183	312	0	0	0	0	22	33	55	465
Grand Total	0	0	0	0	22	3	25	0	0	0	0	224	134	358	0	0	0	0	440	929	1369	0	0	0	0	95	160	255	2007
Approach %	0	0	0	0	88	12		0	0	0	0	62.6	37.4		0	0	0	0	32.1	67.9		0	0	0	0	37.3	62.7		
Total %	0	0	0	0	1.1	0.15	1.25	0	0	0	0	11.2	6.68	17.8	0	0	0	0	21.9	46.3	68.2	0	0	0	0	4.73	7.97	12.7	
Exiting Leg Total	25							358							1369							255							2007

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Pedestrian Walkway							Broadway							Ames Street							Broadway							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	3	0	3	0	0	0	0	25	28	53	0	0	0	0	38	166	204	0	0	0	0	14	30	44	304
5:15 PM	0	0	0	0	1	0	1	0	0	0	0	20	15	35	0	0	0	0	57	154	211	0	0	0	0	9	24	33	280
5:30 PM	0	0	0	0	2	0	2	0	0	0	0	33	22	55	0	0	0	0	81	111	192	0	0	0	0	10	17	27	276
5:45 PM	0	0	0	0	3	3	6	0	0	0	0	29	18	47	0	0	0	0	70	112	182	0	0	0	0	23	8	31	266
Total Volume	0	0	0	0	9	3	12	0	0	0	0	107	83	190	0	0	0	0	246	543	789	0	0	0	0	56	79	135	1126
% Approach Total	0.0	0.0	0.0	0.0	75.0	25.0		0.0	0.0	0.0	0.0	56.3	43.7		0.0	0.0	0.0	0.0	31.2	68.8		0.0	0.0	0.0	0.0	41.5	58.5		
PHF	0.000	0.000	0.000	0.000	0.750	0.250	0.500	0.000	0.000	0.000	0.000	0.811	0.741	0.864	0.000	0.000	0.000	0.000	0.759	0.818	0.935	0.000	0.000	0.000	0.000	0.609	0.658	0.767	0.926
Entering Leg	0	0	0	0	9	3	12	0	0	0	0	107	83	190	0	0	0	0	246	543	789	0	0	0	0	56	79	135	1126
Exiting Leg	12							190							789							135							1126
Total	24							380							1578							270							2252

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	28	10	29	0	67	50	97	0	0	147	0	0	0	0	0	6	41	34	0	81	295
7:45 AM	26	24	41	0	91	48	88	0	0	136	0	0	0	0	0	10	41	31	0	82	309
Total	54	34	70	0	158	98	185	0	0	283	0	0	0	0	0	16	82	65	0	163	604
8:00 AM	29	15	42	0	86	32	86	1	0	119	0	0	0	0	0	8	52	46	0	106	311
8:15 AM	26	11	48	0	85	48	114	1	0	163	0	0	0	0	0	8	66	41	1	116	364
8:30 AM	34	20	38	0	92	65	94	0	0	159	0	0	0	0	0	5	45	51	0	101	352
8:45 AM	31	20	35	0	86	59	98	0	0	157	0	0	0	0	0	12	62	38	0	112	355
Total	120	66	163	0	349	204	392	2	0	598	0	0	0	0	0	33	225	176	1	435	1382
9:00 AM	17	20	27	0	64	45	93	0	0	138	0	0	0	0	0	10	54	42	0	106	308
9:15 AM	40	16	34	0	90	49	97	0	0	146	0	0	0	0	0	6	63	36	0	105	341
Total	57	36	61	0	154	94	190	0	0	284	0	0	0	0	0	16	117	78	0	211	649
Grand Total	231	136	294	0	661	396	767	2	0	1165	0	0	0	0	0	65	424	319	1	809	2635
Approach %	34.9	20.6	44.5	0.0		34.0	65.8	0.2	0.0		0.0	0.0	0.0	0.0		8.0	52.4	39.4	0.1		
Total %	8.8	5.2	11.2	0.0	25.1	15.0	29.1	0.1	0.0	44.2	0.0	0.0	0.0	0.0	0.0	2.5	16.1	12.1	0.0	30.7	
Exiting Leg Total	715					718					203					999					2635
Cars	209	97	285	0	591	385	728	2	0	1115	0	0	0	0	0	39	414	276	1	730	2436
% Cars	90.5	71.3	96.9	0.0	89.4	97.2	94.9	100.0	0.0	95.7	0.0	0.0	0.0	0.0	0.0	60.0	97.6	86.5	100.0	90.2	92.4
Exiting Leg Total	661					699					138					938					2436
Heavy Vehicles	22	39	9	0	70	11	39	0	0	50	0	0	0	0	0	26	10	43	0	79	199
% Heavy Vehicles	9.5	28.7	3.1	0.0	10.6	2.8	5.1	0.0	0.0	4.3	0.0	0.0	0.0	0.0	0.0	40.0	2.4	13.5	0.0	9.8	7.6
Exiting Leg Total	54					19					65					61					199

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	29	15	42	0	86	32	86	1	0	119	0	0	0	0	0	8	52	46	0	106	311
8:15 AM	26	11	48	0	85	48	114	1	0	163	0	0	0	0	0	8	66	41	1	116	364
8:30 AM	34	20	38	0	92	65	94	0	0	159	0	0	0	0	0	5	45	51	0	101	352
8:45 AM	31	20	35	0	86	59	98	0	0	157	0	0	0	0	0	12	62	38	0	112	355
Total Volume	120	66	163	0	349	204	392	2	0	598	0	0	0	0	0	33	225	176	1	435	1382
% Approach Total	34.4	18.9	46.7	0.0		34.1	65.6	0.3	0.0		0.0	0.0	0.0	0.0		7.6	51.7	40.5	0.2		
PHF	0.882	0.825	0.849	0.000	0.948	0.785	0.860	0.500	0.000	0.917	0.000	0.000	0.000	0.000	0.000	0.688	0.852	0.863	0.250	0.938	0.949
Cars	111	50	160	0	321	199	372	2	0	573	0	0	0	0	0	19	220	154	1	394	1288
Cars %	92.5	75.8	98.2	0.0	92.0	97.5	94.9	100.0	0.0	95.8	0.0	0.0	0.0	0.0	0.0	57.6	97.8	87.5	100.0	90.6	93.2
Heavy Vehicles	9	16	3	0	28	5	20	0	0	25	0	0	0	0	0	14	5	22	0	41	94
Heavy Vehicles %	7.5	24.2	1.8	0.0	8.0	2.5	5.1	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	42.4	2.2	12.5	0.0	9.4	6.8
Cars Enter Leg	111	50	160	0	321	199	372	2	0	573	0	0	0	0	0	19	220	154	1	394	1288
Heavy Enter Leg	9	16	3	0	28	5	20	0	0	25	0	0	0	0	0	14	5	22	0	41	94
Total Entering Leg	120	66	163	0	349	204	392	2	0	598	0	0	0	0	0	33	225	176	1	435	1382
Cars Exiting Leg	353					380					71					484					1288
Heavy Exiting Leg	27					8					30					29					94
Total Exiting Leg	380					388					101					513					1382

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	26	6	26	0	58	49	92	0	0	141	0	0	0	0	0	3	39	32	0	74	273
7:45 AM	25	15	41	0	81	47	85	0	0	132	0	0	0	0	0	8	41	23	0	72	285
Total	51	21	67	0	139	96	177	0	0	273	0	0	0	0	0	11	80	55	0	146	558
8:00 AM	25	12	42	0	79	32	76	1	0	109	0	0	0	0	0	4	52	38	0	94	282
8:15 AM	23	6	47	0	76	47	111	1	0	159	0	0	0	0	0	5	65	36	1	107	342
8:30 AM	33	16	36	0	85	63	89	0	0	152	0	0	0	0	0	3	42	46	0	91	328
8:45 AM	30	16	35	0	81	57	96	0	0	153	0	0	0	0	0	7	61	34	0	102	336
Total	111	50	160	0	321	199	372	2	0	573	0	0	0	0	0	19	220	154	1	394	1288
9:00 AM	11	15	26	0	52	43	89	0	0	132	0	0	0	0	0	5	53	37	0	95	279
9:15 AM	36	11	32	0	79	47	90	0	0	137	0	0	0	0	0	4	61	30	0	95	311
Total	47	26	58	0	131	90	179	0	0	269	0	0	0	0	0	9	114	67	0	190	590
Grand Total	209	97	285	0	591	385	728	2	0	1115	0	0	0	0	0	39	414	276	1	730	2436
Approach %	35.4	16.4	48.2	0.0		34.5	65.3	0.2	0.0		0.0	0.0	0.0	0.0		5.3	56.7	37.8	0.1		
Total %	8.6	4.0	11.7	0.0	24.3	15.8	29.9	0.1	0.0	45.8	0.0	0.0	0.0	0.0	0.0	1.6	17.0	11.3	0.0	30.0	
Exiting Leg Total	661					699					138					938					2436

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:00 AM	25	12	42	0	79	32	76	1	0	109	0	0	0	0	0	4	52	38	0	94	282
8:15 AM	23	6	47	0	76	47	111	1	0	159	0	0	0	0	0	5	65	36	1	107	342
8:30 AM	33	16	36	0	85	63	89	0	0	152	0	0	0	0	0	3	42	46	0	91	328
8:45 AM	30	16	35	0	81	57	96	0	0	153	0	0	0	0	0	7	61	34	0	102	336
Total Volume	111	50	160	0	321	199	372	2	0	573	0	0	0	0	0	19	220	154	1	394	1288
% Approach Total	34.6	15.6	49.8	0.0		34.7	64.9	0.3	0.0		0.0	0.0	0.0	0.0		4.8	55.8	39.1	0.3		
PHF	0.841	0.781	0.851	0.000	0.944	0.790	0.838	0.500	0.000	0.901	0.000	0.000	0.000	0.000	0.000	0.679	0.846	0.837	0.250	0.921	0.942
Entering Leg	111	50	160	0	321	199	372	2	0	573	0	0	0	0	0	19	220	154	1	394	1288
Exiting Leg	353					380					71					484					1288
Total	674					953					71					878					2576

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	4	3	0	9	1	5	0	0	6	0	0	0	0	0	3	2	2	0	7	22
7:45 AM	1	9	0	0	10	1	3	0	0	4	0	0	0	0	0	2	0	8	0	10	24
Total	3	13	3	0	19	2	8	0	0	10	0	0	0	0	0	5	2	10	0	17	46
8:00 AM	4	3	0	0	7	0	10	0	0	10	0	0	0	0	0	4	0	8	0	12	29
8:15 AM	3	5	1	0	9	1	3	0	0	4	0	0	0	0	0	3	1	5	0	9	22
8:30 AM	1	4	2	0	7	2	5	0	0	7	0	0	0	0	0	2	3	5	0	10	24
8:45 AM	1	4	0	0	5	2	2	0	0	4	0	0	0	0	0	5	1	4	0	10	19
Total	9	16	3	0	28	5	20	0	0	25	0	0	0	0	0	14	5	22	0	41	94
9:00 AM	6	5	1	0	12	2	4	0	0	6	0	0	0	0	0	5	1	5	0	11	29
9:15 AM	4	5	2	0	11	2	7	0	0	9	0	0	0	0	0	2	2	6	0	10	30
Total	10	10	3	0	23	4	11	0	0	15	0	0	0	0	0	7	3	11	0	21	59
Grand Total	22	39	9	0	70	11	39	0	0	50	0	0	0	0	0	26	10	43	0	79	199
Approach %	31.4	55.7	12.9	0.0		22.0	78.0	0.0	0.0		0.0	0.0	0.0	0.0		32.9	12.7	54.4	0.0		
Total %	11.1	19.6	4.5	0.0	35.2	5.5	19.6	0.0	0.0	25.1	0.0	0.0	0.0	0.0	0.0	13.1	5.0	21.6	0.0	39.7	
Exiting Leg Total	54					19					65					61					199
Buses	3	15	1	0	19	0	4	0	0	4	0	0	0	0	0	24	2	10	0	36	59
% Buses	13.6	38.5	11.1	0.0	27.1	0.0	10.3	0.0	0.0	8.0	0.0	0.0	0.0	0.0	0.0	92.3	20.0	23.3	0.0	45.6	29.6
Exiting Leg Total	10					3					39					7					59
Single-Unit Trucks	17	17	8	0	42	10	33	0	0	43	0	0	0	0	0	2	5	25	0	32	117
% Single-Unit	77.3	43.6	88.9	0.0	60.0	90.9	84.6	0.0	0.0	86.0	0.0	0.0	0.0	0.0	0.0	7.7	50.0	58.1	0.0	40.5	58.8
Exiting Leg Total	35					13					19					50					117
Articulated Trucks	2	7	0	0	9	1	2	0	0	3	0	0	0	0	0	0	3	8	0	11	23
% Articulated	9.1	17.9	0.0	0.0	12.9	9.1	5.1	0.0	0.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	18.6	0.0	13.9	11.6
Exiting Leg Total	9					3					7					4					23

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	1	4	2	0	7	2	5	0	0	7	0	0	0	0	0	2	3	5	0	10	24
8:45 AM	1	4	0	0	5	2	2	0	0	4	0	0	0	0	0	5	1	4	0	10	19
9:00 AM	6	5	1	0	12	2	4	0	0	6	0	0	0	0	0	5	1	5	0	11	29
9:15 AM	4	5	2	0	11	2	7	0	0	9	0	0	0	0	0	2	2	6	0	10	30
Total Volume	12	18	5	0	35	8	18	0	0	26	0	0	0	0	0	14	7	20	0	41	102
% Approach Total	34.3	51.4	14.3	0.0		30.8	69.2	0.0	0.0		0.0	0.0	0.0	0.0		34.1	17.1	48.8	0.0		
PHF	0.500	0.900	0.625	0.000	0.729	1.000	0.643	0.000	0.000	0.722	0.000	0.000	0.000	0.000	0.000	0.700	0.583	0.833	0.000	0.932	0.850
Buses	0	8	1	0	9	0	3	0	0	3	0	0	0	0	0	13	2	4	0	19	31
Buses %	0.0	44.4	20.0	0.0	25.7	0.0	16.7	0.0	0.0	11.5	0.0	0.0	0.0	0.0	0.0	92.9	28.6	20.0	0.0	46.3	30.4
Single-Unit Trucks	10	7	4	0	21	7	15	0	0	22	0	0	0	0	0	1	3	14	0	18	61
Single-Unit %	83.3	38.9	80.0	0.0	60.0	87.5	83.3	0.0	0.0	84.6	0.0	0.0	0.0	0.0	0.0	7.1	42.9	70.0	0.0	43.9	59.8
Articulated Trucks	2	3	0	0	5	1	0	0	0	1	0	0	0	0	0	0	2	2	0	4	10
Articulated %	16.7	16.7	0.0	0.0	14.3	12.5	0.0	0.0	0.0	3.8	0.0	0.0	0.0	0.0	0.0	0.0	28.6	10.0	0.0	9.8	9.8
Buses	0	8	1	0	9	0	3	0	0	3	0	0	0	0	0	13	2	4	0	19	31
Single-Unit Trucks	10	7	4	0	21	7	15	0	0	22	0	0	0	0	0	1	3	14	0	18	61
Articulated Trucks	2	3	0	0	5	1	0	0	0	1	0	0	0	0	0	0	2	2	0	4	10
Total Entering Leg	12	18	5	0	35	8	18	0	0	26	0	0	0	0	0	14	7	20	0	41	102
Buses	4					3					21					3					31
Single-Unit Trucks	21					7					8					25					61
Articulated Trucks	3					2					3					2					10
Total Exiting Leg	28					12					32					30					102

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	5
7:45 AM	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	2	0	2	0	4	8
Total	1	5	0	0	6	0	0	0	0	0	0	0	0	0	0	5	0	2	0	7	13
8:00 AM	1	1	0	0	2	0	1	0	0	1	0	0	0	0	0	3	0	4	0	7	10
8:15 AM	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	5
8:30 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	5
8:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	1	0	6	8
Total	2	6	0	0	8	0	2	0	0	2	0	0	0	0	0	12	1	5	0	18	28
9:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	3	0	8	9
9:15 AM	0	3	1	0	4	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	9
Total	0	4	1	0	5	0	2	0	0	2	0	0	0	0	0	7	1	3	0	11	18
Grand Total	3	15	1	0	19	0	4	0	0	4	0	0	0	0	0	24	2	10	0	36	59
Approach %	15.8	78.9	5.3	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		66.7	5.6	27.8	0.0		
Total %	5.1	25.4	1.7	0.0	32.2	0.0	6.8	0.0	0.0	6.8	0.0	0.0	0.0	0.0	0.0	40.7	3.4	16.9	0.0	61.0	
Exiting Leg Total	10					3					39					7					59

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Third Street					Broadway					Main Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:30 AM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	1	1	0	0	2	5
8:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5	0	1	0	6	8
9:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	3	0	8	9
9:15 AM	0	3	1	0	4	0	2	0	0	2	0	0	0	0	0	2	1	0	0	3	9
Total Volume	0	8	1	0	9	0	3	0	0	3	0	0	0	0	0	13	2	4	0	19	31
% Approach Total	0.0	88.9	11.1	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		68.4	10.5	21.1	0.0		
PHF	0.000	0.667	0.250	0.000	0.563	0.000	0.375	0.000	0.000	0.375	0.000	0.000	0.000	0.000	0.000	0.650	0.500	0.333	0.000	0.594	0.861
Entering Leg	0	8	1	0	9	0	3	0	0	3	0	0	0	0	0	13	2	4	0	19	31
Exiting Leg					4					3					21					3	31
Total					13					6					21					22	62

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	1	3	0	6	1	5	0	0	6	0	0	0	0	0	0	2	2	0	4	16
7:45 AM	0	4	0	0	4	1	3	0	0	4	0	0	0	0	0	0	0	4	0	4	12
Total	2	5	3	0	10	2	8	0	0	10	0	0	0	0	0	0	2	6	0	8	28
8:00 AM	3	2	0	0	5	0	7	0	0	7	0	0	0	0	0	1	0	3	0	4	16
8:15 AM	2	3	1	0	6	1	3	0	0	4	0	0	0	0	0	0	0	2	0	2	12
8:30 AM	1	2	2	0	5	2	4	0	0	6	0	0	0	0	0	1	1	4	0	6	17
8:45 AM	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	0	2	0	2	9
Total	7	9	3	0	19	5	16	0	0	21	0	0	0	0	0	2	1	11	0	14	54
9:00 AM	6	2	1	0	9	1	4	0	0	5	0	0	0	0	0	0	1	2	0	3	17
9:15 AM	2	1	1	0	4	2	5	0	0	7	0	0	0	0	0	0	1	6	0	7	18
Total	8	3	2	0	13	3	9	0	0	12	0	0	0	0	0	0	2	8	0	10	35
Grand Total	17	17	8	0	42	10	33	0	0	43	0	0	0	0	0	2	5	25	0	32	117
Approach %	40.5	40.5	19.0	0.0		23.3	76.7	0.0	0.0		0.0	0.0	0.0	0.0		6.3	15.6	78.1	0.0		
Total %	14.5	14.5	6.8	0.0	35.9	8.5	28.2	0.0	0.0	36.8	0.0	0.0	0.0	0.0	0.0	1.7	4.3	21.4	0.0	27.4	
Exiting Leg Total	35					13					19					50					117

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Third Street					Broadway					Main Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:30 AM	1	2	2	0	5	2	4	0	0	6	0	0	0	0	0	1	1	4	0	6	17
8:45 AM	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	0	2	0	2	9
9:00 AM	6	2	1	0	9	1	4	0	0	5	0	0	0	0	0	0	1	2	0	3	17
9:15 AM	2	1	1	0	4	2	5	0	0	7	0	0	0	0	0	0	1	6	0	7	18
Total Volume	10	7	4	0	21	7	15	0	0	22	0	0	0	0	0	1	3	14	0	18	61
% Approach Total	47.6	33.3	19.0	0.0		31.8	68.2	0.0	0.0		0.0	0.0	0.0	0.0		5.6	16.7	77.8	0.0		
PHF	0.417	0.875	0.500	0.000	0.583	0.875	0.750	0.000	0.000	0.786	0.000	0.000	0.000	0.000	0.000	0.250	0.750	0.583	0.000	0.643	0.847
Entering Leg	10	7	4	0	21	7	15	0	0	22	0	0	0	0	0	1	3	14	0	18	61
Exiting Leg	21					7					8					25					61
Total	42					29					8					43					122

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
Total	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	5
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	3
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	0	3	6	0	9	12
9:00 AM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
9:15 AM	2	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	2	3	0	0	5	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	6
Grand Total	2	7	0	0	9	1	2	0	0	3	0	0	0	0	0	0	3	8	0	11	23
Approach %	22.2	77.8	0.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0		0.0	27.3	72.7	0.0		
Total %	8.7	30.4	0.0	0.0	39.1	4.3	8.7	0.0	0.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	13.0	34.8	0.0	47.8	
Exiting Leg Total	9					3					7					4					23

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	Third Street					Broadway					Main Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
8:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	1	0	1	3
8:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
Total Volume	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	2	7	0	9	14
% Approach Total	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	22.2	77.8	0.0		
PHF	0.000	0.375	0.000	0.000	0.375	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.583	0.000	0.563	0.700
Entering Leg	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	2	7	0	9	14
Exiting Leg	7					2					3					2					14
Total	10					4					3					11					28

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	3	3	0	0	0	6	0	6	1	0	1	1	9	0	3	0	0	0	0	3	2	24	3	0	0	0	29	47
7:45 AM	0	2	2	0	0	0	4	0	6	4	0	2	0	12	0	3	0	0	0	0	3	1	33	5	0	0	0	39	58
Total	0	5	5	0	0	0	10	0	12	5	0	3	1	21	0	6	0	0	0	0	6	3	57	8	0	0	0	68	105
8:00 AM	0	4	4	0	0	1	9	1	6	1	0	0	0	8	0	2	0	0	0	0	2	2	41	9	0	0	0	52	71
8:15 AM	0	5	3	0	0	0	8	1	8	3	0	1	0	13	1	6	0	0	0	0	7	1	56	10	0	0	1	68	96
8:30 AM	1	3	2	0	0	0	6	0	4	1	0	0	3	8	0	1	0	0	0	3	4	3	61	20	0	0	0	84	102
8:45 AM	1	2	4	0	0	1	8	0	3	0	0	0	0	3	1	2	0	0	1	1	5	2	48	6	0	0	1	57	73
Total	2	14	13	0	0	2	31	2	21	5	0	1	3	32	2	11	0	0	1	4	18	8	206	45	0	0	2	261	342
9:00 AM	1	7	1	0	0	0	9	0	4	1	0	0	2	7	0	3	0	0	0	1	4	0	42	7	0	0	0	49	69
9:15 AM	1	2	2	0	0	0	5	0	4	1	0	0	0	5	0	5	0	0	0	1	6	1	39	4	0	0	0	44	60
Total	2	9	3	0	0	0	14	0	8	2	0	0	2	12	0	8	0	0	0	2	10	1	81	11	0	0	0	93	129
Grand Total	4	28	21	0	0	2	55	2	41	12	0	4	6	65	2	25	0	0	1	6	34	12	344	64	0	0	2	422	576
Approach %	7.3	50.9	38.2	0.0	0.0	3.6		3.1	63.1	18.5	0.0	6.2	9.2		5.9	73.5	0.0	0.0	2.9	17.6		2.8	81.5	15.2	0.0	0.0	0.5		
Total %	0.7	4.9	3.6	0.0	0.0	0.3	9.5	0.3	7.1	2.1	0.0	0.7	1.0	11.3	0.3	4.3	0.0	0.0	0.2	1.0	5.9	2.1	59.7	11.1	0.0	0.0	0.3	73.3	
Exiting Leg Total	93							377							59							47							576

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:00 AM	0	4	4	0	0	1	9	1	6	1	0	0	0	8	0	2	0	0	0	0	2	2	41	9	0	0	0	52	71
8:15 AM	0	5	3	0	0	0	8	1	8	3	0	1	0	13	1	6	0	0	0	0	7	1	56	10	0	0	1	68	96
8:30 AM	1	3	2	0	0	0	6	0	4	1	0	0	3	8	0	1	0	0	0	3	4	3	61	20	0	0	0	84	102
8:45 AM	1	2	4	0	0	1	8	0	3	0	0	0	0	3	1	2	0	0	1	1	5	2	48	6	0	0	1	57	73
Total Volume	2	14	13	0	0	2	31	2	21	5	0	1	3	32	2	11	0	0	1	4	18	8	206	45	0	0	2	261	342
% Approach Total	6.5	45.2	41.9	0.0	0.0	6.5		6.3	65.6	15.6	0.0	3.1	9.4		11.1	61.1	0.0	0.0	5.6	22.2		3.1	78.9	17.2	0.0	0.0	0.8		
PHF	0.500	0.700	0.813	0.000	0.000	0.500	0.861	0.500	0.656	0.417	0.000	0.250	0.250	0.615	0.500	0.458	0.000	0.000	0.250	0.333	0.643	0.667	0.844	0.563	0.000	0.000	0.500	0.777	0.838
Entering Leg	2	14	13	0	0	2	31	2	21	5	0	1	3	32	2	11	0	0	1	4	18	8	206	45	0	0	2	261	342
Exiting Leg	60							225							32							25							342
Total	91							257							50							286							684

PDI File #: **196867 (22) am**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Third Street								Broadway								Main Street								Broadway								Total
	from North								from East								from South								from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total					
7:30 AM	0	0	0	0	9	1	10	0	0	0	0	41	169	210	0	0	0	0	16	19	35	0	0	0	0	21	29	50	305				
7:45 AM	0	0	0	0	3	4	7	0	0	0	0	60	210	270	0	0	0	0	16	28	44	0	0	0	0	25	28	53	374				
Total	0	0	0	0	12	5	17	0	0	0	0	101	379	480	0	0	0	0	32	47	79	0	0	0	0	46	57	103	679				
8:00 AM	0	0	0	0	7	1	8	0	0	0	0	64	215	279	0	0	0	0	15	29	44	0	0	0	0	35	33	68	399				
8:15 AM	0	0	0	0	11	8	19	0	0	0	0	98	224	322	0	0	0	0	11	42	53	0	0	0	0	16	41	57	451				
8:30 AM	0	0	0	0	9	5	14	0	0	0	0	70	423	493	0	0	0	0	11	46	57	0	0	0	0	48	43	91	655				
8:45 AM	0	0	0	0	15	1	16	0	0	0	0	87	249	336	0	0	0	0	18	27	45	0	0	0	0	24	52	76	473				
Total	0	0	0	0	42	15	57	0	0	0	0	319	1111	1430	0	0	0	0	55	144	199	0	0	0	0	123	169	292	1978				
9:00 AM	0	0	0	0	9	2	11	0	0	0	0	68	403	471	0	0	0	0	18	38	56	0	0	0	0	36	30	66	604				
9:15 AM	0	0	0	0	7	2	9	0	0	0	0	65	236	301	0	0	0	0	11	19	30	0	0	0	0	28	32	60	400				
Total	0	0	0	0	16	4	20	0	0	0	0	133	639	772	0	0	0	0	29	57	86	0	0	0	0	64	62	126	1004				
Grand Total	0	0	0	0	70	24	94	0	0	0	0	553	2129	2682	0	0	0	0	116	248	364	0	0	0	0	233	288	521	3661				
Approach %	0	0	0	0	74.5	25.5		0	0	0	0	20.6	79.4		0	0	0	0	31.9	68.1		0	0	0	0	44.7	55.3						
Total %	0	0	0	0	1.91	0.66	2.57	0	0	0	0	15.1	58.2	73.3	0	0	0	0	3.17	6.77	9.94	0	0	0	0	6.36	7.87	14.2					
Exiting Leg Total	94							2682							364							521							3661				

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	0	0	0	0	11	8	19	0	0	0	0	98	224	322	0	0	0	0	11	42	53	0	0	0	0	16	41	57	451
8:30 AM	0	0	0	0	9	5	14	0	0	0	0	70	423	493	0	0	0	0	11	46	57	0	0	0	0	48	43	91	655
8:45 AM	0	0	0	0	15	1	16	0	0	0	0	87	249	336	0	0	0	0	18	27	45	0	0	0	0	24	52	76	473
9:00 AM	0	0	0	0	9	2	11	0	0	0	0	68	403	471	0	0	0	0	18	38	56	0	0	0	0	36	30	66	604
Total Volume	0	0	0	0	44	16	60	0	0	0	0	323	1299	1622	0	0	0	0	58	153	211	0	0	0	0	124	166	290	2183
% Approach Total	0.0	0.0	0.0	0.0	73.3	26.7		0.0	0.0	0.0	0.0	19.9	80.1		0.0	0.0	0.0	0.0	27.5	72.5		0.0	0.0	0.0	0.0	42.8	57.2		
PHF	0.000	0.000	0.000	0.000	0.733	0.500	0.789	0.000	0.000	0.000	0.000	0.824	0.768	0.823	0.000	0.000	0.000	0.000	0.806	0.832	0.925	0.000	0.000	0.000	0.000	0.646	0.798	0.797	0.833
Entering Leg	0	0	0	0	44	16	60	0	0	0	0	323	1299	1622	0	0	0	0	58	153	211	0	0	0	0	124	166	290	2183
Exiting Leg	60							1622							211							290							2183
Total	120							3244							422							580							4366

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	22	10	94	0	126	33	69	0	0	102	0	0	0	0	0	10	87	36	0	133	361
4:45 PM	18	11	85	0	114	40	68	0	0	108	0	0	0	0	0	13	88	49	1	151	373
Total	40	21	179	0	240	73	137	0	0	210	0	0	0	0	0	23	175	85	1	284	734
5:00 PM	21	15	101	0	137	32	77	0	0	109	0	0	0	0	0	9	90	40	1	140	386
5:15 PM	27	21	79	0	127	40	77	0	1	118	0	0	0	0	0	10	99	77	1	187	432
5:30 PM	27	16	98	0	141	26	76	0	0	102	0	0	0	0	0	16	101	52	1	170	413
5:45 PM	18	15	87	0	120	30	74	0	0	104	0	0	0	0	0	7	92	63	1	163	387
Total	93	67	365	0	525	128	304	0	1	433	0	0	0	0	0	42	382	232	4	660	1618
6:00 PM	15	12	54	0	81	15	71	0	0	86	0	0	0	0	0	16	99	65	0	180	347
6:15 PM	14	23	54	0	91	38	72	0	0	110	0	0	0	0	0	12	84	52	0	148	349
Total	29	35	108	0	172	53	143	0	0	196	0	0	0	0	0	28	183	117	0	328	696
Grand Total	162	123	652	0	937	254	584	0	1	839	0	0	0	0	0	93	740	434	5	1272	3048
Approach %	17.3	13.1	69.6	0.0		30.3	69.6	0.0	0.1		0.0	0.0	0.0	0.0		7.3	58.2	34.1	0.4		
Total %	5.3	4.0	21.4	0.0	30.7	8.3	19.2	0.0	0.0	27.5	0.0	0.0	0.0	0.0	0.0	3.1	24.3	14.2	0.2	41.7	
Exiting Leg Total	688					1393					216					751					3048
Cars	161	119	649	0	929	249	575	0	1	825	0	0	0	0	0	73	733	412	5	1223	2977
% Cars	99.4	96.7	99.5	0.0	99.1	98.0	98.5	0.0	100.0	98.3	0.0	0.0	0.0	0.0	0.0	78.5	99.1	94.9	100.0	96.1	97.7
Exiting Leg Total	661					1383					192					741					2977
Heavy Vehicles	1	4	3	0	8	5	9	0	0	14	0	0	0	0	0	20	7	22	0	49	71
% Heavy Vehicles	0.6	3.3	0.5	0.0	0.9	2.0	1.5	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	21.5	0.9	5.1	0.0	3.9	2.3
Exiting Leg Total	27					10					24					10					71

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	21	15	101	0	137	32	77	0	0	109	0	0	0	0	0	9	90	40	1	140	386
5:15 PM	27	21	79	0	127	40	77	0	1	118	0	0	0	0	0	10	99	77	1	187	432
5:30 PM	27	16	98	0	141	26	76	0	0	102	0	0	0	0	0	16	101	52	1	170	413
5:45 PM	18	15	87	0	120	30	74	0	0	104	0	0	0	0	0	7	92	63	1	163	387
Total Volume	93	67	365	0	525	128	304	0	1	433	0	0	0	0	0	42	382	232	4	660	1618
% Approach Total	17.7	12.8	69.5	0.0		29.6	70.2	0.0	0.2		0.0	0.0	0.0	0.0		6.4	57.9	35.2	0.6		
PHF	0.861	0.798	0.903	0.000	0.931	0.800	0.987	0.000	0.250	0.917	0.000	0.000	0.000	0.000	0.000	0.656	0.946	0.753	1.000	0.882	0.936
Cars	92	64	364	0	520	126	298	0	1	425	0	0	0	0	0	33	378	220	4	635	1580
Cars %	98.9	95.5	99.7	0.0	99.0	98.4	98.0	0.0	100.0	98.2	0.0	0.0	0.0	0.0	0.0	78.6	99.0	94.8	100.0	96.2	97.7
Heavy Vehicles	1	3	1	0	5	2	6	0	0	8	0	0	0	0	0	9	4	12	0	25	38
Heavy Vehicles %	1.1	4.5	0.3	0.0	1.0	1.6	2.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	21.4	1.0	5.2	0.0	3.8	2.3
Cars Enter Leg	92	64	364	0	520	126	298	0	1	425	0	0	0	0	0	33	378	220	4	635	1580
Heavy Enter Leg	1	3	1	0	5	2	6	0	0	8	0	0	0	0	0	9	4	12	0	25	38
Total Entering Leg	93	67	365	0	525	128	304	0	1	433	0	0	0	0	0	42	382	232	4	660	1618
Cars Exiting Leg	346					743					97					394					1580
Heavy Exiting Leg	14					5					12					7					38
Total Exiting Leg	360					748					109					401					1618

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	22	10	93	0	125	33	67	0	0	100	0	0	0	0	0	8	84	32	0	124	349
4:45 PM	18	11	84	0	113	38	67	0	0	105	0	0	0	0	0	9	88	47	1	145	363
Total	40	21	177	0	238	71	134	0	0	205	0	0	0	0	0	17	172	79	1	269	712
5:00 PM	21	15	101	0	137	32	76	0	0	108	0	0	0	0	0	7	89	39	1	136	381
5:15 PM	26	21	78	0	125	40	76	0	1	117	0	0	0	0	0	9	98	75	1	183	425
5:30 PM	27	16	98	0	141	25	73	0	0	98	0	0	0	0	0	12	100	48	1	161	400
5:45 PM	18	12	87	0	117	29	73	0	0	102	0	0	0	0	0	5	91	58	1	155	374
Total	92	64	364	0	520	126	298	0	1	425	0	0	0	0	0	33	378	220	4	635	1580
6:00 PM	15	11	54	0	80	14	71	0	0	85	0	0	0	0	0	14	99	63	0	176	341
6:15 PM	14	23	54	0	91	38	72	0	0	110	0	0	0	0	0	9	84	50	0	143	344
Total	29	34	108	0	171	52	143	0	0	195	0	0	0	0	0	23	183	113	0	319	685
Grand Total	161	119	649	0	929	249	575	0	1	825	0	0	0	0	0	73	733	412	5	1223	2977
Approach %	17.3	12.8	69.9	0.0		30.2	69.7	0.0	0.1		0.0	0.0	0.0	0.0		6.0	59.9	33.7	0.4		
Total %	5.4	4.0	21.8	0.0	31.2	8.4	19.3	0.0	0.0	27.7	0.0	0.0	0.0	0.0	0.0	2.5	24.6	13.8	0.2	41.1	
Exiting Leg Total	661					1383					192					741					2977

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	21	15	101	0	137	32	76	0	0	108	0	0	0	0	0	7	89	39	1	136	381
5:15 PM	26	21	78	0	125	40	76	0	1	117	0	0	0	0	0	9	98	75	1	183	425
5:30 PM	27	16	98	0	141	25	73	0	0	98	0	0	0	0	0	12	100	48	1	161	400
5:45 PM	18	12	87	0	117	29	73	0	0	102	0	0	0	0	0	5	91	58	1	155	374
Total Volume	92	64	364	0	520	126	298	0	1	425	0	0	0	0	0	33	378	220	4	635	1580
% Approach Total	17.7	12.3	70.0	0.0		29.6	70.1	0.0	0.2		0.0	0.0	0.0	0.0		5.2	59.5	34.6	0.6		
PHF	0.852	0.762	0.901	0.000	0.922	0.788	0.980	0.000	0.250	0.908	0.000	0.000	0.000	0.000	0.000	0.688	0.945	0.733	1.000	0.867	0.929
Entering Leg	92	64	364	0	520	126	298	0	1	425	0	0	0	0	0	33	378	220	4	635	1580
Exiting Leg	346					743					97					394					1580
Total	866					1168					97					1029					3160

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	1	0	1	0	2	0	0	2	0	0	0	0	0	2	3	4	0	9	12
4:45 PM	0	0	1	0	1	2	1	0	0	3	0	0	0	0	0	4	0	2	0	6	10
Total	0	0	2	0	2	2	3	0	0	5	0	0	0	0	0	6	3	6	0	15	22
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	1	1	0	4	5
5:15 PM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	1	1	2	0	4	7
5:30 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	4	1	4	0	9	13
5:45 PM	0	3	0	0	3	1	1	0	0	2	0	0	0	0	0	2	1	5	0	8	13
Total	1	3	1	0	5	2	6	0	0	8	0	0	0	0	0	9	4	12	0	25	38
6:00 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2	0	2	0	4	6
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	5	5
Total	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	5	0	4	0	9	11
Grand Total	1	4	3	0	8	5	9	0	0	14	0	0	0	0	0	20	7	22	0	49	71
Approach %	12.5	50.0	37.5	0.0		35.7	64.3	0.0	0.0		0.0	0.0	0.0	0.0		40.8	14.3	44.9	0.0		
Total %	1.4	5.6	4.2	0.0	11.3	7.0	12.7	0.0	0.0	19.7	0.0	0.0	0.0	0.0	0.0	28.2	9.9	31.0	0.0	69.0	
Exiting Leg Total	27					10					24					10					71
Buses	0	2	2	0	4	2	6	0	0	8	0	0	0	0	0	20	3	14	0	37	49
% Buses	0.0	50.0	66.7	0.0	50.0	40.0	66.7	0.0	0.0	57.1	0.0	0.0	0.0	0.0	0.0	100.0	42.9	63.6	0.0	75.5	69.0
Exiting Leg Total	16					5					22					6					49
Single-Unit Trucks	1	2	1	0	4	3	3	0	0	6	0	0	0	0	0	0	4	6	0	10	20
% Single-Unit	100.0	50.0	33.3	0.0	50.0	60.0	33.3	0.0	0.0	42.9	0.0	0.0	0.0	0.0	0.0	0.0	57.1	27.3	0.0	20.4	28.2
Exiting Leg Total	9					5					2					4					20
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
% Articulated	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	0.0	0.0	9.1	0.0	4.1	2.8
Exiting Leg Total	2					0					0					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:15 PM	1	0	1	0	2	0	1	0	0	1	0	0	0	0	0	1	1	2	0	4	7
5:30 PM	0	0	0	0	0	1	3	0	0	4	0	0	0	0	0	4	1	4	0	9	13
5:45 PM	0	3	0	0	3	1	1	0	0	2	0	0	0	0	0	2	1	5	0	8	13
6:00 PM	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	2	0	2	0	4	6
Total Volume	1	4	1	0	6	3	5	0	0	8	0	0	0	0	0	9	3	13	0	25	39
% Approach Total	16.7	66.7	16.7	0.0		37.5	62.5	0.0	0.0		0.0	0.0	0.0	0.0		36.0	12.0	52.0	0.0		
PHF	0.250	0.333	0.250	0.000	0.500	0.750	0.417	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.563	0.750	0.650	0.000	0.694	0.750
Buses	0	2	1	0	3	1	3	0	0	4	0	0	0	0	0	9	1	8	0	18	25
Buses %	0.0	50.0	100.0	0.0	50.0	33.3	60.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	100.0	33.3	61.5	0.0	72.0	64.1
Single-Unit Trucks	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	2	3	0	5	12
Single-Unit %	100.0	50.0	0.0	0.0	50.0	66.7	40.0	0.0	0.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0	66.7	23.1	0.0	20.0	30.8
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Articulated %	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	0.0	0.0	15.4	0.0	8.0	5.1
Buses	0	2	1	0	3	1	3	0	0	4	0	0	0	0	0	9	1	8	0	18	25
Single-Unit Trucks	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	2	3	0	5	12
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Total Entering Leg	1	4	1	0	6	3	5	0	0	8	0	0	0	0	0	9	3	13	0	25	39
Buses	9					2					11					3					25
Single-Unit Trucks	5					2					2					3					12
Articulated Trucks	2					0					0					0					2
Total Exiting Leg	16					4					13					6					39

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Buses

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	1	2	0	5	6
4:45 PM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	4	0	2	0	6	9
Total	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	6	1	4	0	11	15
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	1	0	0	3	4
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	4
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	0	3	0	7	9
5:45 PM	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	2	1	2	0	5	8
Total	0	1	1	0	2	1	4	0	0	5	0	0	0	0	0	9	2	7	0	18	25
6:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0	1	0	3	4
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	2	0	5	5
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5	0	3	0	8	9
Grand Total	0	2	2	0	4	2	6	0	0	8	0	0	0	0	0	20	3	14	0	37	49
Approach %	0.0	50.0	50.0	0.0		25.0	75.0	0.0	0.0		0.0	0.0	0.0	0.0		54.1	8.1	37.8	0.0		
Total %	0.0	4.1	4.1	0.0	8.2	4.1	12.2	0.0	0.0	16.3	0.0	0.0	0.0	0.0	0.0	40.8	6.1	28.6	0.0	75.5	
Exiting Leg Total	16					5					22					6					49

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Third Street					Broadway					Main Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	4	0	2	0	6	9
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2	1	0	0	3	4
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	0	3	4
5:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	4	0	3	0	7	9
Total Volume	0	0	2	0	2	1	4	0	0	5	0	0	0	0	0	11	1	7	0	19	26
% Approach Total	0.0	0.0	100.0	0.0		20.0	80.0	0.0	0.0		0.0	0.0	0.0	0.0		57.9	5.3	36.8	0.0		
PHF	0.000	0.000	0.500	0.000	0.500	0.250	0.500	0.000	0.000	0.625	0.000	0.000	0.000	0.000	0.000	0.688	0.250	0.583	0.000	0.679	0.722
Entering Leg	0	0	2	0	2	1	4	0	0	5	0	0	0	0	0	11	1	7	0	19	26
Exiting Leg	8					3					11					4					26
Total	10					8					11					23					52

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Third Street					Broadway					Main Street					Broadway					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
4:30 PM	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	0	2	2	0	0	4	6
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	1	0	1	1	1	0	0	2	0	0	0	0	0	0	2	2	0	0	4	7
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	1	3
5:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	1	3
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
Total	1	2	0	0	3	1	2	0	0	3	0	0	0	0	0	0	0	2	3	0	5	11
6:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2
6:15 PM	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	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2
Grand Total	1	2	1	0	4	3	3	0	0	6	0	0	0	0	0	0	4	6	0	0	10	20
Approach %	25.0	50.0	25.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	40.0	60.0	0.0			
Total %	5.0	10.0	5.0	0.0	20.0	15.0	15.0	0.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	0.0	20.0	30.0	0.0	50.0		
Exiting Leg Total	9					5					2					4					20	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street					Broadway					Main Street					Broadway							
	from North					from East					from South					from West							
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total		
5:15 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	1	3	
5:30 PM	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	1	0	0	1	3	
5:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	4	
6:00 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1	0	1	2	
Total Volume	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	2	3	0	0	5	12	
% Approach Total	33.3	66.7	0.0	0.0		50.0	50.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	40.0	60.0	0.0				
PHF	0.250	0.250	0.000	0.000	0.375	0.500	0.500	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.375	0.000	0.625	0.750		
Entering Leg	1	2	0	0	3	2	2	0	0	4	0	0	0	0	0	0	2	3	0	0	5	12	
Exiting Leg	5					2					2					3					3	12	
Total	8					6					2					8					24		

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Third Street					Broadway					Main Street					Broadway					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Approach %	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	100.0	0.0		
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100.0	
Exiting Leg Total	2					0					0					0					2

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Third Street					Broadway					Main Street					Broadway					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
% Approach Total	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	100.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.500	0.500
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
Exiting Leg	2					0					0					0					2
Total	2					0					0					2					4

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	6	3	1	0	0	1	11	2	19	1	0	0	0	22	0	5	0	0	2	0	7	0	6	1	0	0	0	7	47
4:45 PM	3	3	0	0	0	1	7	1	23	2	0	0	0	26	0	6	1	0	0	0	7	2	8	2	0	1	2	15	55
Total	9	6	1	0	0	2	18	3	42	3	0	0	0	48	0	11	1	0	2	0	14	2	14	3	0	1	2	22	102
5:00 PM	4	5	1	0	0	1	11	3	41	0	0	0	0	44	0	6	3	0	1	0	10	0	4	2	0	5	1	12	77
5:15 PM	6	7	2	0	0	0	15	3	46	7	0	1	0	57	0	3	0	0	4	0	7	1	5	9	0	0	1	16	95
5:30 PM	4	6	4	0	0	1	15	0	57	2	0	1	3	63	0	3	0	0	2	0	5	0	7	4	0	2	0	13	96
5:45 PM	8	8	0	0	0	1	17	0	55	4	0	1	1	61	1	8	0	0	1	1	11	1	11	3	0	0	0	15	104
Total	22	26	7	0	0	3	58	6	199	13	0	3	4	225	1	20	3	0	8	1	33	2	27	18	0	7	2	56	372
6:00 PM	6	15	0	0	0	0	21	2	32	3	0	1	1	39	0	5	1	0	1	0	7	2	7	2	0	0	0	11	78
6:15 PM	8	8	2	0	0	2	20	1	33	4	0	1	3	42	0	2	0	0	2	0	4	3	6	0	0	0	0	9	75
Total	14	23	2	0	0	2	41	3	65	7	0	2	4	81	0	7	1	0	3	0	11	5	13	2	0	0	0	20	153
Grand Total	45	55	10	0	0	7	117	12	306	23	0	5	8	354	1	38	5	0	13	1	58	9	54	23	0	8	4	98	627
Approach %	38.5	47.0	8.5	0.0	0.0	6.0		3.4	86.4	6.5	0.0	1.4	2.3		1.7	65.5	8.6	0.0	22.4	1.7		9.2	55.1	23.5	0.0	8.2	4.1		
Total %	7.2	8.8	1.6	0.0	0.0	1.1	18.7	1.9	48.8	3.7	0.0	0.8	1.3	56.5	0.2	6.1	0.8	0.0	2.1	0.2	9.3	1.4	8.6	3.7	0.0	1.3	0.6	15.6	
Exiting Leg Total	80							78							101							368							627

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:15 PM	6	7	2	0	0	0	15	3	46	7	0	1	0	57	0	3	0	0	4	0	7	1	5	9	0	0	1	16	95
5:30 PM	4	6	4	0	0	1	15	0	57	2	0	1	3	63	0	3	0	0	2	0	5	0	7	4	0	2	0	13	96
5:45 PM	8	8	0	0	0	1	17	0	55	4	0	1	1	61	1	8	0	0	1	1	11	1	11	3	0	0	0	15	104
6:00 PM	6	15	0	0	0	0	21	2	32	3	0	1	1	39	0	5	1	0	1	0	7	2	7	2	0	0	0	11	78
Total Volume	24	36	6	0	0	2	68	5	190	16	0	4	5	220	1	19	1	0	8	1	30	4	30	18	0	2	1	55	373
% Approach Total	35.3	52.9	8.8	0.0	0.0	2.9		2.3	86.4	7.3	0.0	1.8	2.3		3.3	63.3	3.3	0.0	26.7	3.3		7.3	54.5	32.7	0.0	3.6	1.8		
PHF	0.750	0.600	0.375	0.000	0.000	0.500	0.810	0.417	0.833	0.571	0.000	1.000	0.417	0.873	0.250	0.594	0.250	0.000	0.500	0.250	0.682	0.500	0.682	0.500	0.000	0.250	0.250	0.859	0.897
Entering Leg	24	36	6	0	0	2	68	5	190	16	0	4	5	220	1	19	1	0	8	1	30	4	30	18	0	2	1	55	373
Exiting Leg	44							46							65							218							373
Total	112							266							95							273							746

PDI File #: **196867 (22) pm**
 Location: **N: Third Street S: Main Street**
 Location: **E: Broadway W: Broadway**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	7	8	15	0	0	0	0	252	123	375	0	0	0	0	36	7	43	0	0	0	0	17	51	68	501
4:45 PM	0	0	0	0	4	16	20	0	0	0	0	280	132	412	0	0	0	0	59	26	85	0	0	0	0	25	60	85	602
Total	0	0	0	0	11	24	35	0	0	0	0	532	255	787	0	0	0	0	95	33	128	0	0	0	0	42	111	153	1103
5:00 PM	0	0	0	0	3	13	16	0	0	0	0	407	205	612	0	0	0	0	95	32	127	0	0	0	0	33	71	104	859
5:15 PM	0	0	0	0	4	18	22	0	0	0	0	351	266	617	0	0	0	0	104	46	150	0	0	0	0	44	95	139	928
5:30 PM	0	0	0	0	1	21	22	0	0	0	0	211	98	309	0	0	0	0	73	13	86	0	0	0	0	63	72	135	552
5:45 PM	0	0	0	0	1	15	16	0	0	0	0	219	78	297	0	0	0	0	58	33	91	0	0	0	0	40	69	109	513
Total	0	0	0	0	9	67	76	0	0	0	0	1188	647	1835	0	0	0	0	330	124	454	0	0	0	0	180	307	487	2852
6:00 PM	0	0	0	0	0	10	10	0	0	0	0	205	76	281	0	0	0	0	65	35	100	0	0	0	0	41	56	97	488
6:15 PM	0	0	0	0	3	9	12	0	0	0	0	156	53	209	0	0	0	0	39	20	59	0	0	0	0	34	65	99	379
Total	0	0	0	0	3	19	22	0	0	0	0	361	129	490	0	0	0	0	104	55	159	0	0	0	0	75	121	196	867
Grand Total	0	0	0	0	23	110	133	0	0	0	0	2081	1031	3112	0	0	0	0	529	212	741	0	0	0	0	297	539	836	4822
Approach %	0	0	0	0	17.3	82.7		0	0	0	0	66.9	33.1		0	0	0	0	71.4	28.6		0	0	0	0	35.5	64.5		
Total %	0	0	0	0	0.48	2.28	2.76	0	0	0	0	43.2	21.4	64.5	0	0	0	0	11	4.4	15.4	0	0	0	0	6.16	11.2	17.3	
Exiting Leg Total	133							3112							741							836							4822

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Third Street							Broadway							Main Street							Broadway							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:45 PM	0	0	0	0	4	16	20	0	0	0	0	280	132	412	0	0	0	0	59	26	85	0	0	0	0	25	60	85	602
5:00 PM	0	0	0	0	3	13	16	0	0	0	0	407	205	612	0	0	0	0	95	32	127	0	0	0	0	33	71	104	859
5:15 PM	0	0	0	0	4	18	22	0	0	0	0	351	266	617	0	0	0	0	104	46	150	0	0	0	0	44	95	139	928
5:30 PM	0	0	0	0	1	21	22	0	0	0	0	211	98	309	0	0	0	0	73	13	86	0	0	0	0	63	72	135	552
Total Volume	0	0	0	0	12	68	80	0	0	0	0	1249	701	1950	0	0	0	0	331	117	448	0	0	0	0	165	298	463	2941
% Approach Total	0.0	0.0	0.0	0.0	15.0	85.0		0.0	0.0	0.0	0.0	64.1	35.9		0.0	0.0	0.0	0.0	73.9	26.1		0.0	0.0	0.0	0.0	35.6	64.4		
PHF	0.000	0.000	0.000	0.000	0.750	0.810	0.909	0.000	0.000	0.000	0.000	0.767	0.659	0.790	0.000	0.000	0.000	0.000	0.796	0.636	0.747	0.000	0.000	0.000	0.000	0.655	0.784	0.833	0.792
Entering Leg	0	0	0	0	12	68	80	0	0	0	0	1249	701	1950	0	0	0	0	331	117	448	0	0	0	0	165	298	463	2941
Exiting Leg	80							1950							448							463							2941
Total	160							3900							896							926							5882

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	34	0	0	0	0	34	17	130	0	0	0	147	29	0	0	0	0	29	0	0	0	0	0	0	28	0	58	0	0	86	296
7:45 AM	44	0	0	0	0	44	23	99	0	0	0	122	45	0	0	1	0	46	0	0	0	0	0	0	27	0	80	0	0	107	319
Total	78	0	0	0	0	78	40	229	0	0	0	269	74	0	0	1	0	75	0	0	0	0	0	0	55	0	138	0	0	193	615
8:00 AM	28	0	0	0	0	28	22	129	0	0	0	151	70	0	0	0	0	70	0	0	0	0	0	0	24	0	104	0	0	128	377
8:15 AM	55	0	0	0	0	55	32	139	0	0	0	171	66	0	0	0	0	66	0	0	0	0	0	0	37	0	117	0	0	154	446
8:30 AM	50	0	0	0	0	50	33	127	0	0	0	160	65	0	0	0	0	65	0	0	0	0	0	0	36	0	75	0	0	111	386
8:45 AM	62	0	0	0	0	62	25	121	0	0	0	146	60	0	0	0	0	60	0	0	0	0	0	0	40	0	129	0	0	169	437
Total	195	0	0	0	0	195	112	516	0	0	0	628	261	0	0	0	0	261	0	0	0	0	0	0	137	0	425	0	0	562	1646
9:00 AM	74	0	0	0	0	74	37	107	0	0	0	144	82	0	0	0	0	82	0	0	0	0	0	0	26	0	75	0	0	101	401
9:15 AM	72	0	0	0	0	72	17	98	0	0	0	115	67	0	0	0	0	67	0	0	0	0	0	0	43	0	95	0	0	138	392
Total	146	0	0	0	0	146	54	205	0	0	0	259	149	0	0	0	0	149	0	0	0	0	0	0	69	0	170	0	0	239	793
Grand Total	419	0	0	0	0	419	206	950	0	0	0	1156	484	0	0	1	0	485	0	0	0	0	0	0	261	0	733	0	0	994	3054
Approach %	100.0	0.0	0.0	0.0	0.0		17.8	82.2	0.0	0.0	0.0		99.8	0.0	0.0	0.2	0.0		0.0	0.0	0.0	0.0	0.0		26.3	0.0	73.7	0.0	0.0		
Total %	13.7	0.0	0.0	0.0	0.0	13.7	6.7	31.1	0.0	0.0	0.0	37.9	15.8	0.0	0.0	0.0	0.0	15.9	0.0	0.0	0.0	0.0	0.0		8.5	0.0	24.0	0.0	0.0	32.5	
Exiting Leg Total	206						1217						0						262						1369						3054

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
8:15 AM	55	0	0	0	0	55	32	139	0	0	0	171	66	0	0	0	0	66	0	0	0	0	0	0	37	0	117	0	0	154	446
8:30 AM	50	0	0	0	0	50	33	127	0	0	0	160	65	0	0	0	0	65	0	0	0	0	0	0	36	0	75	0	0	111	386
8:45 AM	62	0	0	0	0	62	25	121	0	0	0	146	60	0	0	0	0	60	0	0	0	0	0	0	40	0	129	0	0	169	437
9:00 AM	74	0	0	0	0	74	37	107	0	0	0	144	82	0	0	0	0	82	0	0	0	0	0	0	26	0	75	0	0	101	401
Total Volume	241	0	0	0	0	241	127	494	0	0	0	621	273	0	0	0	0	273	0	0	0	0	0	0	139	0	396	0	0	535	1670
% Approach Total	100.0	0.0	0.0	0.0	0.0		20.5	79.5	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		26.0	0.0	74.0	0.0	0.0		
PHF	0.814	0.000	0.000	0.000	0.000	0.814	0.858	0.888	0.000	0.000	0.000	0.908	0.832	0.000	0.000	0.000	0.000	0.832	0.000	0.000	0.000	0.000	0.000	0.000	0.869	0.000	0.767	0.000	0.000	0.791	0.936
Entering Leg	241	0	0	0	0	241	127	494	0	0	0	621	273	0	0	0	0	273	0	0	0	0	0	0	139	0	396	0	0	535	1670
Exiting Leg						127						669						0						139					735	1670	
Total						368						1290						273						139					1270	3340	

PDI File #: 196867 (29) am

Location: N: Ramp to Land Boulevard S: Ramp from Land Boulevard

Location: E: Main Street W: Main Street SW: Ramp to Memorial Drive

City, State: Cambridge, MA

Client: VHB/ S. Mandzo-Prelidic

Site Code: 14777.00

Count Date: Wednesday, May 1, 2019

Start Time: 7:30 AM

End Time: 9:30 AM

Class:



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	0	2	0	7	0	0	0	7	1	0	0	0	0	1	0	0	0	0	0	0	3	0	10	0	0	13	23
7:45 AM	4	0	0	0	0	4	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	7	13
Total	6	0	0	0	0	6	0	9	0	0	0	9	1	0	0	0	0	1	0	0	0	0	0	0	3	0	17	0	0	20	36
8:00 AM	6	0	0	0	0	6	0	9	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	1	0	5	0	0	6	21	
8:15 AM	1	0	0	0	0	1	0	6	0	0	0	6	2	0	0	0	0	2	0	0	0	0	0	0	4	0	9	0	0	13	22
8:30 AM	2	0	0	0	0	2	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	2	0	12	0	0	14	23
8:45 AM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	5	0	6	0	0	11	17
Total	9	0	0	0	0	9	0	28	0	0	0	28	2	0	0	0	0	2	0	0	0	0	0	0	12	0	32	0	0	44	83
9:00 AM	4	0	0	0	0	4	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	1	0	10	0	0	11	23	
9:15 AM	3	0	0	0	0	3	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	3	0	11	0	0	14	25	
Total	7	0	0	0	0	7	0	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	4	0	21	0	0	25	48	
Grand Total	22	0	0	0	0	22	0	53	0	0	0	53	3	0	0	0	0	3	0	0	0	0	0	0	19	0	70	0	0	89	167
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		21.3	0.0	78.7	0.0	0.0		
Total %	13.2	0.0	0.0	0.0	0.0	13.2	0.0	31.7	0.0	0.0	0.0	31.7	1.8	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0	0.0	11.4	0.0	41.9	0.0	0.0	53.3	
Exiting Leg Total	0						73						0						19						75						167
Buses	3	0	0	0	0	3	0	28	0	0	0	28	1	0	0	0	0	1	0	0	0	0	0	0	11	0	35	0	0	46	78
% Buses	13.6	0.0	0.0	0.0	0.0	13.6	0.0	52.8	0.0	0.0	0.0	52.8	33.3	0.0	0.0	0.0	0.0	33.3	0.0	0.0	0.0	0.0	0.0	0.0	57.9	0.0	50.0	0.0	0.0	51.7	46.7
Exiting Leg Total	0						36						0						11						31						78
Single-Unit Trucks	17	0	0	0	0	17	0	24	0	0	0	24	2	0	0	0	0	2	0	0	0	0	0	0	5	0	31	0	0	36	79
% Single-Unit	77.3	0.0	0.0	0.0	0.0	77.3	0.0	45.3	0.0	0.0	0.0	45.3	66.7	0.0	0.0	0.0	0.0	66.7	0.0	0.0	0.0	0.0	0.0	0.0	26.3	0.0	44.3	0.0	0.0	40.4	47.3
Exiting Leg Total	0						33						0						5						41						79
Articulated Trucks	2	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	7	10	
% Articulated	9.1	0.0	0.0	0.0	0.0	9.1	0.0	1.9	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.8	0.0	5.7	0.0	0.0	7.9	6.0	
Exiting Leg Total	0						4						0						3						3						10

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
8:30 AM	2	0	0	0	0	2	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	2	0	12	0	0	14	23
8:45 AM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	5	0	6	0	0	11	17
9:00 AM	4	0	0	0	0	4	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	1	0	10	0	0	11	23
9:15 AM	3	0	0	0	0	3	0	8	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0	3	0	11	0	0	14	25
Total Volume	9	0	0	0	0	9	0	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	11	0	39	0	0	50	88
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	100.0	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	22.0	0.0	78.0	0.0	0.0		
PHF	0.563	0.000	0.000	0.000	0.000	0.563	0.000	0.906	0.000	0.000	0.000	0.906	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.550	0.000	0.813	0.000	0.000	0.893	0.880	
Buses	1	0	0	0	0	1	0	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	6	0	20	0	0	26	43
Buses %	11.1	0.0	0.0	0.0	0.0	11.1	0.0	55.2	0.0	0.0	0.0	55.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	54.5	0.0	51.3	0.0	0.0	52.0	48.9	
Single-Unit Trucks	8	0	0	0	0	8	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	3	0	17	0	0	20	40
Single-Unit %	88.9	0.0	0.0	0.0	0.0	88.9	0.0	41.4	0.0	0.0	0.0	41.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.3	0.0	43.6	0.0	0.0	40.0	45.5
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	4	5

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	0.0	0.0	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.2	0.0	5.1	0.0	0.0	8.0	5.7
Buses	1	0	0	0	0	1	0	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	6	0	20	0	0	26	43
Single-Unit Trucks	8	0	0	0	0	8	0	12	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	3	0	17	0	0	20	40
Articulated Trucks	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	4	5
Total Entering Leg	9	0	0	0	0	9	0	29	0	0	0	29	0	0	0	0	0	0	0	0	0	0	0	0	11	0	39	0	0	50	88
Buses						0						20						0						6						17	43
Single-Unit Trucks						0						17						0						3						20	40
Articulated Trucks						0						2						0						2						1	5
Total Exiting Leg						0						39						0						11						38	88

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	4	8
7:45 AM	1	0	0	0	0	1	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	6
Total	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	0	8	14
8:00 AM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3	0	0	4	10
8:15 AM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	0	1	0	0	0	0	0	3	0	5	0	0	8	11
8:30 AM	1	0	0	0	0	1	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	8
8:45 AM	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	0	0	6	8
Total	2	0	0	0	0	2	0	12	0	0	0	12	1	0	0	0	0	1	0	0	0	0	0	0	7	0	15	0	0	22	37
9:00 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	7	12
9:15 AM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	2	0	7	0	0	9	15
Total	0	0	0	0	0	0	0	11	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0	3	0	13	0	0	16	27
Grand Total	3	0	0	0	0	3	0	28	0	0	0	28	1	0	0	0	0	1	0	0	0	0	0	0	11	0	35	0	0	46	78
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		23.9	0.0	76.1	0.0	0.0		
Total %	3.8	0.0	0.0	0.0	0.0	3.8	0.0	35.9	0.0	0.0	0.0	35.9	1.3	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.0	0.0	0.0	0.0	14.1	0.0	44.9	0.0	0.0	59.0	
Exiting Leg Total	0						36						0						11						31						78

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
8:30 AM	1	0	0	0	0	1	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	8	
8:45 AM	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	3	0	3	0	0	6	8
9:00 AM	0	0	0	0	0	0	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	7	12
9:15 AM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	7	0	0	9	15
Total Volume	1	0	0	0	0	1	0	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	20	0	0	26	43
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	100.0	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		23.1	0.0	76.9	0.0	0.0			
PHF	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.667	0.000	0.000	0.000	0.667	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.714	0.000	0.000	0.722	0.717	
Entering Leg	1	0	0	0	0	1	0	16	0	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	6	0	20	0	0	26	43	
Exiting Leg						0						20												6						17	43	
Total						1						36						0						6						43	86	

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
7:30 AM	2	0	0	0	0	2	0	3	0	0	0	3	1	0	0	0	0	1	0	0	0	0	0	0	1	0	0	7	0	0	8	14
7:45 AM	2	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	5	
Total	4	0	0	0	0	4	0	4	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	1	0	9	0	0	10	19	
8:00 AM	4	0	0	0	0	4	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10	
8:15 AM	1	0	0	0	0	1	0	4	0	0	0	4	1	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	4	10	
8:30 AM	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	0	0	9	14	
8:45 AM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	3	7	
Total	6	0	0	0	0	6	0	16	0	0	0	16	1	0	0	0	0	1	0	0	0	0	0	0	3	0	15	0	0	18	41	
9:00 AM	4	0	0	0	0	4	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	9	
9:15 AM	3	0	0	0	0	3	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	5	10	
Total	7	0	0	0	0	7	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	0	8	19	
Grand Total	17	0	0	0	0	17	0	24	0	0	0	24	2	0	0	0	0	2	0	0	0	0	0	0	5	0	31	0	0	36	79	
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		13.9	0.0	86.1	0.0	0.0			
Total %	21.5	0.0	0.0	0.0	0.0	21.5	0.0	30.4	0.0	0.0	0.0	30.4	2.5	0.0	0.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	6.3	0.0	39.2	0.0	0.0	45.6		
Exiting Leg Total	0						33						0						5						41						79	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
8:00 AM	4	0	0	0	0	4	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	10
8:15 AM	1	0	0	0	0	1	0	4	0	0	0	4	1	0	0	0	0	0	1	0	0	0	0	0	0	1	0	3	0	0	4	10
8:30 AM	1	0	0	0	0	1	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	8	0	0	9	14
8:45 AM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	3	7
Total Volume	6	0	0	0	0	6	0	16	0	0	0	16	1	0	0	0	0	1	0	0	0	0	0	0	0	3	0	15	0	0	18	41
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		16.7	0.0	83.3	0.0	0.0			
PHF	0.375	0.000	0.000	0.000	0.000	0.375	0.000	1.000	0.000	0.000	0.000	1.000	0.250	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.000	0.469	0.000	0.000	0.500	0.732	
Entering Leg	6	0	0	0	0	6	0	16	0	0	0	16	1	0	0	0	0	1	0	0	0	0	0	0	3	0	15	0	0	18	41	
Exiting Leg	0						16						0						3						22						41	
Total	6						32						1						3						40						82	

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
7:30 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	1	0	0	0	0	1
7:45 AM	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	0	1	0	1	
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	
8:00 AM	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	0	0	0	1	
8:15 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	0	1	0	0	1	
8:30 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	1	0	0	0	0	1	
8:45 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	1	0	1	0	0	2	
Total	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	4	
9:00 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	0	0	1	0	0	1	
9:15 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	0	0	0	0	0	
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
Grand Total	2	0	0	0	0	2	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	0	0	7	
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	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		42.9	0.0	57.1	0.0	0.0		
Total %	20.0	0.0	0.0	0.0	0.0	20.0	0.0	10.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0	0.0	40.0	0.0	0.0	70.0	
Exiting Leg Total	0						4						0						3						3						10

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
8:15 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	0	0	1	0	0	1	1
8:30 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	1	0	0	0	0	1	1
8:45 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	1	0	1	0	0	0	2	2
9:00 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	2
Total Volume	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	0	3	0	0	5	6
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	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		40.0	0.0	60.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.750	0.000	0.000	0.625	0.750		
Entering Leg	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2	2	0	3	0	0	5	6	
Exiting Leg	0						3						0						2						1						6	
Total	0						4						0						2						6						12	

PDI File #: **196867 (29) am**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Ramp to Land Boulevard									Main Street								Ramp from Land Boulevard								Ramp to Memorial Drive								Main Street								Total
	from North									from East								from South								from Southwest								from West								
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:30 AM	0	0	0	0	0	5	14	19	0	0	0	0	0	0	0	0	0	0	0	0	0	26	9	35	0	0	0	0	0	25	10	35	0	0	0	0	0	0	0	0	0	89
7:45 AM	0	0	0	0	0	13	21	34	0	0	0	0	0	0	0	0	0	0	0	0	0	15	14	29	0	0	0	0	0	16	16	32	0	0	0	0	0	0	0	0	0	95
Total	0	0	0	0	0	18	35	53	0	0	0	0	0	0	0	0	0	0	0	0	0	41	23	64	0	0	0	0	0	41	26	67	0	0	0	0	0	0	0	0	0	184
8:00 AM	0	0	0	0	0	8	23	31	0	0	0	0	0	0	0	0	0	0	0	0	21	15	36	0	0	0	0	0	19	17	36	0	0	0	0	0	0	0	0	0	103	
8:15 AM	0	0	0	0	0	3	20	23	0	0	0	0	0	0	0	0	0	0	0	0	35	15	50	0	0	0	0	0	39	14	53	0	0	0	0	0	0	0	0	0	126	
8:30 AM	0	0	0	0	0	7	20	27	0	0	0	0	0	0	0	0	0	0	0	0	21	21	42	0	0	0	0	0	21	21	42	0	0	0	0	0	0	0	0	0	111	
8:45 AM	0	0	0	0	0	4	19	23	0	0	0	0	0	0	0	0	0	0	0	0	28	13	41	0	0	0	0	0	28	13	41	0	0	0	0	0	0	0	0	0	105	
Total	0	0	0	0	0	22	82	104	0	0	0	0	0	0	0	0	0	0	0	0	105	64	169	0	0	0	0	0	107	65	172	0	0	0	0	0	0	0	0	0	445	
9:00 AM	0	0	0	0	0	4	13	17	0	0	0	0	0	0	0	0	0	0	0	0	28	8	36	0	0	0	0	0	28	8	36	0	0	0	0	0	0	0	0	0	89	
9:15 AM	0	0	0	0	0	4	16	20	0	0	0	0	0	0	0	0	0	0	0	0	23	13	36	0	0	0	0	0	23	13	36	0	0	0	0	0	0	0	0	0	92	
Total	0	0	0	0	0	8	29	37	0	0	0	0	0	0	0	0	0	0	0	0	51	21	72	0	0	0	0	0	51	21	72	0	0	0	0	0	0	0	0	0	181	
Grand Total	0	0	0	0	0	48	146	194	0	0	0	0	0	0	0	0	0	0	0	0	197	108	305	0	0	0	0	0	199	112	311	0	0	0	0	0	0	0	0	0	810	
Approach %	0	0	0	0	0	24.7	75.3		0	0	0	0	0	0	0		0	0	0	0	64.6	35.4		0	0	0	0	0	64	36		0	0	0	0	0	0	0	0			
Total %	0	0	0	0	0	5.93	18	24	0	0	0	0	0	0	0	0	0	0	0	24.3	13.3	37.7	0	0	0	0	0	24.6	13.8	38.4	0	0	0	0	0	0	0	0	0			
Exiting Leg Total	194								0								305								311								0								810	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ramp to Land Boulevard								Main Street								Ramp from Land Boulevard								Ramp to Memorial Drive								Main Street								Total	
	from North								from East								from South								from Southwest								from West									
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
8:00 AM	0	0	0	0	0	8	23	31	0	0	0	0	0	0	0	0	0	0	0	0	0	21	15	36	0	0	0	0	0	19	17	36	0	0	0	0	0	0	0	0	0	103
8:15 AM	0	0	0	0	0	3	20	23	0	0	0	0	0	0	0	0	0	0	0	0	0	35	15	50	0	0	0	0	0	39	14	53	0	0	0	0	0	0	0	0	126	
8:30 AM	0	0	0	0	0	7	20	27	0	0	0	0	0	0	0	0	0	0	0	0	21	21	42	0	0	0	0	0	21	21	42	0	0	0	0	0	0	0	0	111		
8:45 AM	0	0	0	0	0	4	19	23	0	0	0	0	0	0	0	0	0	0	0	0	28	13	41	0	0	0	0	0	28	13	41	0	0	0	0	0	0	0	0	105		
Total Volume	0	0	0	0	0	22	82	104	0	0	0	0	0	0	0	0	0	0	0	0	105	64	169	0	0	0	0	0	107	65	172	0	0	0	0	0	0	0	0	445		
% Approach Total	0.0	0.0	0.0	0.0	0.0	21.2	78.8		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	62.1	37.9		0.0	0.0	0.0	0.0	0.0	62.2	37.8		0.0	0.0	0.0	0.0	0.0	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.688	0.891	0.839	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.762	0.845	0.000	0.000	0.000	0.000	0.000	0.686	0.774	0.811	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.883		
Entering Leg	0	0	0	0	0	22	82	104	0	0	0	0	0	0	0	0	0	0	0	0	105	64	169	0	0	0	0	0	107	65	172	0	0	0	0	0	0	0	0	445		
Exiting Leg	104								0								169								172								0								445	
Total	208								0								338								344								0								890	

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Ramp to Land Boulevard							Main Street							Ramp from Land Boulevard							Ramp to Memorial Drive							Main Street							Total
	from North							from East							from South							from Southwest							from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total						
4:30 PM	25	0	0	0	0	25	21	74	0	0	0	95	132	0	0	0	0	132	0	0	0	0	0	0	62	0	220	0	0	282	534					
4:45 PM	34	0	0	0	0	34	24	73	0	0	0	97	168	0	0	0	0	168	0	0	0	0	0	0	65	0	212	0	0	277	576					
Total	59	0	0	0	0	59	45	147	0	0	0	192	300	0	0	0	0	300	0	0	0	0	0	0	127	0	432	0	0	559	1110					
5:00 PM	18	0	0	0	0	18	18	80	0	0	0	98	140	0	0	0	0	140	0	0	0	0	0	0	49	0	236	0	0	285	541					
5:15 PM	22	0	0	0	0	22	16	79	0	0	0	95	148	0	0	0	0	148	0	0	0	0	0	0	52	0	244	0	0	296	561					
5:30 PM	20	0	0	0	0	20	16	76	0	0	0	92	134	0	0	0	0	134	0	0	0	0	0	0	51	0	242	0	0	293	539					
5:45 PM	23	0	0	0	0	23	14	81	0	0	0	95	131	0	0	0	0	131	0	0	0	0	0	0	64	0	218	0	0	282	531					
Total	83	0	0	0	0	83	64	316	0	0	0	380	553	0	0	0	0	553	0	0	0	0	0	0	216	0	940	0	0	1156	2172					
6:00 PM	17	0	0	0	0	17	12	68	0	0	0	80	148	0	0	0	0	148	0	0	0	0	0	0	52	0	207	0	0	259	504					
6:15 PM	32	0	0	0	0	32	16	79	0	0	0	95	164	0	0	0	0	164	0	1	0	0	0	1	55	0	173	0	0	228	520					
Total	49	0	0	0	0	49	28	147	0	0	0	175	312	0	0	0	0	312	0	1	0	0	0	1	107	0	380	0	0	487	1024					
Grand Total	191	0	0	0	0	191	137	610	0	0	0	747	1165	0	0	0	0	1165	0	1	0	0	0	1	450	0	1752	0	0	2202	4306					
Approach %	100.0	0.0	0.0	0.0	0.0		18.3	81.7	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		20.4	0.0	79.6	0.0	0.0							
Total %	4.4	0.0	0.0	0.0	0.0	4.4	3.2	14.2	0.0	0.0	0.0	17.3	27.1	0.0	0.0	0.0	0.0	27.1	0.0	0.0	0.0	0.0	0.0		10.5	0.0	40.7	0.0	0.0	51.1						
Exiting Leg Total	137						2918						0						450						801						4306					

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ramp to Land Boulevard							Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							Total
	from North							from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total			
4:45 PM	34	0	0	0	0	34	24	73	0	0	0	97	168	0	0	0	0	168	0	0	0	0	0	0	65	0	212	0	0	277	576		
5:00 PM	18	0	0	0	0	18	18	80	0	0	0	98	140	0	0	0	0	140	0	0	0	0	0	0	49	0	236	0	0	285	541		
5:15 PM	22	0	0	0	0	22	16	79	0	0	0	95	148	0	0	0	0	148	0	0	0	0	0	0	52	0	244	0	0	296	561		
5:30 PM	20	0	0	0	0	20	16	76	0	0	0	92	134	0	0	0	0	134	0	0	0	0	0	0	51	0	242	0	0	293	539		
Total Volume	94	0	0	0	0	94	74	308	0	0	0	382	590	0	0	0	0	590	0	0	0	0	0	0	217	0	934	0	0	1151	2217		
% Approach Total	100.0	0.0	0.0	0.0	0.0		19.4	80.6	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		18.9	0.0	81.1	0.0	0.0				
PHF	0.691	0.000	0.000	0.000	0.000	0.691	0.771	0.963	0.000	0.000	0.000	0.974	0.878	0.000	0.000	0.000	0.000	0.878	0.000	0.000	0.000	0.000	0.000	0.000	0.835	0.000	0.957	0.000	0.000	0.972	0.962		
Entering Leg	94	0	0	0	0	94	74	308	0	0	0	382	590	0	0	0	0	590	0	0	0	0	0	0	217	0	934	0	0	1151	2217		
Exiting Leg						74						1524						0						217						402	2217		
Total						168						1906						590						217						1553	4434		

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
Articulated %	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	0.0	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
Buses	1	0	0	0	0	1	0	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	1	0	20	0	0	21	41
Single-Unit Trucks	0	0	0	0	0	0	0	4	0	0	0	4	2	0	0	0	0	2	0	0	0	0	0	0	2	0	5	0	0	7	13
Articulated Trucks	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 Entering Leg	1	0	0	0	0	1	0	23	0	0	0	23	2	0	0	0	0	2	0	0	0	0	0	0	3	0	25	0	0	28	54
Buses						0						20						0						1						20	41
Single-Unit Trucks						0						7						0						2						4	13
Articulated Trucks						0						0						0						0						0	0
Total Exiting Leg						0						27						0						3						24	54

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total	
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		
4:30 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	9
4:45 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11	
Total	2	0	0	0	0	2	0	10	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	0	8	20	
5:00 PM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11	
5:15 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	9	
5:30 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	10	
5:45 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	6	0	0	7	11
Total	1	0	0	0	0	1	0	19	0	0	0	19	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	20	0	0	21	41
6:00 PM	0	0	0	0	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	6	
6:15 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	4	0	0	5	9
Total	0	0	0	0	0	0	0	7	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	7	0	0	8	15
Grand Total	3	0	0	0	0	3	0	36	0	0	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	35	0	0	37	76
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	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		5.4	0.0	94.6	0.0	0.0			
Total %	3.9	0.0	0.0	0.0	0.0	3.9	0.0	47.4	0.0	0.0	0.0	47.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.6	0.0	46.1	0.0	0.0	48.7		
Exiting Leg Total	0						35						0						2						39						76	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Righ	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
4:45 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11
5:00 PM	0	0	0	0	0	0	0	6	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	11	
5:15 PM	0	0	0	0	0	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	9	
5:30 PM	1	0	0	0	0	1	0	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	10	
Total Volume	2	0	0	0	0	2	0	20	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19	41	
% Approach Total	100.0	0.0	0.0	0.0	0.0		0.0	100.0	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	100.0	0.0	0.0			
PHF	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.833	0.000	0.000	0.000	0.833	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.950	0.000	0.000	0.950	0.932		
Entering Leg	2	0	0	0	0	2	0	20	0	0	0	20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19	41	
Exiting Leg						0						19																		22	41	
Total						2						39						0												41	82	

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
4:30 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	1	0	1	0	0	2
4:45 PM	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
Total	2	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	2	0	0	3	
5:00 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	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	3
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	1	0	2	0	0	3	5
Total	0	0	0	0	0	0	0	4	0	0	0	0	4	2	0	0	0	0	2	0	0	0	0	0	2	0	5	0	0	7	13
6:00 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	0	0	0	0	0	0
6:15 PM	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	1	0	0	1	2
Total	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	1	0	0	1	2
Grand Total	3	0	0	0	0	3	0	4	0	0	0	4	2	0	0	0	0	2	0	0	0	0	0	0	3	0	8	0	0	11	20
Approach %	100.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		27.3	0.0	72.7	0.0	0.0		
Total %	15.0	0.0	0.0	0.0	0.0	15.0	0.0	20.0	0.0	0.0	0.0	20.0	10.0	0.0	0.0	0.0	0.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	15.0	0.0	40.0	0.0	0.0	55.0	
Exiting Leg Total	0						10						0						3						7						20

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street							
	from North						from East						from South						from Southwest						from West							
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total		Total
5:00 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	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	2	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2	0	0	2	5	
5:30 PM	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	0	1	0	0	2	3	
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	1	0	0	0	0	0	0	1	0	2	0	0	3	5	
Total Volume	0	0	0	0	0	0	0	4	0	0	0	4	2	0	0	0	0	2	0	0	0	0	0	0	2	2	0	5	0	0	7	13
% Approach Total	0.0	0.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0	0.0		100.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0		28.6	0.0	71.4	0.0	0.0			
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.500	0.500	0.000	0.000	0.000	0.000	0.500	0.000	0.000	0.000	0.000	0.000	0.000	0.500	0.000	0.625	0.000	0.000	0.583	0.650	
Entering Leg	0	0	0	0	0	0	0	4	0	0	0	4	2	0	0	0	0	2	0	0	0	0	0	0	2	2	0	5	0	0	7	13
Exiting Leg	0						7						0						2						4						13	
Total	0						11						2						2						11						26	

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
4:30 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	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0
5:00 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	0	0	0	0	0	0
5:15 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	0	0	0	0	0	0
5:30 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	0	0	0	0	0	0
5:45 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	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
6:00 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	0	1	0	0	1	1
6:15 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	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	0	0	0	0	0	1	0	0	1	1
Grand Total	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	1	0	0	1	1
Approach %	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		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	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	0.0	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	100.0	0.0	0.0	100.0	
Exiting Leg Total	0						1						0						0						0						1

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Ramp to Land Boulevard						Main Street						Ramp from Land Boulevard						Ramp to Memorial Drive						Main Street						Total
	from North						from East						from South						from Southwest						from West						
	Right	Bear Right	Thru	Left	U-Turn	Total	Right	Thru	Bear Left	Left	U-Turn	Total	Right	Thru	Left	Hard Left	U-Turn	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	Total	Hard Right	Right	Thru	Left	U-Turn	Total	
5:15 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	0	0	0	0	0	
5:30 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	0	0	0	0	0	
5:45 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	
6:00 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	0	1	0	0	1	
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	0	1	0	0	1	
% Approach Total	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		0.0	0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.000	0.250	
Entering Leg	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	1	0	0	1	
Exiting Leg	0						1						0						0						0						1
Total	0						1						0						0						0						2

PDI File #: 196867 (29) pm

Location: N: Ramp to Land Boulevard S: Ramp from Land Boulevard

Location: E: Main Street W: Main Street SW: Ramp to Memorial Drive

City, State: Cambridge, MA

Client: VHB/ S. Mandzo-Predzic

Site Code: 14777.00

Count Date: Wednesday, May 1, 2019

Start Time: 4:30 PM

End Time: 6:30 PM

Class:



Bicycles (on Roadway and Crosswalks)

	Ramp to Land Boulevard									Main Street									Ramp from Land Boulevard									Ramp to Memorial Drive									Main Street									Total
	from North									from East									from South									from Southwest									from West									
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total						
4:30 PM	5	0	0	0	0	0	17	22	7	7	0	0	0	0	0	14	0	0	0	0	0	0	15	15	0	0	0	0	0	0	16	16	0	0	0	0	0	0	0	0	0	0	67			
4:45 PM	1	0	0	0	0	0	19	20	3	3	0	0	0	0	0	6	0	0	0	0	0	0	18	18	0	0	0	0	0	0	16	16	0	0	0	0	0	0	0	0	0	0	60			
Total	6	0	0	0	0	0	36	42	10	10	0	0	0	0	0	20	0	0	0	0	0	0	33	33	0	0	0	0	0	0	32	32	0	0	0	0	0	0	0	0	0	0	127			
5:00 PM	12	0	0	0	0	1	42	55	13	6	0	0	0	0	0	19	0	0	0	0	0	0	17	17	0	0	0	0	0	0	18	18	0	0	0	0	0	0	0	0	0	0	109			
5:15 PM	10	0	0	0	0	0	42	52	9	12	0	0	0	0	0	21	0	0	0	0	0	0	16	16	0	0	0	0	0	0	15	15	1	1	0	0	0	0	0	0	2	106				
5:30 PM	15	0	0	0	0	0	46	61	21	8	0	0	0	0	0	29	0	0	0	0	0	1	19	20	0	0	0	0	0	1	19	20	0	0	0	0	0	0	0	0	0	130				
5:45 PM	9	0	0	0	0	1	44	54	14	5	0	0	0	0	0	19	1	0	0	1	0	3	21	26	0	0	0	0	0	3	21	24	0	0	0	0	0	0	0	0	0	123				
Total	46	0	0	0	0	2	174	222	57	31	0	0	0	0	0	88	1	0	0	1	0	4	73	79	0	0	0	0	0	4	73	77	1	1	0	0	0	0	0	2	468					
6:00 PM	5	0	0	0	0	0	33	38	11	6	0	0	0	0	0	17	0	0	0	0	0	0	16	16	0	0	0	0	0	0	17	17	0	0	1	0	0	0	0	1	89					
6:15 PM	8	0	0	0	0	1	31	40	8	5	0	0	0	0	0	13	0	0	0	0	0	0	17	17	0	0	0	0	0	0	18	18	0	0	0	0	0	0	0	0	88					
Total	13	0	0	0	0	1	64	78	19	11	0	0	0	0	0	30	0	0	0	0	0	0	33	33	0	0	0	0	0	0	35	35	0	0	1	0	0	0	0	1	177					
Grand Total	65	0	0	0	0	3	274	342	86	52	0	0	0	0	0	138	1	0	0	1	0	4	139	145	0	0	0	0	0	4	140	144	1	1	1	0	0	0	0	3	772					
Approach %	19.0	0.0	0.0	0.0	0.0	0.9	80.1		62.3	37.7	0.0	0.0	0.0	0.0	0.0		0.7	0.0	0.0	0.7	0.0	2.8	95.9		0.0	0.0	0.0	0.0	0.0	2.8	97.2		33.3	33.3	33.3	0.0	0.0	0.0	0.0							
Total %	8.4	0.0	0.0	0.0	0.0	0.4	35.5	44.3	11.1	6.7	0.0	0.0	0.0	0.0	0.0	17.9	0.1	0.0	0.0	0.1	0.0	0.5	18.0	18.8	0.0	0.0	0.0	0.0	0.0	0.5	18.1	18.7	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4						
Exiting Leg Total	363									2									144									146									117									772

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ramp to Land Boulevard								Main Street								Ramp from Land Boulevard								Ramp to Memorial Drive								Main Street								Total	
	from North								from East								from South								from Southwest								from West									
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
5:00 PM	12	0	0	0	0	1	42	55	13	6	0	0	0	0	0	19	0	0	0	0	0	0	17	17	0	0	0	0	0	0	18	18	0	0	0	0	0	0	0	0	0	109
5:15 PM	10	0	0	0	0	0	42	52	9	12	0	0	0	0	0	21	0	0	0	0	0	0	16	16	0	0	0	0	0	0	15	15	1	1	0	0	0	0	0	0	2	106
5:30 PM	15	0	0	0	0	0	46	61	21	8	0	0	0	0	0	29	0	0	0	0	0	1	19	20	0	0	0	0	0	1	19	20	0	0	0	0	0	0	0	0	0	130
5:45 PM	9	0	0	0	0	1	44	54	14	5	0	0	0	0	0	19	1	0	0	1	0	3	21	26	0	0	0	0	0	3	21	24	0	0	0	0	0	0	0	0	0	123
Total Volume	46	0	0	0	0	2	174	222	57	31	0	0	0	0	0	88	1	0	0	1	0	4	73	79	0	0	0	0	0	4	73	77	1	1	0	0	0	0	0	0	2	468
% Approach Total	20.7	0.0	0.0	0.0	0.0	0.9	78.4		64.8	35.2	0.0	0.0	0.0	0.0	0.0		1.3	0.0	0.0	1.3	0.0	5.1	92.4		0.0	0.0	0.0	0.0	0.0	5.2	94.8		50.0	50.0	0.0	0.0	0.0	0.0	0.0	0.0		
PHF	0.767	0.000	0.000	0.000	0.000	0.500	0.946	0.910	0.679	0.646	0.000	0.000	0.000	0.000	0.000	0.759	0.250	0.000	0.000	0.250	0.000	0.333	0.869	0.760	0.000	0.000	0.000	0.000	0.000	0.333	0.869	0.802	0.250	0.250	0.000	0.000	0.000	0.000	0.000	0.250		0.900
Entering Leg	46	0	0	0	0	2	174	222	57	31	0	0	0	0	0	88	1	0	0	1	0	4	73	79	0	0	0	0	0	4	73	77	1	1	0	0	0	0	0	0	2	468
Exiting Leg	233								1								78								79								77								468	
Total	455								89								157								156								79								936	

PDI File #: **196867 (29) pm**
 Location: **N: Ramp to Land Boulevard S: Ramp from Land Boulevard**
 Location: **E: Main Street W: Main Street SW: Ramp to Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Ramp to Land Boulevard									Main Street								Ramp from Land Boulevard								Ramp to Memorial Drive								Main Street								Total
	from North									from East								from South								from Southwest								from West								
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
4:30 PM	0	0	0	0	0	25	6	31	0	0	0	0	0	0	0	0	0	0	0	0	0	23	33	56	0	0	0	0	0	23	31	54	0	0	0	0	0	0	0	0	0	141
4:45 PM	0	0	0	0	0	17	17	34	0	0	0	0	0	0	0	0	0	0	0	0	0	16	46	62	0	0	0	0	0	15	47	62	0	0	0	0	0	0	0	0	158	
Total	0	0	0	0	0	42	23	65	0	0	0	0	0	0	0	0	0	0	0	0	0	39	79	118	0	0	0	0	0	38	78	116	0	0	0	0	0	0	0	0	299	
5:00 PM	0	0	0	0	0	29	11	40	0	0	0	0	0	0	0	0	0	0	0	0	21	58	79	0	0	0	0	0	20	54	74	0	0	0	0	0	0	0	0	193		
5:15 PM	0	0	0	0	0	30	10	40	0	0	0	0	0	0	0	0	0	0	0	0	17	44	61	0	0	0	0	0	18	44	62	0	0	0	0	0	0	0	0	163		
5:30 PM	0	0	0	0	0	22	7	29	0	0	0	0	0	0	0	0	0	0	0	0	32	36	68	0	0	0	0	0	32	35	67	0	0	0	0	0	0	0	0	164		
5:45 PM	0	0	0	0	0	16	15	31	0	0	0	0	0	0	0	0	0	0	0	0	26	40	66	0	0	0	0	0	26	41	67	0	0	1	0	0	0	0	1	165		
Total	0	0	0	0	0	97	43	140	0	0	0	0	0	0	0	0	0	0	0	0	96	178	274	0	0	0	0	0	96	174	270	0	0	1	0	0	0	0	1	685		
6:00 PM	0	0	0	0	0	15	17	32	0	0	0	0	0	0	0	0	0	0	0	0	28	50	78	0	0	0	0	0	26	53	79	0	0	0	0	0	0	0	0	189		
6:15 PM	0	0	0	0	0	10	5	15	0	0	0	0	0	0	0	0	0	0	0	0	27	26	53	0	0	0	0	0	30	23	53	0	0	0	0	0	0	0	0	121		
Total	0	0	0	0	0	25	22	47	0	0	0	0	0	0	0	0	0	0	0	0	55	76	131	0	0	0	0	0	56	76	132	0	0	0	0	0	0	0	0	310		
Grand Total	0	0	0	0	0	164	88	252	0	0	0	0	0	0	0	0	0	0	0	0	190	333	523	0	0	0	0	0	190	328	518	0	0	1	0	0	0	0	1	1294		
Approach %	0	0	0	0	0	65.1	34.9		0	0	0	0	0	0	0		0	0	0	0	36.3	63.7		0	0	0	0	0	36.7	63.3		0	0	100	0	0	0	0				
Total %	0	0	0	0	0	12.7	6.8	19.5	0	0	0	0	0	0	0	0	0	0	0	0	14.7	25.7	40.4	0	0	0	0	0	14.7	25.3	40	0	0	0.08	0	0	0	0	0.08			
Exiting Leg Total	252								1								523								518								0								1294	

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ramp to Land Boulevard								Main Street								Ramp from Land Boulevard								Ramp to Memorial Drive								Main Street								Total
	from North								from East								from South								from Southwest								from West								
	Right	Bear Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Bear Left	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	Hard Left	U-Turn	CW-WB	CW-EB	Total	Hard Right	Bear Right	Bear Left	Hard Left	U-Turn	CW-NWB	CW-SEB	Total	Hard Right	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	0	29	11	40	0	0	0	0	0	0	0	0	0	0	0	0	21	58	79	0	0	0	0	0	20	54	74	0	0	0	0	0	0	0	0	0	193
5:15 PM	0	0	0	0	0	30	10	40	0	0	0	0	0	0	0	0	0	0	0	0	17	44	61	0	0	0	0	0	18	44	62	0	0	0	0	0	0	0	0	0	163
5:30 PM	0	0	0	0	0	22	7	29	0	0	0	0	0	0	0	0	0	0	0	0	32	36	68	0	0	0	0	0	32	35	67	0	0	0	0	0	0	0	0	0	164
5:45 PM	0	0	0	0	0	16	15	31	0	0	0	0	0	0	0	0	0	0	0	0	26	40	66	0	0	0	0	0	26	41	67	0	0	1	0	0	0	0	0	1	165
Total Volume	0	0	0	0	0	97	43	140	0	0	0	0	0	0	0	0	0	0	0	0	96	178	274	0	0	0	0	0	96	174	270	0	0	1	0	0	0	0	0	1	685
% Approach Total	0.0	0.0	0.0	0.0	0.0	69.3	30.7		0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	35.0	65.0		0.0	0.0	0.0	0.0	0.0	35.6	64.4		0.0	0.0	100.0	0.0	0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.808	0.717	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.750	0.767	0.867	0.000	0.000	0.000	0.000	0.000	0.750	0.806	0.912	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.250	0.887	
Entering Leg	0	0	0	0	0	97	43	140	0	0	0	0	0	0	0	0	0	0	0	0	96	178	274	0	0	0	0	0	96	174	270	0	0	1	0	0	0	0	0	1	685
Exiting Leg	140								1								274								270								0								685
Total	280								1								548								540								1								1370

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	35	10	4	0	49	4	16	1	0	21	14	20	16	0	50	17	29	5	0	51	171
7:45 AM	25	14	3	0	42	7	26	3	0	36	21	33	24	0	78	9	36	12	0	57	213
Total	60	24	7	0	91	11	42	4	0	57	35	53	40	0	128	26	65	17	0	108	384
8:00 AM	27	8	1	0	36	2	20	1	0	23	21	36	20	0	77	12	54	10	0	76	212
8:15 AM	29	11	8	0	48	8	17	3	0	28	24	36	16	0	76	7	48	9	0	64	216
8:30 AM	37	9	6	0	52	9	19	4	0	32	28	30	24	0	82	10	46	8	0	64	230
8:45 AM	26	6	7	0	39	4	28	1	0	33	30	41	29	0	100	8	47	13	0	68	240
Total	119	34	22	0	175	23	84	9	0	116	103	143	89	0	335	37	195	40	0	272	898
9:00 AM	27	9	6	0	42	7	22	3	1	33	25	44	23	0	92	10	37	11	0	58	225
9:15 AM	24	7	9	0	40	4	25	3	0	32	25	45	21	0	91	10	48	7	0	65	228
Total	51	16	15	0	82	11	47	6	1	65	50	89	44	0	183	20	85	18	0	123	453
Grand Total	230	74	44	0	348	45	173	19	1	238	188	285	173	0	646	83	345	75	0	503	1735
Approach %	66.1	21.3	12.6	0.0		18.9	72.7	8.0	0.4		29.1	44.1	26.8	0.0		16.5	68.6	14.9	0.0		
Total %	13.3	4.3	2.5	0.0	20.1	2.6	10.0	1.1	0.1	13.7	10.8	16.4	10.0	0.0	37.2	4.8	19.9	4.3	0.0	29.0	
Exiting Leg Total	405					578					176					576					1735
Cars	208	51	34	0	293	30	126	16	1	173	172	263	150	0	585	59	287	46	0	392	1443
% Cars	90.4	68.9	77.3	0.0	84.2	66.7	72.8	84.2	100.0	72.7	91.5	92.3	86.7	0.0	90.6	71.1	83.2	61.3	0.0	77.9	83.2
Exiting Leg Total	339					494					126					484					1443
Heavy Vehicles	22	23	10	0	55	15	47	3	0	65	16	22	23	0	61	24	58	29	0	111	292
% Heavy Vehicles	9.6	31.1	22.7	0.0	15.8	33.3	27.2	15.8	0.0	27.3	8.5	7.7	13.3	0.0	9.4	28.9	16.8	38.7	0.0	22.1	16.8
Exiting Leg Total	66					84					50					92					292

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	37	9	6	0	52	9	19	4	0	32	28	30	24	0	82	10	46	8	0	64	230
8:45 AM	26	6	7	0	39	4	28	1	0	33	30	41	29	0	100	8	47	13	0	68	240
9:00 AM	27	9	6	0	42	7	22	3	1	33	25	44	23	0	92	10	37	11	0	58	225
9:15 AM	24	7	9	0	40	4	25	3	0	32	25	45	21	0	91	10	48	7	0	65	228
Total Volume	114	31	28	0	173	24	94	11	1	130	108	160	97	0	365	38	178	39	0	255	923
% Approach Total	65.9	17.9	16.2	0.0		18.5	72.3	8.5	0.8		29.6	43.8	26.6	0.0		14.9	69.8	15.3	0.0		
PHF	0.770	0.861	0.778	0.000	0.832	0.667	0.839	0.688	0.250	0.985	0.900	0.889	0.836	0.000	0.913	0.950	0.927	0.750	0.000	0.938	0.961
Cars	101	21	21	0	143	16	71	10	1	98	100	146	81	0	327	32	147	23	0	202	770
Cars %	88.6	67.7	75.0	0.0	82.7	66.7	75.5	90.9	100.0	75.4	92.6	91.3	83.5	0.0	89.6	84.2	82.6	59.0	0.0	79.2	83.4
Heavy Vehicles	13	10	7	0	30	8	23	1	0	32	8	14	16	0	38	6	31	16	0	53	153
Heavy Vehicles %	11.4	32.3	25.0	0.0	17.3	33.3	24.5	9.1	0.0	24.6	7.4	8.8	16.5	0.0	10.4	15.8	17.4	41.0	0.0	20.8	16.6
Cars Enter Leg	101	21	21	0	143	16	71	10	1	98	100	146	81	0	327	32	147	23	0	202	770
Heavy Enter Leg	13	10	7	0	30	8	23	1	0	32	8	14	16	0	38	6	31	16	0	53	153
Total Entering Leg	114	31	28	0	173	24	94	11	1	130	108	160	97	0	365	38	178	39	0	255	923
Cars Exiting Leg	185					269					63					253					770
Heavy Exiting Leg	38					46					17					52					153
Total Exiting Leg	223					315					80					305					923

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	32	7	3	0	42	2	10	1	0	13	11	19	13	0	43	15	23	3	0	41	139
7:45 AM	22	10	3	0	35	5	19	2	0	26	18	30	24	0	72	5	31	7	0	43	176
Total	54	17	6	0	77	7	29	3	0	39	29	49	37	0	115	20	54	10	0	84	315
8:00 AM	25	5	1	0	31	2	15	0	0	17	20	35	18	0	73	3	45	7	0	55	176
8:15 AM	28	8	6	0	42	5	11	3	0	19	23	33	14	0	70	4	41	6	0	51	182
8:30 AM	32	7	5	0	44	7	15	3	0	25	23	28	17	0	68	7	38	3	0	48	185
8:45 AM	25	5	6	0	36	3	19	1	0	23	28	39	26	0	93	8	39	8	0	55	207
Total	110	25	18	0	153	17	60	7	0	84	94	135	75	0	304	22	163	24	0	209	750
9:00 AM	25	6	4	0	35	4	18	3	1	26	24	37	21	0	82	10	30	7	0	47	190
9:15 AM	19	3	6	0	28	2	19	3	0	24	25	42	17	0	84	7	40	5	0	52	188
Total	44	9	10	0	63	6	37	6	1	50	49	79	38	0	166	17	70	12	0	99	378
Grand Total	208	51	34	0	293	30	126	16	1	173	172	263	150	0	585	59	287	46	0	392	1443
Approach %	71.0	17.4	11.6	0.0		17.3	72.8	9.2	0.6		29.4	45.0	25.6	0.0		15.1	73.2	11.7	0.0		
Total %	14.4	3.5	2.4	0.0	20.3	2.1	8.7	1.1	0.1	12.0	11.9	18.2	10.4	0.0	40.5	4.1	19.9	3.2	0.0	27.2	
Exiting Leg Total	339					494					126					484					1443

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	32	7	5	0	44	7	15	3	0	25	23	28	17	0	68	7	38	3	0	48	185
8:45 AM	25	5	6	0	36	3	19	1	0	23	28	39	26	0	93	8	39	8	0	55	207
9:00 AM	25	6	4	0	35	4	18	3	1	26	24	37	21	0	82	10	30	7	0	47	190
9:15 AM	19	3	6	0	28	2	19	3	0	24	25	42	17	0	84	7	40	5	0	52	188
Total Volume	101	21	21	0	143	16	71	10	1	98	100	146	81	0	327	32	147	23	0	202	770
% Approach Total	70.6	14.7	14.7	0.0		16.3	72.4	10.2	1.0		30.6	44.6	24.8	0.0		15.8	72.8	11.4	0.0		
PHF	0.789	0.750	0.875	0.000	0.813	0.571	0.934	0.833	0.250	0.942	0.893	0.869	0.779	0.000	0.879	0.800	0.919	0.719	0.000	0.918	0.930
Entering Leg	101	21	21	0	143	16	71	10	1	98	100	146	81	0	327	32	147	23	0	202	770
Exiting Leg	185					269					63					253					770
Total	328					367					390					455					1540

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	3	3	1	0	7	2	6	0	0	8	3	1	3	0	7	2	6	2	0	10	32
7:45 AM	3	4	0	0	7	2	7	1	0	10	3	3	0	0	6	4	5	5	0	14	37
Total	6	7	1	0	14	4	13	1	0	18	6	4	3	0	13	6	11	7	0	24	69
8:00 AM	2	3	0	0	5	0	5	1	0	6	1	1	2	0	4	9	9	3	0	21	36
8:15 AM	1	3	2	0	6	3	6	0	0	9	1	3	2	0	6	3	7	3	0	13	34
8:30 AM	5	2	1	0	8	2	4	1	0	7	5	2	7	0	14	3	8	5	0	16	45
8:45 AM	1	1	1	0	3	1	9	0	0	10	2	2	3	0	7	0	8	5	0	13	33
Total	9	9	4	0	22	6	24	2	0	32	9	8	14	0	31	15	32	16	0	63	148
9:00 AM	2	3	2	0	7	3	4	0	0	7	1	7	2	0	10	0	7	4	0	11	35
9:15 AM	5	4	3	0	12	2	6	0	0	8	0	3	4	0	7	3	8	2	0	13	40
Total	7	7	5	0	19	5	10	0	0	15	1	10	6	0	17	3	15	6	0	24	75
Grand Total	22	23	10	0	55	15	47	3	0	65	16	22	23	0	61	24	58	29	0	111	292
Approach %	40.0	41.8	18.2	0.0		23.1	72.3	4.6	0.0		26.2	36.1	37.7	0.0		21.6	52.3	26.1	0.0		
Total %	7.5	7.9	3.4	0.0	18.8	5.1	16.1	1.0	0.0	22.3	5.5	7.5	7.9	0.0	20.9	8.2	19.9	9.9	0.0	38.0	
Exiting Leg Total	66					84					50					92					292
Buses	7	17	2	0	26	9	30	0	0	39	0	0	0	0	0	0	15	19	0	34	99
% Buses	31.8	73.9	20.0	0.0	47.3	60.0	63.8	0.0	0.0	60.0	0.0	0.0	0.0	0.0	0.0	0.0	25.9	65.5	0.0	30.6	33.9
Exiting Leg Total	28					17					17					37					99
Single-Unit Trucks	15	6	7	0	28	6	16	3	0	25	12	15	17	0	44	20	42	10	0	72	169
% Single-Unit	68.2	26.1	70.0	0.0	50.9	40.0	34.0	100.0	0.0	38.5	75.0	68.2	73.9	0.0	72.1	83.3	72.4	34.5	0.0	64.9	57.9
Exiting Leg Total	31					61					29					48					169
Articulated Trucks	0	0	1	0	1	0	1	0	0	1	4	7	6	0	17	4	1	0	0	5	24
% Articulated	0.0	0.0	10.0	0.0	1.8	0.0	2.1	0.0	0.0	1.5	25.0	31.8	26.1	0.0	27.9	16.7	1.7	0.0	0.0	4.5	8.2
Exiting Leg Total	7					6					4					7					24

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	5	2	1	0	8	2	4	1	0	7	5	2	7	0	14	3	8	5	0	16	45
8:45 AM	1	1	1	0	3	1	9	0	0	10	2	2	3	0	7	0	8	5	0	13	33
9:00 AM	2	3	2	0	7	3	4	0	0	7	1	7	2	0	10	0	7	4	0	11	35
9:15 AM	5	4	3	0	12	2	6	0	0	8	0	3	4	0	7	3	8	2	0	13	40
Total Volume	13	10	7	0	30	8	23	1	0	32	8	14	16	0	38	6	31	16	0	53	153
% Approach Total	43.3	33.3	23.3	0.0		25.0	71.9	3.1	0.0		21.1	36.8	42.1	0.0		11.3	58.5	30.2	0.0		
PHF	0.650	0.625	0.583	0.000	0.625	0.667	0.639	0.250	0.000	0.800	0.400	0.500	0.571	0.000	0.679	0.500	0.969	0.800	0.000	0.828	0.850
Buses	4	8	2	0	14	4	15	0	0	19	0	0	0	0	0	0	8	9	0	17	50
Buses %	30.8	80.0	28.6	0.0	46.7	50.0	65.2	0.0	0.0	59.4	0.0	0.0	0.0	0.0	0.0	0.0	25.8	56.3	0.0	32.1	32.7
Single-Unit Trucks	9	2	5	0	16	4	8	1	0	13	7	12	12	0	31	6	23	7	0	36	96
Single-Unit %	69.2	20.0	71.4	0.0	53.3	50.0	34.8	100.0	0.0	40.6	87.5	85.7	75.0	0.0	81.6	100.0	74.2	43.8	0.0	67.9	62.7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	2	4	0	7	0	0	0	0	0	7
Articulated %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	12.5	14.3	25.0	0.0	18.4	0.0	0.0	0.0	0.0	0.0	4.6
Buses	4	8	2	0	14	4	15	0	0	19	0	0	0	0	0	0	8	9	0	17	50
Single-Unit Trucks	9	2	5	0	16	4	8	1	0	13	7	12	12	0	31	6	23	7	0	36	96
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	1	2	4	0	7	0	0	0	0	0	7
Total Entering Leg	13	10	7	0	30	8	23	1	0	32	8	14	16	0	38	6	31	16	0	53	153
Buses	13					10					8					19					50
Single-Unit Trucks	23					35					9					29					96
Articulated Trucks	2					1					0					4					7
Total Exiting Leg	38					46					17					52					153

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Ames Street					Main Street					Ames Street					Main Street					Total	
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
7:30 AM	1	3	0	0	4	2	3	0	0	5	0	0	0	0	0	0	2	2	0	0	4	13
7:45 AM	1	2	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	1	4	0	5	14
Total	2	5	0	0	7	2	9	0	0	11	0	0	0	0	0	0	0	3	6	0	9	27
8:00 AM	1	2	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	2	1	0	3	9
8:15 AM	0	2	0	0	2	3	3	0	0	6	0	0	0	0	0	0	0	2	3	0	5	13
8:30 AM	2	2	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	1	2	0	3	10
8:45 AM	0	1	0	0	1	1	4	0	0	5	0	0	0	0	0	0	0	3	3	0	6	12
Total	3	7	0	0	10	4	13	0	0	17	0	0	0	0	0	0	0	8	9	0	17	44
9:00 AM	1	3	0	0	4	3	4	0	0	7	0	0	0	0	0	0	0	3	2	0	5	16
9:15 AM	1	2	2	0	5	0	4	0	0	4	0	0	0	0	0	0	0	1	2	0	3	12
Total	2	5	2	0	9	3	8	0	0	11	0	0	0	0	0	0	0	4	4	0	8	28
Grand Total	7	17	2	0	26	9	30	0	0	39	0	0	0	0	0	0	0	15	19	0	34	99
Approach %	26.9	65.4	7.7	0.0		23.1	76.9	0.0	0.0		0.0	0.0	0.0	0.0		0.0	44.1	55.9	0.0			
Total %	7.1	17.2	2.0	0.0	26.3	9.1	30.3	0.0	0.0	39.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	19.2	0.0	34.3	
Exiting Leg Total	28					17					17					37					99	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Ames Street					Main Street					Ames Street					Main Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		
8:15 AM	0	2	0	0	2	3	3	0	0	6	0	0	0	0	0	0	2	3	0	0	5	13
8:30 AM	2	2	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	1	2	0	3	10
8:45 AM	0	1	0	0	1	1	4	0	0	5	0	0	0	0	0	0	0	3	3	0	6	12
9:00 AM	1	3	0	0	4	3	4	0	0	7	0	0	0	0	0	0	0	3	2	0	5	16
Total Volume	3	8	0	0	11	7	14	0	0	21	0	0	0	0	0	0	0	9	10	0	19	51
% Approach Total	27.3	72.7	0.0	0.0		33.3	66.7	0.0	0.0		0.0	0.0	0.0	0.0			0.0	47.4	52.6	0.0		
PHF	0.375	0.667	0.000	0.000	0.688	0.583	0.875	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000		0.000	0.750	0.833	0.000	0.792	0.797
Entering Leg	3	8	0	0	11	7	14	0	0	21	0	0	0	0	0	0	0	9	10	0	19	51
Exiting Leg	17					9					8					17					51	
Total	28					30					8					36					102	

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	0	2	0	3	0	0	3	3	1	1	0	5	1	4	0	0	5	15
7:45 AM	2	2	0	0	4	2	1	1	0	4	0	1	0	0	1	3	4	1	0	8	17
Total	4	2	0	0	6	2	4	1	0	7	3	2	1	0	6	4	8	1	0	13	32
8:00 AM	1	1	0	0	2	0	2	1	0	3	1	0	2	0	3	8	7	2	0	17	25
8:15 AM	1	1	2	0	4	0	2	0	0	2	1	1	2	0	4	2	4	0	0	6	16
8:30 AM	3	0	1	0	4	2	1	1	0	4	4	1	5	0	10	3	7	3	0	13	31
8:45 AM	1	0	1	0	2	0	5	0	0	5	2	1	3	0	6	0	5	2	0	7	20
Total	6	2	4	0	12	2	10	2	0	14	8	3	12	0	23	13	23	7	0	43	92
9:00 AM	1	0	2	0	3	0	0	0	0	0	1	7	1	0	9	0	4	2	0	6	18
9:15 AM	4	2	1	0	7	2	2	0	0	4	0	3	3	0	6	3	7	0	0	10	27
Total	5	2	3	0	10	2	2	0	0	4	1	10	4	0	15	3	11	2	0	16	45
Grand Total	15	6	7	0	28	6	16	3	0	25	12	15	17	0	44	20	42	10	0	72	169
Approach %	53.6	21.4	25.0	0.0		24.0	64.0	12.0	0.0		27.3	34.1	38.6	0.0		27.8	58.3	13.9	0.0		
Total %	8.9	3.6	4.1	0.0	16.6	3.6	9.5	1.8	0.0	14.8	7.1	8.9	10.1	0.0	26.0	11.8	24.9	5.9	0.0	42.6	
Exiting Leg Total	31					61					29					48					169

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	3	0	1	0	4	2	1	1	0	4	4	1	5	0	10	3	7	3	0	13	31
8:45 AM	1	0	1	0	2	0	5	0	0	5	2	1	3	0	6	0	5	2	0	7	20
9:00 AM	1	0	2	0	3	0	0	0	0	0	1	7	1	0	9	0	4	2	0	6	18
9:15 AM	4	2	1	0	7	2	2	0	0	4	0	3	3	0	6	3	7	0	0	10	27
Total Volume	9	2	5	0	16	4	8	1	0	13	7	12	12	0	31	6	23	7	0	36	96
% Approach Total	56.3	12.5	31.3	0.0		30.8	61.5	7.7	0.0		22.6	38.7	38.7	0.0		16.7	63.9	19.4	0.0		
PHF	0.563	0.250	0.625	0.000	0.571	0.500	0.400	0.250	0.000	0.650	0.438	0.429	0.600	0.000	0.775	0.500	0.821	0.583	0.000	0.692	0.774
Entering Leg	9	2	5	0	16	4	8	1	0	13	7	12	12	0	31	6	23	7	0	36	96
Exiting Leg					23					35					9					29	96
Total					39					48					40					65	192

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	1	0	0	0	1	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5	1	0	0	0	1	6
Total	0	0	1	0	1	0	0	0	0	0	3	2	2	0	7	2	0	0	0	2	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	1	1	0	0	2	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	2	0	4	0	0	0	0	0	4
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	1	5	2	0	8	2	1	0	0	3	12
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	2
Grand Total	0	0	1	0	1	0	1	0	0	1	4	7	6	0	17	4	1	0	0	5	24
Approach %	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		23.5	41.2	35.3	0.0		80.0	20.0	0.0	0.0		
Total %	0.0	0.0	4.2	0.0	4.2	0.0	4.2	0.0	0.0	4.2	16.7	29.2	25.0	0.0	70.8	16.7	4.2	0.0	0.0	20.8	
Exiting Leg Total	7					6					4					7					24

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Ames Street					Main Street					Ames Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	1	0	0	0	1	4
7:45 AM	0	0	0	0	0	0	0	0	0	0	3	2	0	0	5	1	0	0	0	1	6
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	2
8:15 AM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	1	1	0	0	2	5
Total Volume	0	0	1	0	1	0	1	0	0	1	3	5	2	0	10	4	1	0	0	5	17
% Approach Total	0.0	0.0	100.0	0.0		0.0	100.0	0.0	0.0		30.0	50.0	20.0	0.0		80.0	20.0	0.0	0.0		
PHF	0.000	0.000	0.250	0.000	0.250	0.000	0.250	0.000	0.000	0.250	0.250	0.625	0.250	0.000	0.500	1.000	0.250	0.000	0.000	0.625	0.708
Entering Leg	0	0	1	0	1	0	1	0	0	1	3	5	2	0	10	4	1	0	0	5	17
Exiting Leg	5					5					4					3					17
Total	6					6					14					8					34

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Ames Street							Main Street							Ames Street							Main Street							Total	
	from North							from East							from South							from West								
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total		
7:30 AM	1	0	1	0	0	0	2	0	2	1	0	0	0	3	2	2	0	0	0	0	4	3	13	2	0	0	0	0	18	27
7:45 AM	0	1	0	0	0	0	1	0	4	1	0	0	0	5	2	2	0	0	0	0	4	1	10	1	0	0	0	0	12	22
Total	1	1	1	0	0	0	3	0	6	2	0	0	0	8	4	4	0	0	0	0	8	4	23	3	0	0	0	0	30	49
8:00 AM	0	1	0	0	0	0	1	1	5	1	0	1	0	8	1	1	0	0	1	1	4	0	14	0	0	0	0	0	14	27
8:15 AM	1	5	2	0	0	0	8	0	12	0	0	1	0	13	3	5	0	0	1	3	12	3	31	1	0	0	0	0	35	68
8:30 AM	4	2	3	0	0	0	9	0	1	2	0	1	0	4	1	0	0	0	2	1	4	10	30	3	0	0	0	1	44	61
8:45 AM	3	8	0	0	0	0	11	1	5	1	0	0	0	7	2	5	1	0	2	2	12	5	25	4	0	0	0	0	34	64
Total	8	16	5	0	0	0	29	2	23	4	0	3	0	32	7	11	1	0	6	7	32	18	100	8	0	0	0	1	127	220
9:00 AM	1	6	0	0	0	0	7	0	0	4	0	2	0	6	1	0	0	0	2	1	4	7	18	3	0	0	0	0	28	45
9:15 AM	2	3	2	0	0	0	7	1	3	1	0	1	0	6	3	3	0	0	1	1	8	5	20	1	0	0	0	0	26	47
Total	3	9	2	0	0	0	14	1	3	5	0	3	0	12	4	3	0	0	3	2	12	12	38	4	0	0	0	0	54	92
Grand Total	12	26	8	0	0	0	46	3	32	11	0	6	0	52	15	18	1	0	9	9	52	34	161	15	0	0	0	1	211	361
Approach %	26.1	56.5	17.4	0.0	0.0	0.0		5.8	61.5	21.2	0.0	11.5	0.0		28.8	34.6	1.9	0.0	17.3	17.3		16.1	76.3	7.1	0.0	0.0	0.5			
Total %	3.3	7.2	2.2	0.0	0.0	0.0	12.7	0.8	8.9	3.0	0.0	1.7	0.0	14.4	4.2	5.0	0.3	0.0	2.5	2.5	14.4	9.4	44.6	4.2	0.0	0.0	0.3	58.4		
Exiting Leg Total	36							190							89							46							361	

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	1	5	2	0	0	0	8	0	12	0	0	1	0	13	3	5	0	0	1	3	12	3	31	1	0	0	0	35	68
8:30 AM	4	2	3	0	0	0	9	0	1	2	0	1	0	4	1	0	0	0	2	1	4	10	30	3	0	0	1	44	61
8:45 AM	3	8	0	0	0	0	11	1	5	1	0	0	0	7	2	5	1	0	2	2	12	5	25	4	0	0	0	34	64
9:00 AM	1	6	0	0	0	0	7	0	0	4	0	2	0	6	1	0	0	0	2	1	4	7	18	3	0	0	0	28	45
Total Volume	9	21	5	0	0	0	35	1	18	7	0	4	0	30	7	10	1	0	7	7	32	25	104	11	0	0	1	141	238
% Approach Total	25.7	60.0	14.3	0.0	0.0	0.0		3.3	60.0	23.3	0.0	13.3	0.0		21.9	31.3	3.1	0.0	21.9	21.9		17.7	73.8	7.8	0.0	0.0	0.7		
PHF	0.563	0.656	0.417	0.000	0.000	0.000	0.795	0.250	0.375	0.438	0.000	0.500	0.000	0.577	0.583	0.500	0.250	0.000	0.875	0.583	0.667	0.625	0.839	0.688	0.000	0.000	0.250	0.801	0.875
Entering Leg	9	21	5	0	0	0	35	1	18	7	0	4	0	30	7	10	1	0	7	7	32	25	104	11	0	0	1	141	238
Exiting Leg	22							120							67							29							238
Total	57							150							99							170							476

PDI File #: **196867 (27) am**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	27	116	143	0	0	0	0	32	6	38	0	0	0	0	65	12	77	0	0	0	0	0	0	0	258
7:45 AM	0	0	0	0	18	145	163	0	0	0	0	40	12	52	0	0	0	0	99	32	131	0	0	0	0	0	2	2	348
Total	0	0	0	0	45	261	306	0	0	0	0	72	18	90	0	0	0	0	164	44	208	0	0	0	0	0	2	2	606
8:00 AM	0	0	0	0	23	189	212	0	0	0	0	55	11	66	0	0	0	0	100	30	130	0	0	0	0	1	2	3	411
8:15 AM	0	0	0	0	30	186	216	0	0	0	0	37	18	55	0	0	0	0	111	54	165	0	0	0	0	0	7	7	443
8:30 AM	0	0	0	0	33	273	306	0	0	0	0	72	28	100	0	0	0	0	136	58	194	0	0	0	0	1	10	11	611
8:45 AM	0	0	0	0	28	196	224	0	0	0	0	61	26	87	0	0	0	0	119	54	173	0	0	0	0	0	3	3	487
Total	0	0	0	0	114	844	958	0	0	0	0	225	83	308	0	0	0	0	466	196	662	0	0	0	0	2	22	24	1952
9:00 AM	0	0	0	0	50	319	369	0	0	0	0	66	21	87	0	0	0	0	176	53	229	0	0	0	0	0	6	6	691
9:15 AM	0	0	0	0	30	208	238	0	0	0	0	41	25	66	0	0	0	0	151	29	180	0	0	0	0	3	9	12	496
Total	0	0	0	0	80	527	607	0	0	0	0	107	46	153	0	0	0	0	327	82	409	0	0	0	0	3	15	18	1187
Grand Total	0	0	0	0	239	1632	1871	0	0	0	0	404	147	551	0	0	0	0	957	322	1279	0	0	0	0	5	39	44	3745
Approach %	0	0	0	0	12.8	87.2		0	0	0	0	73.3	26.7		0	0	0	0	74.8	25.2		0	0	0	0	11.4	88.6		
Total %	0	0	0	0	6.38	43.6	50	0	0	0	0	10.8	3.93	14.7	0	0	0	0	25.6	8.6	34.2	0	0	0	0	0.13	1.04	1.17	
Exiting Leg Total	1871							551							1279							44							3745

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:30 AM	0	0	0	0	33	273	306	0	0	0	0	72	28	100	0	0	0	0	136	58	194	0	0	0	0	1	10	11	611
8:45 AM	0	0	0	0	28	196	224	0	0	0	0	61	26	87	0	0	0	0	119	54	173	0	0	0	0	0	3	3	487
9:00 AM	0	0	0	0	50	319	369	0	0	0	0	66	21	87	0	0	0	0	176	53	229	0	0	0	0	0	6	6	691
9:15 AM	0	0	0	0	30	208	238	0	0	0	0	41	25	66	0	0	0	0	151	29	180	0	0	0	0	3	9	12	496
Total Volume	0	0	0	0	141	996	1137	0	0	0	0	240	100	340	0	0	0	0	582	194	776	0	0	0	0	4	28	32	2285
% Approach Total	0.0	0.0	0.0	0.0	12.4	87.6		0.0	0.0	0.0	0.0	70.6	29.4		0.0	0.0	0.0	0.0	75.0	25.0		0.0	0.0	0.0	0.0	12.5	87.5		
PHF	0.000	0.000	0.000	0.000	0.705	0.781	0.770	0.000	0.000	0.000	0.000	0.833	0.893	0.850	0.000	0.000	0.000	0.000	0.827	0.836	0.847	0.000	0.000	0.000	0.000	0.333	0.700	0.667	0.827
Entering Leg	0	0	0	0	141	996	1137	0	0	0	0	240	100	340	0	0	0	0	582	194	776	0	0	0	0	4	28	32	2285
Exiting Leg	1137							340							776							32							2285
Total	2274							680							1552							64							4570

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	22	27	6	0	55	6	15	7	0	28	11	16	14	0	41	12	57	9	0	78	202
4:45 PM	21	29	2	0	52	7	16	3	0	26	13	18	19	0	50	10	53	14	0	77	205
Total	43	56	8	0	107	13	31	10	0	54	24	34	33	0	91	22	110	23	0	155	407
5:00 PM	35	38	5	0	78	7	23	2	0	32	13	26	19	0	58	13	54	13	0	80	248
5:15 PM	31	25	9	0	65	8	14	5	0	27	10	41	36	0	87	5	61	9	0	75	254
5:30 PM	44	24	3	0	71	4	31	1	0	36	20	35	18	0	73	13	53	7	0	73	253
5:45 PM	37	30	8	0	75	8	13	6	1	28	21	35	33	0	89	17	56	11	0	84	276
Total	147	117	25	0	289	27	81	14	1	123	64	137	106	0	307	48	224	40	0	312	1031
6:00 PM	26	24	5	0	55	9	14	3	1	27	23	33	33	0	89	11	56	11	0	78	249
6:15 PM	26	22	5	0	53	12	28	2	0	42	24	33	20	0	77	13	60	13	0	86	258
Total	52	46	10	0	108	21	42	5	1	69	47	66	53	0	166	24	116	24	0	164	507
Grand Total	242	219	43	0	504	61	154	29	2	246	135	237	192	0	564	94	450	87	0	631	1945
Approach %	48.0	43.5	8.5	0.0		24.8	62.6	11.8	0.8		23.9	42.0	34.0	0.0		14.9	71.3	13.8	0.0		
Total %	12.4	11.3	2.2	0.0	25.9	3.1	7.9	1.5	0.1	12.6	6.9	12.2	9.9	0.0	29.0	4.8	23.1	4.5	0.0	32.4	
Exiting Leg Total	385					630					342					588					1945
Cars	233	201	39	0	473	56	135	29	2	222	134	232	188	0	554	85	443	67	0	595	1844
% Cars	96.3	91.8	90.7	0.0	93.8	91.8	87.7	100.0	100.0	90.2	99.3	97.9	97.9	0.0	98.2	90.4	98.4	77.0	0.0	94.3	94.8
Exiting Leg Total	355					618					315					556					1844
Heavy Vehicles	9	18	4	0	31	5	19	0	0	24	1	5	4	0	10	9	7	20	0	36	101
% Heavy Vehicles	3.7	8.2	9.3	0.0	6.2	8.2	12.3	0.0	0.0	9.8	0.7	2.1	2.1	0.0	1.8	9.6	1.6	23.0	0.0	5.7	5.2
Exiting Leg Total	30					12					27					32					101

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	44	24	3	0	71	4	31	1	0	36	20	35	18	0	73	13	53	7	0	73	253
5:45 PM	37	30	8	0	75	8	13	6	1	28	21	35	33	0	89	17	56	11	0	84	276
6:00 PM	26	24	5	0	55	9	14	3	1	27	23	33	33	0	89	11	56	11	0	78	249
6:15 PM	26	22	5	0	53	12	28	2	0	42	24	33	20	0	77	13	60	13	0	86	258
Total Volume	133	100	21	0	254	33	86	12	2	133	88	136	104	0	328	54	225	42	0	321	1036
% Approach Total	52.4	39.4	8.3	0.0		24.8	64.7	9.0	1.5		26.8	41.5	31.7	0.0		16.8	70.1	13.1	0.0		
PHF	0.756	0.833	0.656	0.000	0.847	0.688	0.694	0.500	0.500	0.792	0.917	0.971	0.788	0.000	0.921	0.794	0.938	0.808	0.000	0.933	0.938
Cars	127	89	20	0	236	31	76	12	2	121	87	132	103	0	322	50	220	33	0	303	982
Cars %	95.5	89.0	95.2	0.0	92.9	93.9	88.4	100.0	100.0	91.0	98.9	97.1	99.0	0.0	98.2	92.6	97.8	78.6	0.0	94.4	94.8
Heavy Vehicles	6	11	1	0	18	2	10	0	0	12	1	4	1	0	6	4	5	9	0	18	54
Heavy Vehicles %	4.5	11.0	4.8	0.0	7.1	6.1	11.6	0.0	0.0	9.0	1.1	2.9	1.0	0.0	1.8	7.4	2.2	21.4	0.0	5.6	5.2
Cars Enter Leg	127	89	20	0	236	31	76	12	2	121	87	132	103	0	322	50	220	33	0	303	982
Heavy Enter Leg	6	11	1	0	18	2	10	0	0	12	1	4	1	0	6	4	5	9	0	18	54
Total Entering Leg	133	100	21	0	254	33	86	12	2	133	88	136	104	0	328	54	225	42	0	321	1036
Cars Exiting Leg					196					329					151					306	982
Heavy Exiting Leg					15					7					15					17	54
Total Exiting Leg					211					336					166					323	1036

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	21	25	5	0	51	5	13	7	0	25	11	15	14	0	40	11	57	7	0	75	191
4:45 PM	21	27	1	0	49	7	12	3	0	22	13	18	18	0	49	9	51	12	0	72	192
Total	42	52	6	0	100	12	25	10	0	47	24	33	32	0	89	20	108	19	0	147	383
5:00 PM	34	36	4	0	74	7	20	2	0	29	13	26	18	0	57	12	54	10	0	76	236
5:15 PM	30	24	9	0	63	6	14	5	0	25	10	41	35	0	86	3	61	5	0	69	243
5:30 PM	40	19	2	0	61	4	28	1	0	33	20	32	18	0	70	12	53	5	0	70	234
5:45 PM	37	27	8	0	72	8	10	6	1	25	21	35	33	0	89	16	54	8	0	78	264
Total	141	106	23	0	270	25	72	14	1	112	64	134	104	0	302	43	222	28	0	293	977
6:00 PM	25	22	5	0	52	8	13	3	1	25	22	33	33	0	88	10	56	9	0	75	240
6:15 PM	25	21	5	0	51	11	25	2	0	38	24	32	19	0	75	12	57	11	0	80	244
Total	50	43	10	0	103	19	38	5	1	63	46	65	52	0	163	22	113	20	0	155	484
Grand Total	233	201	39	0	473	56	135	29	2	222	134	232	188	0	554	85	443	67	0	595	1844
Approach %	49.3	42.5	8.2	0.0		25.2	60.8	13.1	0.9		24.2	41.9	33.9	0.0		14.3	74.5	11.3	0.0		
Total %	12.6	10.9	2.1	0.0	25.7	3.0	7.3	1.6	0.1	12.0	7.3	12.6	10.2	0.0	30.0	4.6	24.0	3.6	0.0	32.3	
Exiting Leg Total	355					618					315					556					1844

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	40	19	2	0	61	4	28	1	0	33	20	32	18	0	70	12	53	5	0	70	234
5:45 PM	37	27	8	0	72	8	10	6	1	25	21	35	33	0	89	16	54	8	0	78	264
6:00 PM	25	22	5	0	52	8	13	3	1	25	22	33	33	0	88	10	56	9	0	75	240
6:15 PM	25	21	5	0	51	11	25	2	0	38	24	32	19	0	75	12	57	11	0	80	244
Total Volume	127	89	20	0	236	31	76	12	2	121	87	132	103	0	322	50	220	33	0	303	982
% Approach Total	53.8	37.7	8.5	0.0		25.6	62.8	9.9	1.7		27.0	41.0	32.0	0.0		16.5	72.6	10.9	0.0		
PHF	0.794	0.824	0.625	0.000	0.819	0.705	0.679	0.500	0.500	0.796	0.906	0.943	0.780	0.000	0.904	0.781	0.965	0.750	0.000	0.947	0.930
Entering Leg	127	89	20	0	236	31	76	12	2	121	87	132	103	0	322	50	220	33	0	303	982
Exiting Leg	196					329					151					306					982
Total	432					450					473					609					1964

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	2	1	0	4	1	2	0	0	3	0	1	0	0	1	1	0	2	0	3	11
4:45 PM	0	2	1	0	3	0	4	0	0	4	0	0	1	0	1	1	2	2	0	5	13
Total	1	4	2	0	7	1	6	0	0	7	0	1	1	0	2	2	2	4	0	8	24
5:00 PM	1	2	1	0	4	0	3	0	0	3	0	0	1	0	1	1	0	3	0	4	12
5:15 PM	1	1	0	0	2	2	0	0	0	2	0	0	1	0	1	2	0	4	0	6	11
5:30 PM	4	5	1	0	10	0	3	0	0	3	0	3	0	0	3	1	0	2	0	3	19
5:45 PM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	1	2	3	0	6	12
Total	6	11	2	0	19	2	9	0	0	11	0	3	2	0	5	5	2	12	0	19	54
6:00 PM	1	2	0	0	3	1	1	0	0	2	1	0	0	0	1	1	0	2	0	3	9
6:15 PM	1	1	0	0	2	1	3	0	0	4	0	1	1	0	2	1	3	2	0	6	14
Total	2	3	0	0	5	2	4	0	0	6	1	1	1	0	3	2	3	4	0	9	23
Grand Total	9	18	4	0	31	5	19	0	0	24	1	5	4	0	10	9	7	20	0	36	101
Approach %	29.0	58.1	12.9	0.0		20.8	79.2	0.0	0.0		10.0	50.0	40.0	0.0		25.0	19.4	55.6	0.0		
Total %	8.9	17.8	4.0	0.0	30.7	5.0	18.8	0.0	0.0	23.8	1.0	5.0	4.0	0.0	9.9	8.9	6.9	19.8	0.0	35.6	
Exiting Leg Total	30					12					27					32					101
Buses	5	14	4	0	23	5	16	0	0	21	0	0	0	0	0	9	4	20	0	33	77
% Buses	55.6	77.8	100.0	0.0	74.2	100.0	84.2	0.0	0.0	87.5	0.0	0.0	0.0	0.0	0.0	100.0	57.1	100.0	0.0	91.7	76.2
Exiting Leg Total	25					8					23					21					77
Single-Unit Trucks	4	3	0	0	7	0	3	0	0	3	0	4	3	0	7	0	3	0	0	3	20
% Single-Unit	44.4	16.7	0.0	0.0	22.6	0.0	15.8	0.0	0.0	12.5	0.0	80.0	75.0	0.0	70.0	0.0	42.9	0.0	0.0	8.3	19.8
Exiting Leg Total	4					3					3					10					20
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	1	1	1	0	3	0	0	0	0	0	4
% Articulated	0.0	5.6	0.0	0.0	3.2	0.0	0.0	0.0	0.0	0.0	100.0	20.0	25.0	0.0	30.0	0.0	0.0	0.0	0.0	0.0	4.0
Exiting Leg Total	1					1					1					1					4

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	2	1	0	3	0	4	0	0	4	0	0	1	0	1	1	2	2	0	5	13
5:00 PM	1	2	1	0	4	0	3	0	0	3	0	0	1	0	1	1	0	3	0	4	12
5:15 PM	1	1	0	0	2	2	0	0	0	2	0	0	1	0	1	2	0	4	0	6	11
5:30 PM	4	5	1	0	10	0	3	0	0	3	0	3	0	0	3	1	0	2	0	3	19
Total Volume	6	10	3	0	19	2	10	0	0	12	0	3	3	0	6	5	2	11	0	18	55
% Approach Total	31.6	52.6	15.8	0.0		16.7	83.3	0.0	0.0		0.0	50.0	50.0	0.0		27.8	11.1	61.1	0.0		
PHF	0.375	0.500	0.750	0.000	0.475	0.250	0.625	0.000	0.000	0.750	0.000	0.250	0.750	0.000	0.500	0.625	0.250	0.688	0.000	0.750	0.724
Buses	3	7	3	0	13	2	10	0	0	12	0	0	0	0	0	5	1	11	0	17	42
Buses %	50.0	70.0	100.0	0.0	68.4	100.0	100.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	100.0	50.0	100.0	0.0	94.4	76.4
Single-Unit Trucks	3	2	0	0	5	0	0	0	0	0	0	2	2	0	4	0	1	0	0	1	10
Single-Unit %	50.0	20.0	0.0	0.0	26.3	0.0	0.0	0.0	0.0	0.0	0.0	66.7	66.7	0.0	66.7	0.0	50.0	0.0	0.0	5.6	18.2
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
Articulated %	0.0	10.0	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	33.3	33.3	0.0	33.3	0.0	0.0	0.0	0.0	0.0	5.5
Buses	3	7	3	0	13	2	10	0	0	12	0	0	0	0	0	5	1	11	0	17	42
Single-Unit Trucks	3	2	0	0	5	0	0	0	0	0	0	2	2	0	4	0	1	0	0	1	10
Articulated Trucks	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	3
Total Entering Leg	6	10	3	0	19	2	10	0	0	12	0	3	3	0	6	5	2	11	0	18	55
Buses	13					4					12					13					42
Single-Unit Trucks	2					1					2					5					10
Articulated Trucks	1					0					1					1					3
Total Exiting Leg	16					5					15					19					55

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	1	0	3	1	1	0	0	2	0	0	0	0	0	1	0	2	0	3	8
4:45 PM	0	2	1	0	3	0	4	0	0	4	0	0	0	0	0	1	1	2	0	4	11
Total	1	3	2	0	6	1	5	0	0	6	0	0	0	0	0	2	1	4	0	7	19
5:00 PM	1	2	1	0	4	0	3	0	0	3	0	0	0	0	0	1	0	3	0	4	11
5:15 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	2	0	4	0	6	9
5:30 PM	2	2	1	0	5	0	3	0	0	3	0	0	0	0	0	1	0	2	0	3	11
5:45 PM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	1	1	3	0	5	10
Total	3	8	2	0	13	2	8	0	0	10	0	0	0	0	0	5	1	12	0	18	41
6:00 PM	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	1	0	2	0	3	6
6:15 PM	1	1	0	0	2	1	3	0	0	4	0	0	0	0	0	1	2	2	0	5	11
Total	1	3	0	0	4	2	3	0	0	5	0	0	0	0	0	2	2	4	0	8	17
Grand Total	5	14	4	0	23	5	16	0	0	21	0	0	0	0	0	9	4	20	0	33	77
Approach %	21.7	60.9	17.4	0.0		23.8	76.2	0.0	0.0		0.0	0.0	0.0	0.0		27.3	12.1	60.6	0.0		
Total %	6.5	18.2	5.2	0.0	29.9	6.5	20.8	0.0	0.0	27.3	0.0	0.0	0.0	0.0	0.0	11.7	5.2	26.0	0.0	42.9	
Exiting Leg Total	25					8					23					21					77

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ames Street					Main Street					Ames Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:45 PM	0	2	1	0	3	0	4	0	0	4	0	0	0	0	0	1	1	2	0	4	11
5:00 PM	1	2	1	0	4	0	3	0	0	3	0	0	0	0	0	1	0	3	0	4	11
5:15 PM	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	2	0	4	0	6	9
5:30 PM	2	2	1	0	5	0	3	0	0	3	0	0	0	0	0	1	0	2	0	3	11
Total Volume	3	7	3	0	13	2	10	0	0	12	0	0	0	0	0	5	1	11	0	17	42
% Approach Total	23.1	53.8	23.1	0.0		16.7	83.3	0.0	0.0		0.0	0.0	0.0	0.0		29.4	5.9	64.7	0.0		
PHF	0.375	0.875	0.750	0.000	0.650	0.250	0.625	0.000	0.000	0.750	0.000	0.000	0.000	0.000	0.000	0.625	0.250	0.688	0.000	0.708	0.955
Entering Leg	3	7	3	0	13	2	10	0	0	12	0	0	0	0	0	5	1	11	0	17	42
Exiting Leg	13					4					12					13					42
Total	26					16					12					30					84

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	3
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	0	1	0	0	1	4
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
5:15 PM	1	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
5:30 PM	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
Total	3	2	0	0	5	0	1	0	0	1	0	2	2	0	4	0	1	0	0	1	11
6:00 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	3
Total	1	0	0	0	1	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	5
Grand Total	4	3	0	0	7	0	3	0	0	3	0	4	3	0	7	0	3	0	0	3	20
Approach %	57.1	42.9	0.0	0.0		0.0	100.0	0.0	0.0		0.0	57.1	42.9	0.0		0.0	100.0	0.0	0.0		
Total %	20.0	15.0	0.0	0.0	35.0	0.0	15.0	0.0	0.0	15.0	0.0	20.0	15.0	0.0	35.0	0.0	15.0	0.0	0.0	15.0	
Exiting Leg Total	4					3					3					10					20

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Ames Street					Main Street					Ames Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:30 PM	2	2	0	0	4	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2
6:00 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	1	0	0	1	3
Total Volume	3	2	0	0	5	0	2	0	0	2	0	3	1	0	4	0	2	0	0	2	13
% Approach Total	60.0	40.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	75.0	25.0	0.0		0.0	100.0	0.0	0.0		
PHF	0.375	0.250	0.000	0.000	0.313	0.000	0.500	0.000	0.000	0.500	0.000	0.375	0.250	0.000	0.500	0.000	0.500	0.000	0.000	0.500	0.542
Entering Leg	3	2	0	0	5	0	2	0	0	2	0	3	1	0	4	0	2	0	0	2	13
Exiting Leg	3					2					2					6					13
Total	8					4					6					8					26

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Ames Street					Main Street					Ames Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
6:15 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	1	0	0	0	1	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	0	0	0	0	1	1	1	0	3	0	0	0	0	0	4
Approach %	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		33.3	33.3	33.3	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	25.0	0.0	0.0	25.0	0.0	0.0	0.0	0.0	0.0	25.0	25.0	25.0	0.0	75.0	0.0	0.0	0.0	0.0	0.0	
Exiting Leg Total	1					1					1					1					4

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ames Street					Main Street					Ames Street					Main Street						
	from North					from East					from South					from West						
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total		Total
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2
Total Volume	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	3
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	0.0	0.0	0.0			
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.250	0.000	0.500	0.000	0.000	0.000	0.000	0.000		0.375
Entering Leg	0	1	0	0	1	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	1	3
Exiting Leg	1					0					1					1					3	
Total	2					0					3					1					6	

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Bicycles (on Roadway and Crosswalks)

	Ames Street							Main Street							Ames Street							Main Street							Total		
	from North							from East							from South							from West									
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total			
4:30 PM	4	0	0	0	0	0	4	0	5	4	0	0	0	9	1	2	1	0	0	0	1	5	0	10	0	0	0	0	10	28	
4:45 PM	3	3	0	0	0	0	6	1	6	1	0	1	0	9	1	4	5	0	0	0	0	10	1	7	0	0	0	0	8	33	
Total	7	3	0	0	0	0	10	1	11	5	0	1	0	18	2	6	6	0	0	0	1	15	1	17	0	0	0	0	18	61	
5:00 PM	10	1	1	0	0	0	12	1	16	3	0	0	0	20	1	7	2	0	0	0	0	10	1	10	1	0	0	0	1	13	55
5:15 PM	6	1	2	0	0	0	9	2	18	2	0	0	2	24	1	7	3	0	0	0	1	12	1	7	0	0	0	0	0	8	53
5:30 PM	5	2	2	0	2	0	11	2	15	0	0	1	0	18	1	12	3	0	1	1	18	2	5	2	0	1	0	0	10	57	
5:45 PM	6	1	0	0	0	0	7	2	17	3	0	0	1	23	1	4	0	0	0	0	1	6	4	10	1	0	0	0	0	15	51
Total	27	5	5	0	2	0	39	7	66	8	0	1	3	85	4	30	8	0	1	3	46	8	32	4	0	1	1	1	46	216	
6:00 PM	3	2	1	0	1	1	8	1	13	3	0	4	0	21	1	7	2	0	2	6	18	1	8	0	0	0	0	0	9	56	
6:15 PM	5	2	0	0	0	0	8	1	15	2	0	3	5	26	2	10	5	0	2	2	21	1	14	0	0	0	0	0	15	70	
Total	8	4	1	0	1	2	16	2	28	5	0	7	5	47	3	17	7	0	4	8	39	2	22	0	0	0	0	0	24	126	
Grand Total	42	12	6	0	3	2	65	10	105	18	0	9	8	150	9	53	21	0	5	12	100	11	71	4	0	1	1	1	88	403	
Approach %	64.6	18.5	9.2	0.0	4.6	3.1		6.7	70.0	12.0	0.0	6.0	5.3		9.0	53.0	21.0	0.0	5.0	12.0		12.5	80.7	4.5	0.0	1.1	1.1				
Total %	10.4	3.0	1.5	0.0	0.7	0.5	16.1	2.5	26.1	4.5	0.0	2.2	2.0	37.2	2.2	13.2	5.2	0.0	1.2	3.0	24.8	2.7	17.6	1.0	0.0	0.2	0.2	21.8			
Exiting Leg Total	72							103							58							170							403		

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:30 PM	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:30 PM	5	2	2	0	2	0	11	2	15	0	0	1	0	18	1	12	3	0	1	1	18	2	5	2	0	1	0	10	57
5:45 PM	6	1	0	0	0	0	7	2	17	3	0	0	1	23	1	4	0	0	0	1	6	4	10	1	0	0	0	15	51
6:00 PM	3	2	1	0	1	1	8	1	13	3	0	4	0	21	1	7	2	0	2	6	18	1	8	0	0	0	0	9	56
6:15 PM	5	2	0	0	0	1	8	1	15	2	0	3	5	26	2	10	5	0	2	2	21	1	14	0	0	0	0	15	70
Total Volume	19	7	3	0	3	2	34	6	60	8	0	8	6	88	5	33	10	0	5	10	63	8	37	3	0	1	0	49	234
% Approach Total	55.9	20.6	8.8	0.0	8.8	5.9		6.8	68.2	9.1	0.0	9.1	6.8		7.9	52.4	15.9	0.0	7.9	15.9		16.3	75.5	6.1	0.0	2.0	0.0		
PHF	0.792	0.875	0.375	0.000	0.375	0.500	0.773	0.750	0.882	0.667	0.000	0.500	0.300	0.846	0.625	0.688	0.500	0.000	0.625	0.417	0.750	0.500	0.661	0.375	0.000	0.250	0.000	0.817	0.836
Entering Leg	19	7	3	0	3	2	34	6	60	8	0	8	6	88	5	33	10	0	5	10	63	8	37	3	0	1	0	49	234
Exiting Leg	47							59							38							90							234
Total	81							147							101							139							468

PDI File #: **196867 (27) pm**
 Location: **N: Ames Street S: Ames Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	95	65	160	0	0	0	0	34	43	77	0	0	0	0	35	184	219	0	0	0	0	6	0	6	462
4:45 PM	0	0	0	0	133	69	202	0	0	0	0	35	56	91	0	0	0	0	43	177	220	0	0	0	0	3	6	9	522
Total	0	0	0	0	228	134	362	0	0	0	0	69	99	168	0	0	0	0	78	361	439	0	0	0	0	9	6	15	984
5:00 PM	0	0	0	0	174	80	254	0	0	0	0	51	88	139	0	0	0	0	61	262	323	0	0	0	0	4	2	6	722
5:15 PM	0	0	0	0	192	74	266	0	0	0	0	41	79	120	0	0	0	0	45	229	274	0	0	0	0	4	3	7	667
5:30 PM	0	0	0	0	116	79	195	0	0	0	0	47	75	122	0	0	0	0	50	199	249	0	0	0	0	3	6	9	575
5:45 PM	0	0	0	0	98	50	148	0	0	0	0	30	65	95	0	0	0	0	57	163	220	0	0	0	0	0	2	2	465
Total	0	0	0	0	580	283	863	0	0	0	0	169	307	476	0	0	0	0	213	853	1066	0	0	0	0	11	13	24	2429
6:00 PM	0	0	0	0	91	83	174	0	0	0	0	47	70	117	0	0	0	0	63	159	222	0	0	0	0	3	1	4	517
6:15 PM	0	0	0	0	102	68	170	0	0	0	0	38	59	97	0	0	0	0	51	148	199	0	0	0	0	3	2	5	471
Total	0	0	0	0	193	151	344	0	0	0	0	85	129	214	0	0	0	0	114	307	421	0	0	0	0	6	3	9	988
Grand Total	0	0	0	0	1001	568	1569	0	0	0	0	323	535	858	0	0	0	0	405	1521	1926	0	0	0	0	26	22	48	4401
Approach %	0	0	0	0	63.8	36.2		0	0	0	0	37.6	62.4		0	0	0	0	21	79		0	0	0	0	54.2	45.8		
Total %	0	0	0	0	22.7	12.9	35.7	0	0	0	0	7.34	12.2	19.5	0	0	0	0	9.2	34.6	43.8	0	0	0	0	0.59	0.5	1.09	
Exiting Leg Total	1569							858							1926							48							4401

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Ames Street							Main Street							Ames Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:45 PM	0	0	0	0	133	69	202	0	0	0	0	35	56	91	0	0	0	0	43	177	220	0	0	0	0	3	6	9	522
5:00 PM	0	0	0	0	174	80	254	0	0	0	0	51	88	139	0	0	0	0	61	262	323	0	0	0	0	4	2	6	722
5:15 PM	0	0	0	0	192	74	266	0	0	0	0	41	79	120	0	0	0	0	45	229	274	0	0	0	0	4	3	7	667
5:30 PM	0	0	0	0	116	79	195	0	0	0	0	47	75	122	0	0	0	0	50	199	249	0	0	0	0	3	6	9	575
Total Volume	0	0	0	0	615	302	917	0	0	0	0	174	298	472	0	0	0	0	199	867	1066	0	0	0	0	14	17	31	2486
% Approach Total	0.0	0.0	0.0	0.0	67.1	32.9		0.0	0.0	0.0	0.0	36.9	63.1		0.0	0.0	0.0	0.0	18.7	81.3		0.0	0.0	0.0	0.0	45.2	54.8		
PHF	0.000	0.000	0.000	0.000	0.801	0.944	0.862	0.000	0.000	0.000	0.000	0.853	0.847	0.849	0.000	0.000	0.000	0.000	0.816	0.827	0.825	0.000	0.000	0.000	0.000	0.875	0.708	0.861	0.861
Entering Leg	0	0	0	0	615	302	917	0	0	0	0	174	298	472	0	0	0	0	199	867	1066	0	0	0	0	14	17	31	2486
Exiting Leg	917							472							1066							31							2486
Total	1834							944							2132							62							4972

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	33	47	6	0	86	7	41	22	0	70	19	51	35	0	105	5	28	13	0	46	307
7:45 AM	51	56	5	0	112	5	52	12	0	69	24	50	27	0	101	8	33	25	0	66	348
Total	84	103	11	0	198	12	93	34	0	139	43	101	62	0	206	13	61	38	0	112	655
8:00 AM	35	45	5	2	87	8	52	9	0	69	19	56	22	0	97	11	45	28	0	84	337
8:15 AM	31	56	7	0	94	12	38	16	0	66	23	39	31	0	93	15	35	16	0	66	319
8:30 AM	32	59	7	0	98	13	44	20	3	80	23	52	19	0	94	9	35	19	0	63	335
8:45 AM	37	49	5	0	91	10	55	23	0	88	15	70	24	0	109	7	46	30	0	83	371
Total	135	209	24	2	370	43	189	68	3	303	80	217	96	0	393	42	161	93	0	296	1362
9:00 AM	27	45	6	0	78	6	43	21	0	70	29	38	28	0	95	22	27	33	0	82	325
9:15 AM	39	49	6	0	94	10	45	16	0	71	26	46	33	0	105	23	29	27	0	79	349
Total	66	94	12	0	172	16	88	37	0	141	55	84	61	0	200	45	56	60	0	161	674
Grand Total	285	406	47	2	740	71	370	139	3	583	178	402	219	0	799	100	278	191	0	569	2691
Approach %	38.5	54.9	6.4	0.3		12.2	63.5	23.8	0.5		22.3	50.3	27.4	0.0		17.6	48.9	33.6	0.0		
Total %	10.6	15.1	1.7	0.1	27.5	2.6	13.7	5.2	0.1	21.7	6.6	14.9	8.1	0.0	29.7	3.7	10.3	7.1	0.0	21.1	
Exiting Leg Total	666					506					645					874					2691
Cars	254	342	31	1	628	47	327	115	3	492	115	363	211	0	689	87	244	164	0	495	2304
% Cars	89.1	84.2	66.0	50.0	84.9	66.2	88.4	82.7	100.0	84.4	64.6	90.3	96.3	0.0	86.2	87.0	87.8	85.9	0.0	87.0	85.6
Exiting Leg Total	575					393					544					792					2304
Heavy Vehicles	31	64	16	1	112	24	43	24	0	91	63	39	8	0	110	13	34	27	0	74	387
% Heavy Vehicles	10.9	15.8	34.0	50.0	15.1	33.8	11.6	17.3	0.0	15.6	35.4	9.7	3.7	0.0	13.8	13.0	12.2	14.1	0.0	13.0	14.4
Exiting Leg Total	91					113					101					82					387

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	32	59	7	0	98	13	44	20	3	80	23	52	19	0	94	9	35	19	0	63	335
8:45 AM	37	49	5	0	91	10	55	23	0	88	15	70	24	0	109	7	46	30	0	83	371
9:00 AM	27	45	6	0	78	6	43	21	0	70	29	38	28	0	95	22	27	33	0	82	325
9:15 AM	39	49	6	0	94	10	45	16	0	71	26	46	33	0	105	23	29	27	0	79	349
Total Volume	135	202	24	0	361	39	187	80	3	309	93	206	104	0	403	61	137	109	0	307	1380
% Approach Total	37.4	56.0	6.6	0.0		12.6	60.5	25.9	1.0		23.1	51.1	25.8	0.0		19.9	44.6	35.5	0.0		
PHF	0.865	0.856	0.857	0.000	0.921	0.750	0.850	0.870	0.250	0.878	0.802	0.736	0.788	0.000	0.924	0.663	0.745	0.826	0.000	0.925	0.930
Cars	120	171	18	0	309	27	161	66	3	257	59	185	101	0	345	52	123	98	0	273	1184
Cars %	88.9	84.7	75.0	0.0	85.6	69.2	86.1	82.5	100.0	83.2	63.4	89.8	97.1	0.0	85.6	85.2	89.8	89.9	0.0	88.9	85.8
Heavy Vehicles	15	31	6	0	52	12	26	14	0	52	34	21	3	0	58	9	14	11	0	34	196
Heavy Vehicles %	11.1	15.3	25.0	0.0	14.4	30.8	13.9	17.5	0.0	16.8	36.6	10.2	2.9	0.0	14.4	14.8	10.2	10.1	0.0	11.1	14.2
Cars Enter Leg	120	171	18	0	309	27	161	66	3	257	59	185	101	0	345	52	123	98	0	273	1184
Heavy Enter Leg	15	31	6	0	52	12	26	14	0	52	34	21	3	0	58	9	14	11	0	34	196
Total Entering Leg	135	202	24	0	361	39	187	80	3	309	93	206	104	0	403	61	137	109	0	307	1380
Cars Exiting Leg	310					203					289					382					1184
Heavy Exiting Leg	44					54					54					44					196
Total Exiting Leg	354					257					343					426					1380

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	28	38	3	0	69	3	37	18	0	58	13	44	33	0	90	5	25	10	0	40	257
7:45 AM	47	45	3	0	95	3	49	11	0	63	14	45	26	0	85	8	29	21	0	58	301
Total	75	83	6	0	164	6	86	29	0	121	27	89	59	0	175	13	54	31	0	98	558
8:00 AM	31	39	3	1	74	6	46	5	0	57	12	52	22	0	86	10	35	22	0	67	284
8:15 AM	28	49	4	0	81	8	34	15	0	57	17	37	29	0	83	12	32	13	0	57	278
8:30 AM	30	47	5	0	82	11	35	16	3	65	13	47	19	0	79	8	29	18	0	55	281
8:45 AM	31	45	4	0	80	7	47	19	0	73	7	61	24	0	92	7	44	28	0	79	324
Total	120	180	16	1	317	32	162	55	3	252	49	197	94	0	340	37	140	81	0	258	1167
9:00 AM	26	39	5	0	70	4	41	17	0	62	20	37	28	0	85	21	23	26	0	70	287
9:15 AM	33	40	4	0	77	5	38	14	0	57	19	40	30	0	89	16	27	26	0	69	292
Total	59	79	9	0	147	9	79	31	0	119	39	77	58	0	174	37	50	52	0	139	579
Grand Total	254	342	31	1	628	47	327	115	3	492	115	363	211	0	689	87	244	164	0	495	2304
Approach %	40.4	54.5	4.9	0.2		9.6	66.5	23.4	0.6		16.7	52.7	30.6	0.0		17.6	49.3	33.1	0.0		
Total %	11.0	14.8	1.3	0.0	27.3	2.0	14.2	5.0	0.1	21.4	5.0	15.8	9.2	0.0	29.9	3.8	10.6	7.1	0.0	21.5	
Exiting Leg Total	575					393					544					792					2304

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	30	47	5	0	82	11	35	16	3	65	13	47	19	0	79	8	29	18	0	55	281
8:45 AM	31	45	4	0	80	7	47	19	0	73	7	61	24	0	92	7	44	28	0	79	324
9:00 AM	26	39	5	0	70	4	41	17	0	62	20	37	28	0	85	21	23	26	0	70	287
9:15 AM	33	40	4	0	77	5	38	14	0	57	19	40	30	0	89	16	27	26	0	69	292
Total Volume	120	171	18	0	309	27	161	66	3	257	59	185	101	0	345	52	123	98	0	273	1184
% Approach Total	38.8	55.3	5.8	0.0		10.5	62.6	25.7	1.2		17.1	53.6	29.3	0.0		19.0	45.1	35.9	0.0		
PHF	0.909	0.910	0.900	0.000	0.942	0.614	0.856	0.868	0.250	0.880	0.738	0.758	0.842	0.000	0.938	0.619	0.699	0.875	0.000	0.864	0.914
Entering Leg	120	171	18	0	309	27	161	66	3	257	59	185	101	0	345	52	123	98	0	273	1184
Exiting Leg					310					203					289					382	1184
Total					619					460					634					655	2368

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**



	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	5	9	3	0	17	4	4	4	0	12	6	7	2	0	15	0	3	3	0	6	50
7:45 AM	4	11	2	0	17	2	3	1	0	6	10	5	1	0	16	0	4	4	0	8	47
Total	9	20	5	0	34	6	7	5	0	18	16	12	3	0	31	0	7	7	0	14	97
8:00 AM	4	6	2	1	13	2	6	4	0	12	7	4	0	0	11	1	10	6	0	17	53
8:15 AM	3	7	3	0	13	4	4	1	0	9	6	2	2	0	10	3	3	3	0	9	41
8:30 AM	2	12	2	0	16	2	9	4	0	15	10	5	0	0	15	1	6	1	0	8	54
8:45 AM	6	4	1	0	11	3	8	4	0	15	8	9	0	0	17	0	2	2	0	4	47
Total	15	29	8	1	53	11	27	13	0	51	31	20	2	0	53	5	21	12	0	38	195
9:00 AM	1	6	1	0	8	2	2	4	0	8	9	1	0	0	10	1	4	7	0	12	38
9:15 AM	6	9	2	0	17	5	7	2	0	14	7	6	3	0	16	7	2	1	0	10	57
Total	7	15	3	0	25	7	9	6	0	22	16	7	3	0	26	8	6	8	0	22	95
Grand Total	31	64	16	1	112	24	43	24	0	91	63	39	8	0	110	13	34	27	0	74	387
Approach %	27.7	57.1	14.3	0.9		26.4	47.3	26.4	0.0		57.3	35.5	7.3	0.0		17.6	45.9	36.5	0.0		
Total %	8.0	16.5	4.1	0.3	28.9	6.2	11.1	6.2	0.0	23.5	16.3	10.1	2.1	0.0	28.4	3.4	8.8	7.0	0.0	19.1	
Exiting Leg Total	91					113					101					82					387
Buses	2	17	0	0	19	10	15	11	0	36	34	10	1	0	45	0	2	4	0	6	106
% Buses	6.5	26.6	0.0	0.0	17.0	41.7	34.9	45.8	0.0	39.6	54.0	25.6	12.5	0.0	40.9	0.0	5.9	14.8	0.0	8.1	27.4
Exiting Leg Total	24					36					28					18					106
Single-Unit Trucks	25	44	14	0	83	9	25	12	0	46	28	24	5	0	57	13	30	18	0	61	247
% Single-Unit	80.6	68.8	87.5	0.0	74.1	37.5	58.1	50.0	0.0	50.5	44.4	61.5	62.5	0.0	51.8	100.0	88.2	66.7	0.0	82.4	63.8
Exiting Leg Total	51					72					69					55					247
Articulated Trucks	4	3	2	1	10	5	3	1	0	9	1	5	2	0	8	0	2	5	0	7	34
% Articulated	12.9	4.7	12.5	100.0	8.9	20.8	7.0	4.2	0.0	9.9	1.6	12.8	25.0	0.0	7.3	0.0	5.9	18.5	0.0	9.5	8.8
Exiting Leg Total	16					5					4					9					34

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
8:30 AM	2	12	2	0	16	2	9	4	0	15	10	5	0	0	15	1	6	1	0	8	54
8:45 AM	6	4	1	0	11	3	8	4	0	15	8	9	0	0	17	0	2	2	0	4	47
9:00 AM	1	6	1	0	8	2	2	4	0	8	9	1	0	0	10	1	4	7	0	12	38
9:15 AM	6	9	2	0	17	5	7	2	0	14	7	6	3	0	16	7	2	1	0	10	57
Total Volume	15	31	6	0	52	12	26	14	0	52	34	21	3	0	58	9	14	11	0	34	196
% Approach Total	28.8	59.6	11.5	0.0		23.1	50.0	26.9	0.0		58.6	36.2	5.2	0.0		26.5	41.2	32.4	0.0		
PHF	0.625	0.646	0.750	0.000	0.765	0.600	0.722	0.875	0.000	0.867	0.850	0.583	0.250	0.000	0.853	0.321	0.583	0.393	0.000	0.708	0.860
Buses	1	7	0	0	8	5	8	7	0	20	18	4	0	0	22	0	1	1	0	2	52
Buses %	6.7	22.6	0.0	0.0	15.4	41.7	30.8	50.0	0.0	38.5	52.9	19.0	0.0	0.0	37.9	0.0	7.1	9.1	0.0	5.9	26.5
Single-Unit Trucks	13	23	6	0	42	5	17	6	0	28	16	15	2	0	33	9	13	9	0	31	134
Single-Unit %	86.7	74.2	100.0	0.0	80.8	41.7	65.4	42.9	0.0	53.8	47.1	71.4	66.7	0.0	56.9	100.0	92.9	81.8	0.0	91.2	68.4
Articulated Trucks	1	1	0	0	2	2	1	1	0	4	0	2	1	0	3	0	0	1	0	1	10
Articulated %	6.7	3.2	0.0	0.0	3.8	16.7	3.8	7.1	0.0	7.7	0.0	9.5	33.3	0.0	5.2	0.0	0.0	9.1	0.0	2.9	5.1
Buses	1	7	0	0	8	5	8	7	0	20	18	4	0	0	22	0	1	1	0	2	52
Single-Unit Trucks	13	23	6	0	42	5	17	6	0	28	16	15	2	0	33	9	13	9	0	31	134
Articulated Trucks	1	1	0	0	2	2	1	1	0	4	0	2	1	0	3	0	0	1	0	1	10
Total Entering Leg	15	31	6	0	52	12	26	14	0	52	34	21	3	0	58	9	14	11	0	34	196
Buses	10					19					14					9					52
Single-Unit Trucks	29					35					38					32					134
Articulated Trucks	5					0					2					3					10
Total Exiting Leg	44					54					54					44					196

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	0	3	0	0	3	1	1	1	0	3	5	2	0	0	7	0	0	0	0	0	13
7:45 AM	1	4	0	0	5	1	2	1	0	4	4	0	1	0	5	0	0	1	0	1	15
Total	1	7	0	0	8	2	3	2	0	7	9	2	1	0	12	0	0	1	0	1	28
8:00 AM	0	1	0	0	1	2	3	1	0	6	3	3	0	0	6	0	0	2	0	2	15
8:15 AM	0	2	0	0	2	1	1	1	0	3	4	1	0	0	5	0	1	0	0	1	11
8:30 AM	0	3	0	0	3	1	2	1	0	4	4	1	0	0	5	0	1	0	0	1	13
8:45 AM	0	2	0	0	2	2	3	1	0	6	4	0	0	0	4	0	0	0	0	0	12
Total	0	8	0	0	8	6	9	4	0	19	15	5	0	0	20	0	2	2	0	4	51
9:00 AM	0	1	0	0	1	1	1	3	0	5	7	1	0	0	8	0	0	1	0	1	15
9:15 AM	1	1	0	0	2	1	2	2	0	5	3	2	0	0	5	0	0	0	0	0	12
Total	1	2	0	0	3	2	3	5	0	10	10	3	0	0	13	0	0	1	0	1	27
Grand Total	2	17	0	0	19	10	15	11	0	36	34	10	1	0	45	0	2	4	0	6	106
Approach %	10.5	89.5	0.0	0.0		27.8	41.7	30.6	0.0		75.6	22.2	2.2	0.0		0.0	33.3	66.7	0.0		
Total %	1.9	16.0	0.0	0.0	17.9	9.4	14.2	10.4	0.0	34.0	32.1	9.4	0.9	0.0	42.5	0.0	1.9	3.8	0.0	5.7	
Exiting Leg Total	24					36					28					18					106

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	0	3	0	0	3	1	1	1	0	3	5	2	0	0	7	0	0	0	0	0	13
7:45 AM	1	4	0	0	5	1	2	1	0	4	4	0	1	0	5	0	0	1	0	1	15
8:00 AM	0	1	0	0	1	2	3	1	0	6	3	3	0	0	6	0	0	2	0	2	15
8:15 AM	0	2	0	0	2	1	1	1	0	3	4	1	0	0	5	0	1	0	0	1	11
Total Volume	1	10	0	0	11	5	7	4	0	16	16	6	1	0	23	0	1	3	0	4	54
% Approach Total	9.1	90.9	0.0	0.0		31.3	43.8	25.0	0.0		69.6	26.1	4.3	0.0		0.0	25.0	75.0	0.0		
PHF	0.250	0.625	0.000	0.000	0.550	0.625	0.583	1.000	0.000	0.667	0.800	0.500	0.250	0.000	0.821	0.000	0.250	0.375	0.000	0.500	0.900
Entering Leg	1	10	0	0	11	5	7	4	0	16	16	6	1	0	23	0	1	3	0	4	54
Exiting Leg					14					17					14					9	54
Total					25					33					37					13	108

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	4	4	3	0	11	1	2	3	0	6	1	3	2	0	6	0	2	1	0	3	26
7:45 AM	3	7	1	0	11	1	1	0	0	2	6	4	0	0	10	0	4	2	0	6	29
Total	7	11	4	0	22	2	3	3	0	8	7	7	2	0	16	0	6	3	0	9	55
8:00 AM	4	5	2	0	11	0	3	3	0	6	3	1	0	0	4	1	9	3	0	13	34
8:15 AM	1	5	2	0	8	2	2	0	0	4	2	1	1	0	4	3	2	3	0	8	24
8:30 AM	2	8	2	0	12	1	6	2	0	9	6	4	0	0	10	1	5	1	0	7	38
8:45 AM	5	2	1	0	8	1	5	3	0	9	4	9	0	0	13	0	2	1	0	3	33
Total	12	20	7	0	39	4	16	8	0	28	15	15	1	0	31	5	18	8	0	31	129
9:00 AM	1	5	1	0	7	0	1	1	0	2	2	0	0	0	2	1	4	6	0	11	22
9:15 AM	5	8	2	0	15	3	5	0	0	8	4	2	2	0	8	7	2	1	0	10	41
Total	6	13	3	0	22	3	6	1	0	10	6	2	2	0	10	8	6	7	0	21	63
Grand Total	25	44	14	0	83	9	25	12	0	46	28	24	5	0	57	13	30	18	0	61	247
Approach %	30.1	53.0	16.9	0.0		19.6	54.3	26.1	0.0		49.1	42.1	8.8	0.0		21.3	49.2	29.5	0.0		
Total %	10.1	17.8	5.7	0.0	33.6	3.6	10.1	4.9	0.0	18.6	11.3	9.7	2.0	0.0	23.1	5.3	12.1	7.3	0.0	24.7	
Exiting Leg Total	51					72					69					55					247

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
8:30 AM	2	8	2	0	12	1	6	2	0	9	6	4	0	0	10	1	5	1	0	7	38
8:45 AM	5	2	1	0	8	1	5	3	0	9	4	9	0	0	13	0	2	1	0	3	33
9:00 AM	1	5	1	0	7	0	1	1	0	2	2	0	0	0	2	1	4	6	0	11	22
9:15 AM	5	8	2	0	15	3	5	0	0	8	4	2	2	0	8	7	2	1	0	10	41
Total Volume	13	23	6	0	42	5	17	6	0	28	16	15	2	0	33	9	13	9	0	31	134
% Approach Total	31.0	54.8	14.3	0.0		17.9	60.7	21.4	0.0		48.5	45.5	6.1	0.0		29.0	41.9	29.0	0.0		
PHF	0.650	0.719	0.750	0.000	0.700	0.417	0.708	0.500	0.000	0.778	0.667	0.417	0.250	0.000	0.635	0.321	0.650	0.375	0.000	0.705	0.817
Entering Leg	13	23	6	0	42	5	17	6	0	28	16	15	2	0	33	9	13	9	0	31	134
Exiting Leg					29					35					38					32	134
Total					71					63					71					63	268

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	2	0	0	3	2	1	0	0	3	0	2	0	0	2	0	1	2	0	3	11
7:45 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
Total	1	2	1	0	4	2	1	0	0	3	0	3	0	0	3	0	1	3	0	4	14
8:00 AM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	2	4
8:15 AM	2	0	1	0	3	1	1	0	0	2	0	0	1	0	1	0	0	0	0	0	6
8:30 AM	0	1	0	0	1	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Total	3	1	1	1	6	1	2	1	0	4	1	0	1	0	2	0	1	2	0	3	15
9:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
9:15 AM	0	0	0	0	0	1	0	0	0	1	0	2	1	0	3	0	0	0	0	0	4
Total	0	0	0	0	0	2	0	0	0	2	0	2	1	0	3	0	0	0	0	0	5
Grand Total	4	3	2	1	10	5	3	1	0	9	1	5	2	0	8	0	2	5	0	7	34
Approach %	40.0	30.0	20.0	10.0		55.6	33.3	11.1	0.0		12.5	62.5	25.0	0.0		0.0	28.6	71.4	0.0		
Total %	11.8	8.8	5.9	2.9	29.4	14.7	8.8	2.9	0.0	26.5	2.9	14.7	5.9	0.0	23.5	0.0	5.9	14.7	0.0	20.6	
Exiting Leg Total	16					5					4					9					34

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
7:30 AM	1	2	0	0	3	2	1	0	0	3	0	2	0	0	2	0	1	2	0	3	11
7:45 AM	0	0	1	0	1	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	3
8:00 AM	0	0	0	1	1	0	0	0	0	0	1	0	0	0	1	0	1	1	0	2	4
8:15 AM	2	0	1	0	3	1	1	0	0	2	0	0	1	0	1	0	0	0	0	0	6
Total Volume	3	2	2	1	8	3	2	0	0	5	1	3	1	0	5	0	2	4	0	6	24
% Approach Total	37.5	25.0	25.0	12.5		60.0	40.0	0.0	0.0		20.0	60.0	20.0	0.0		0.0	33.3	66.7	0.0		
PHF	0.375	0.250	0.500	0.250	0.667	0.375	0.500	0.000	0.000	0.417	0.250	0.375	0.250	0.000	0.625	0.000	0.500	0.500	0.000	0.500	0.545
Entering Leg	3	2	2	1	8	3	2	0	0	5	1	3	1	0	5	0	2	4	0	6	24
Exiting Leg	11					5					2					6					24
Total	19					10					7					12					48

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	2	1	0	1	0	4	0	3	0	0	2	0	5	8	5	0	0	1	1	15	1	8	0	0	0	0	9	33
7:45 AM	3	2	1	0	1	1	8	0	2	0	0	0	0	2	6	9	1	0	0	1	17	1	7	2	0	0	2	12	39
Total	3	4	2	0	2	1	12	0	5	0	0	2	0	7	14	14	1	0	1	2	32	2	15	2	0	0	2	21	72
8:00 AM	3	8	0	0	0	0	11	0	6	3	0	1	0	10	5	8	2	0	1	1	17	2	10	4	0	2	0	18	56
8:15 AM	1	16	1	0	4	0	22	0	4	2	0	8	0	14	9	10	2	0	3	0	24	0	26	1	0	0	0	27	87
8:30 AM	0	18	2	0	4	0	24	0	1	2	0	3	0	6	23	6	1	0	1	1	32	4	23	4	0	2	1	34	96
8:45 AM	5	19	3	0	2	0	29	0	4	1	0	1	0	6	17	10	1	0	1	4	33	8	13	3	0	0	1	25	93
Total	9	61	6	0	10	0	86	0	15	8	0	13	0	36	54	34	6	0	6	6	106	14	72	12	0	4	2	104	332
9:00 AM	3	16	2	0	6	1	28	0	1	0	0	5	3	9	10	10	1	0	2	4	27	4	15	5	0	2	1	27	91
9:15 AM	2	15	3	0	3	0	23	0	2	0	0	3	0	5	14	9	0	0	2	0	25	8	14	2	0	3	2	29	82
Total	5	31	5	0	9	1	51	0	3	0	0	8	3	14	24	19	1	0	4	4	52	12	29	7	0	5	3	56	173
Grand Total	17	96	13	0	21	2	149	0	23	8	0	23	3	57	92	67	8	0	11	12	190	28	116	21	0	9	7	181	577
Approach %	11.4	64.4	8.7	0.0	14.1	1.3		0.0	40.4	14.0	0.0	40.4	5.3		48.4	35.3	4.2	0.0	5.8	6.3		15.5	64.1	11.6	0.0	5.0	3.9		
Total %	2.9	16.6	2.3	0.0	3.6	0.3	25.8	0.0	4.0	1.4	0.0	4.0	0.5	9.9	15.9	11.6	1.4	0.0	1.9	2.1	32.9	4.9	20.1	3.6	0.0	1.6	1.2	31.4	
Exiting Leg Total	111							247							155							64							577

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:15 AM	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:15 AM	1	16	1	0	4	0	22	0	4	2	0	8	0	14	9	10	2	0	3	0	24	0	26	1	0	0	0	27	87
8:30 AM	0	18	2	0	4	0	24	0	1	2	0	3	0	6	23	6	1	0	1	1	32	4	23	4	0	2	1	34	96
8:45 AM	5	19	3	0	2	0	29	0	4	1	0	1	0	6	17	10	1	0	1	4	33	8	13	3	0	0	1	25	93
9:00 AM	3	16	2	0	6	1	28	0	1	0	0	5	3	9	10	10	1	0	2	4	27	4	15	5	0	2	1	27	91
Total Volume	9	69	8	0	16	1	103	0	10	5	0	17	3	35	59	36	5	0	7	9	116	16	77	13	0	4	3	113	367
% Approach Total	8.7	67.0	7.8	0.0	15.5	1.0		0.0	28.6	14.3	0.0	48.6	8.6		50.9	31.0	4.3	0.0	6.0	7.8		14.2	68.1	11.5	0.0	3.5	2.7		
PHF	0.450	0.908	0.667	0.000	0.667	0.250	0.888	0.000	0.625	0.625	0.000	0.531	0.250	0.625	0.641	0.900	0.625	0.000	0.583	0.563	0.879	0.500	0.740	0.650	0.000	0.500	0.750	0.831	0.956
Entering Leg	9	69	8	0	16	1	103	0	10	5	0	17	3	35	59	36	5	0	7	9	116	16	77	13	0	4	3	113	367
Exiting Leg	66							164							106							31							367
Total	169							199							222							144							734

PDI File #: **196867 (26) am**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	0	24	72	96	0	0	0	0	6	3	9	0	0	0	0	34	14	48	0	0	0	0	6	8	14	167
7:45 AM	0	0	0	0	22	78	100	0	0	0	0	15	6	21	0	0	0	0	42	24	66	0	0	0	0	7	11	18	205
Total	0	0	0	0	46	150	196	0	0	0	0	21	9	30	0	0	0	0	76	38	114	0	0	0	0	13	19	32	372
8:00 AM	0	0	0	0	21	134	155	0	0	0	0	14	10	24	0	0	0	0	56	20	76	0	0	0	0	10	25	35	290
8:15 AM	0	0	0	0	36	98	134	0	0	0	0	15	7	22	0	0	0	0	40	28	68	0	0	0	0	2	15	17	241
8:30 AM	0	0	0	0	36	139	175	0	0	0	0	18	15	33	0	0	0	0	47	31	78	0	0	0	0	10	24	34	320
8:45 AM	0	0	0	0	46	111	157	0	0	0	0	21	11	32	0	0	0	0	47	35	82	0	0	0	0	13	29	42	313
Total	0	0	0	0	139	482	621	0	0	0	0	68	43	111	0	0	0	0	190	114	304	0	0	0	0	35	93	128	1164
9:00 AM	0	0	0	0	39	121	160	0	0	0	0	23	19	42	0	0	0	0	49	33	82	0	0	0	0	7	26	33	317
9:15 AM	0	0	0	0	47	87	134	0	0	0	0	23	22	45	0	0	0	0	51	32	83	0	0	0	0	6	23	29	291
Total	0	0	0	0	86	208	294	0	0	0	0	46	41	87	0	0	0	0	100	65	165	0	0	0	0	13	49	62	608
Grand Total	0	0	0	0	271	840	1111	0	0	0	0	135	93	228	0	0	0	0	366	217	583	0	0	0	0	61	161	222	2144
Approach %	0	0	0	0	24.4	75.6		0	0	0	0	59.2	40.8		0	0	0	0	62.8	37.2		0	0	0	0	27.5	72.5		
Total %	0	0	0	0	12.6	39.2	51.8	0	0	0	0	6.3	4.34	10.6	0	0	0	0	17.1	10.1	27.2	0	0	0	0	2.85	7.51	10.4	
Exiting Leg Total	1111							228							583							222							2144

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Galileo Galilei Way							Main Street							Vassar Street							Main Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total
8:30 AM	0	0	0	0	36	139	175	0	0	0	0	18	15	33	0	0	0	0	47	31	78	0	0	0	0	10	24	34	320
8:45 AM	0	0	0	0	46	111	157	0	0	0	0	21	11	32	0	0	0	0	47	35	82	0	0	0	0	13	29	42	313
9:00 AM	0	0	0	0	39	121	160	0	0	0	0	23	19	42	0	0	0	0	49	33	82	0	0	0	0	7	26	33	317
9:15 AM	0	0	0	0	47	87	134	0	0	0	0	23	22	45	0	0	0	0	51	32	83	0	0	0	0	6	23	29	291
Total Volume	0	0	0	0	168	458	626	0	0	0	0	85	67	152	0	0	0	0	194	131	325	0	0	0	0	36	102	138	1241
% Approach Total	0.0	0.0	0.0	0.0	26.8	73.2		0.0	0.0	0.0	0.0	55.9	44.1		0.0	0.0	0.0	0.0	59.7	40.3		0.0	0.0	0.0	0.0	26.1	73.9		
PHF	0.000	0.000	0.000	0.000	0.894	0.824	0.894	0.000	0.000	0.000	0.000	0.924	0.761	0.844	0.000	0.000	0.000	0.000	0.951	0.936	0.979	0.000	0.000	0.000	0.000	0.692	0.879	0.821	0.970
Entering Leg	0	0	0	0	168	458	626	0	0	0	0	85	67	152	0	0	0	0	194	131	325	0	0	0	0	36	102	138	1241
Exiting Leg	626							152							325							138							1241
Total	1252							304							650							276							2482

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	26	51	3	0	80	4	35	14	1	54	13	48	8	0	69	25	56	29	0	110	313
4:45 PM	36	51	2	1	90	7	32	15	1	55	25	55	8	0	88	30	45	24	0	99	332
Total	62	102	5	1	170	11	67	29	2	109	38	103	16	0	157	55	101	53	0	209	645
5:00 PM	28	65	12	0	105	10	50	20	0	80	15	49	11	0	75	31	58	49	0	138	398
5:15 PM	57	59	7	2	125	14	46	9	0	69	23	91	16	0	130	31	49	46	0	126	450
5:30 PM	44	54	4	0	102	10	67	27	1	105	21	82	14	0	117	22	44	37	0	103	427
5:45 PM	28	55	6	0	89	28	33	19	1	81	29	95	13	0	137	19	49	41	0	109	416
Total	157	233	29	2	421	62	196	75	2	335	88	317	54	0	459	103	200	173	0	476	1691
6:00 PM	27	64	1	0	92	12	52	11	1	76	32	65	11	0	108	21	50	27	0	98	374
6:15 PM	26	61	3	0	90	17	44	16	0	77	26	55	19	0	100	24	56	29	0	109	376
Total	53	125	4	0	182	29	96	27	1	153	58	120	30	0	208	45	106	56	0	207	750
Grand Total	272	460	38	3	773	102	359	131	5	597	184	540	100	0	824	203	407	282	0	892	3086
Approach %	35.2	59.5	4.9	0.4		17.1	60.1	21.9	0.8		22.3	65.5	12.1	0.0		22.8	45.6	31.6	0.0		
Total %	8.8	14.9	1.2	0.1	25.0	3.3	11.6	4.2	0.2	19.3	6.0	17.5	3.2	0.0	26.7	6.6	13.2	9.1	0.0	28.9	
Exiting Leg Total	927					634					794					731					3086
Cars	260	453	38	3	754	89	350	118	5	562	168	516	99	0	783	203	387	274	0	864	2963
% Cars	95.6	98.5	100.0	100.0	97.5	87.3	97.5	90.1	100.0	94.1	91.3	95.6	99.0	0.0	95.0	100.0	95.1	97.2	0.0	96.9	96.0
Exiting Leg Total	882					598					774					709					2963
Heavy Vehicles	12	7	0	0	19	13	9	13	0	35	16	24	1	0	41	0	20	8	0	28	123
% Heavy Vehicles	4.4	1.5	0.0	0.0	2.5	12.7	2.5	9.9	0.0	5.9	8.7	4.4	1.0	0.0	5.0	0.0	4.9	2.8	0.0	3.1	4.0
Exiting Leg Total	45					36					20					22					123

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	28	65	12	0	105	10	50	20	0	80	15	49	11	0	75	31	58	49	0	138	398
5:15 PM	57	59	7	2	125	14	46	9	0	69	23	91	16	0	130	31	49	46	0	126	450
5:30 PM	44	54	4	0	102	10	67	27	1	105	21	82	14	0	117	22	44	37	0	103	427
5:45 PM	28	55	6	0	89	28	33	19	1	81	29	95	13	0	137	19	49	41	0	109	416
Total Volume	157	233	29	2	421	62	196	75	2	335	88	317	54	0	459	103	200	173	0	476	1691
% Approach Total	37.3	55.3	6.9	0.5		18.5	58.5	22.4	0.6		19.2	69.1	11.8	0.0		21.6	42.0	36.3	0.0		
PHF	0.689	0.896	0.604	0.250	0.842	0.554	0.731	0.694	0.500	0.798	0.759	0.834	0.844	0.000	0.838	0.831	0.862	0.883	0.000	0.862	0.939
Cars	151	231	29	2	413	56	190	69	2	317	80	307	54	0	441	103	190	167	0	460	1631
Cars %	96.2	99.1	100.0	100.0	98.1	90.3	96.9	92.0	100.0	94.6	90.9	96.8	100.0	0.0	96.1	100.0	95.0	96.5	0.0	96.6	96.5
Heavy Vehicles	6	2	0	0	8	6	6	6	0	18	8	10	0	0	18	0	10	6	0	16	60
Heavy Vehicles %	3.8	0.9	0.0	0.0	1.9	9.7	3.1	8.0	0.0	5.4	9.1	3.2	0.0	0.0	3.9	0.0	5.0	3.5	0.0	3.4	3.5
Cars Enter Leg	151	231	29	2	413	56	190	69	2	317	80	307	54	0	441	103	190	167	0	460	1631
Heavy Enter Leg	6	2	0	0	8	6	6	6	0	18	8	10	0	0	18	0	10	6	0	16	60
Total Entering Leg	157	233	29	2	421	62	196	75	2	335	88	317	54	0	459	103	200	173	0	476	1691
Cars Exiting Leg	532					301					403					395					1631
Heavy Exiting Leg	22					18					8					12					60
Total Exiting Leg	554					319					411					407					1691

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	25	48	3	0	76	3	35	12	1	51	12	41	8	0	61	25	55	27	0	107	295
4:45 PM	35	51	2	1	89	4	31	14	1	50	21	51	8	0	80	30	43	24	0	97	316
Total	60	99	5	1	165	7	66	26	2	101	33	92	16	0	141	55	98	51	0	204	611
5:00 PM	26	64	12	0	102	9	48	18	0	75	13	46	11	0	70	31	56	46	0	133	380
5:15 PM	53	59	7	2	121	14	44	8	0	66	22	88	16	0	126	31	45	46	0	122	435
5:30 PM	44	54	4	0	102	8	66	24	1	99	19	81	14	0	114	22	43	35	0	100	415
5:45 PM	28	54	6	0	88	25	32	19	1	77	26	92	13	0	131	19	46	40	0	105	401
Total	151	231	29	2	413	56	190	69	2	317	80	307	54	0	441	103	190	167	0	460	1631
6:00 PM	25	63	1	0	89	12	50	10	1	73	29	62	11	0	102	21	49	27	0	97	361
6:15 PM	24	60	3	0	87	14	44	13	0	71	26	55	18	0	99	24	50	29	0	103	360
Total	49	123	4	0	176	26	94	23	1	144	55	117	29	0	201	45	99	56	0	200	721
Grand Total	260	453	38	3	754	89	350	118	5	562	168	516	99	0	783	203	387	274	0	864	2963
Approach %	34.5	60.1	5.0	0.4		15.8	62.3	21.0	0.9		21.5	65.9	12.6	0.0		23.5	44.8	31.7	0.0		
Total %	8.8	15.3	1.3	0.1	25.4	3.0	11.8	4.0	0.2	19.0	5.7	17.4	3.3	0.0	26.4	6.9	13.1	9.2	0.0	29.2	
Exiting Leg Total	882					598					774					709					2963

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
5:00 PM	26	64	12	0	102	9	48	18	0	75	13	46	11	0	70	31	56	46	0	133	380
5:15 PM	53	59	7	2	121	14	44	8	0	66	22	88	16	0	126	31	45	46	0	122	435
5:30 PM	44	54	4	0	102	8	66	24	1	99	19	81	14	0	114	22	43	35	0	100	415
5:45 PM	28	54	6	0	88	25	32	19	1	77	26	92	13	0	131	19	46	40	0	105	401
Total Volume	151	231	29	2	413	56	190	69	2	317	80	307	54	0	441	103	190	167	0	460	1631
% Approach Total	36.6	55.9	7.0	0.5		17.7	59.9	21.8	0.6		18.1	69.6	12.2	0.0		22.4	41.3	36.3	0.0		
PHF	0.712	0.902	0.604	0.250	0.853	0.560	0.720	0.719	0.500	0.801	0.769	0.834	0.844	0.000	0.842	0.831	0.848	0.908	0.000	0.865	0.937
Entering Leg	151	231	29	2	413	56	190	69	2	317	80	307	54	0	441	103	190	167	0	460	1631
Exiting Leg	532					301					403					395					1631
Total	945					618					844					855					3262

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	3	0	0	4	1	0	2	0	3	1	7	0	0	8	0	1	2	0	3	18
4:45 PM	1	0	0	0	1	3	1	1	0	5	4	4	0	0	8	0	2	0	0	2	16
Total	2	3	0	0	5	4	1	3	0	8	5	11	0	0	16	0	3	2	0	5	34
5:00 PM	2	1	0	0	3	1	2	2	0	5	2	3	0	0	5	0	2	3	0	5	18
5:15 PM	4	0	0	0	4	0	2	1	0	3	1	3	0	0	4	0	4	0	0	4	15
5:30 PM	0	0	0	0	0	2	1	3	0	6	2	1	0	0	3	0	1	2	0	3	12
5:45 PM	0	1	0	0	1	3	1	0	0	4	3	3	0	0	6	0	3	1	0	4	15
Total	6	2	0	0	8	6	6	6	0	18	8	10	0	0	18	0	10	6	0	16	60
6:00 PM	2	1	0	0	3	0	2	1	0	3	3	3	0	0	6	0	1	0	0	1	13
6:15 PM	2	1	0	0	3	3	0	3	0	6	0	0	1	0	1	0	6	0	0	6	16
Total	4	2	0	0	6	3	2	4	0	9	3	3	1	0	7	0	7	0	0	7	29
Grand Total	12	7	0	0	19	13	9	13	0	35	16	24	1	0	41	0	20	8	0	28	123
Approach %	63.2	36.8	0.0	0.0		37.1	25.7	37.1	0.0		39.0	58.5	2.4	0.0		0.0	71.4	28.6	0.0		
Total %	9.8	5.7	0.0	0.0	15.4	10.6	7.3	10.6	0.0	28.5	13.0	19.5	0.8	0.0	33.3	0.0	16.3	6.5	0.0	22.8	
Exiting Leg Total	45					36					20					22					123
Buses	10	5	0	0	15	10	4	8	0	22	15	13	1	0	29	0	18	2	0	20	86
% Buses	83.3	71.4	0.0	0.0	78.9	76.9	44.4	61.5	0.0	62.9	93.8	54.2	100.0	0.0	70.7	0.0	90.0	25.0	0.0	71.4	69.9
Exiting Leg Total	25					33					13					15					86
Single-Unit Trucks	2	1	0	0	3	3	4	4	0	11	1	10	0	0	11	0	2	4	0	6	31
% Single-Unit	16.7	14.3	0.0	0.0	15.8	23.1	44.4	30.8	0.0	31.4	6.3	41.7	0.0	0.0	26.8	0.0	10.0	50.0	0.0	21.4	25.2
Exiting Leg Total	17					3					5					6					31
Articulated Trucks	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	0	2	0	2	6
% Articulated	0.0	14.3	0.0	0.0	5.3	0.0	11.1	7.7	0.0	5.7	0.0	4.2	0.0	0.0	2.4	0.0	0.0	25.0	0.0	7.1	4.9
Exiting Leg Total	3					0					2					1					6

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	3	0	0	4	1	0	2	0	3	1	7	0	0	8	0	1	2	0	3	18
4:45 PM	1	0	0	0	1	3	1	1	0	5	4	4	0	0	8	0	2	0	0	2	16
5:00 PM	2	1	0	0	3	1	2	2	0	5	2	3	0	0	5	0	2	3	0	5	18
5:15 PM	4	0	0	0	4	0	2	1	0	3	1	3	0	0	4	0	4	0	0	4	15
Total Volume	8	4	0	0	12	5	5	6	0	16	8	17	0	0	25	0	9	5	0	14	67
% Approach Total	66.7	33.3	0.0	0.0		31.3	31.3	37.5	0.0		32.0	68.0	0.0	0.0		0.0	64.3	35.7	0.0		
PHF	0.500	0.333	0.000	0.000	0.750	0.417	0.625	0.750	0.000	0.800	0.500	0.607	0.000	0.000	0.781	0.000	0.563	0.417	0.000	0.700	0.931
Buses	7	2	0	0	9	5	2	3	0	10	7	9	0	0	16	0	9	0	0	9	44
Buses %	87.5	50.0	0.0	0.0	75.0	100.0	40.0	50.0	0.0	62.5	87.5	52.9	0.0	0.0	64.0	0.0	100.0	0.0	0.0	64.3	65.7
Single-Unit Trucks	1	1	0	0	2	0	3	2	0	5	1	8	0	0	9	0	0	3	0	3	19
Single-Unit %	12.5	25.0	0.0	0.0	16.7	0.0	60.0	33.3	0.0	31.3	12.5	47.1	0.0	0.0	36.0	0.0	0.0	60.0	0.0	21.4	28.4
Articulated Trucks	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	4
Articulated %	0.0	25.0	0.0	0.0	8.3	0.0	0.0	16.7	0.0	6.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.0	0.0	14.3	6.0
Buses	7	2	0	0	9	5	2	3	0	10	7	9	0	0	16	0	9	0	0	9	44
Single-Unit Trucks	1	1	0	0	2	0	3	2	0	5	1	8	0	0	9	0	0	3	0	3	19
Articulated Trucks	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	4
Total Entering Leg	8	4	0	0	12	5	5	6	0	16	8	17	0	0	25	0	9	5	0	14	67
Buses	14					16					5					9					44
Single-Unit Trucks	11					1					3					4					19
Articulated Trucks	2					0					2					0					4
Total Exiting Leg	27					17					10					13					67

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	1	1	0	0	2	1	0	1	0	2	1	3	0	0	4	0	1	0	0	1	9
4:45 PM	0	0	0	0	0	3	1	0	0	4	3	3	0	0	6	0	2	0	0	2	12
Total	1	1	0	0	2	4	1	1	0	6	4	6	0	0	10	0	3	0	0	3	21
5:00 PM	2	1	0	0	3	1	1	2	0	4	2	2	0	0	4	0	2	0	0	2	13
5:15 PM	4	0	0	0	4	0	0	0	0	0	1	1	0	0	2	0	4	0	0	4	10
5:30 PM	0	0	0	0	0	2	1	2	0	5	2	1	0	0	3	0	1	1	0	2	10
5:45 PM	0	1	0	0	1	1	1	0	0	2	3	2	0	0	5	0	2	1	0	3	11
Total	6	2	0	0	8	4	3	4	0	11	8	6	0	0	14	0	9	2	0	11	44
6:00 PM	2	1	0	0	3	0	0	1	0	1	3	1	0	0	4	0	1	0	0	1	9
6:15 PM	1	1	0	0	2	2	0	2	0	4	0	0	1	0	1	0	5	0	0	5	12
Total	3	2	0	0	5	2	0	3	0	5	3	1	1	0	5	0	6	0	0	6	21
Grand Total	10	5	0	0	15	10	4	8	0	22	15	13	1	0	29	0	18	2	0	20	86
Approach %	66.7	33.3	0.0	0.0		45.5	18.2	36.4	0.0		51.7	44.8	3.4	0.0		0.0	90.0	10.0	0.0		
Total %	11.6	5.8	0.0	0.0	17.4	11.6	4.7	9.3	0.0	25.6	17.4	15.1	1.2	0.0	33.7	0.0	20.9	2.3	0.0	23.3	
Exiting Leg Total	25					33					13					15					86

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:45 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:45 PM	0	0	0	0	0	3	1	0	0	4	3	3	0	0	6	0	2	0	0	2	12
5:00 PM	2	1	0	0	3	1	1	2	0	4	2	2	0	0	4	0	2	0	0	2	13
5:15 PM	4	0	0	0	4	0	0	0	0	0	1	1	0	0	2	0	4	0	0	4	10
5:30 PM	0	0	0	0	0	2	1	2	0	5	2	1	0	0	3	0	1	1	0	2	10
Total Volume	6	1	0	0	7	6	3	4	0	13	8	7	0	0	15	0	9	1	0	10	45
% Approach Total	85.7	14.3	0.0	0.0		46.2	23.1	30.8	0.0		53.3	46.7	0.0	0.0		0.0	90.0	10.0	0.0		
PHF	0.375	0.250	0.000	0.000	0.438	0.500	0.750	0.500	0.000	0.650	0.667	0.583	0.000	0.000	0.625	0.000	0.563	0.250	0.000	0.625	0.865
Entering Leg	6	1	0	0	7	6	3	4	0	13	8	7	0	0	15	0	9	1	0	10	45
Exiting Leg	14					17					5					9					45
Total	21					30					20					19					90

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	1	0	1	0	4	0	0	4	0	0	2	0	2	8
4:45 PM	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
Total	1	1	0	0	2	0	0	1	0	1	1	5	0	0	6	0	0	2	0	2	11
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	3
5:15 PM	0	0	0	0	0	0	2	1	0	3	0	2	0	0	2	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	0	1	2
5:45 PM	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	0	1	3
Total	0	0	0	0	0	2	3	2	0	7	0	3	0	0	3	0	1	2	0	3	13
6:00 PM	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
6:15 PM	1	0	0	0	1	1	0	1	0	2	0	0	0	0	0	0	1	0	0	1	4
Total	1	0	0	0	1	1	1	1	0	3	0	2	0	0	2	0	1	0	0	1	7
Grand Total	2	1	0	0	3	3	4	4	0	11	1	10	0	0	11	0	2	4	0	6	31
Approach %	66.7	33.3	0.0	0.0		27.3	36.4	36.4	0.0		9.1	90.9	0.0	0.0		0.0	33.3	66.7	0.0		
Total %	6.5	3.2	0.0	0.0	9.7	9.7	12.9	12.9	0.0	35.5	3.2	32.3	0.0	0.0	35.5	0.0	6.5	12.9	0.0	19.4	
Exiting Leg Total	17					3					5					6					31

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
4:30 PM	0	1	0	0	1	0	0	1	0	1	0	4	0	0	4	0	0	2	0	2	8
4:45 PM	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	1	0	1	3
5:15 PM	0	0	0	0	0	0	2	1	0	3	0	2	0	0	2	0	0	0	0	0	5
Total Volume	1	1	0	0	2	0	3	2	0	5	1	8	0	0	9	0	0	3	0	3	19
% Approach Total	50.0	50.0	0.0	0.0		0.0	60.0	40.0	0.0		11.1	88.9	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.250	0.250	0.000	0.000	0.500	0.000	0.375	0.500	0.000	0.417	0.250	0.500	0.000	0.000	0.563	0.000	0.000	0.375	0.000	0.375	0.594
Entering Leg	1	1	0	0	2	0	3	2	0	5	1	8	0	0	9	0	0	3	0	3	19
Exiting Leg	11					1					3					4					19
Total	13					6					12					7					38

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	3
6:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:15 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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	1	0	0	1	0	1	1	0	2	0	1	0	0	1	0	0	2	0	2	6
Approach %	0.0	100.0	0.0	0.0		0.0	50.0	50.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		
Total %	0.0	16.7	0.0	0.0	16.7	0.0	16.7	16.7	0.0	33.3	0.0	16.7	0.0	0.0	16.7	0.0	0.0	33.3	0.0	33.3	
Exiting Leg Total	3					0					2					1					6

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Galileo Galilei Way					Main Street					Vassar Street					Main Street					Total
	from North					from East					from South					from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	4
% Approach Total	0.0	100.0	0.0	0.0		0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	100.0	0.0		
PHF	0.000	0.250	0.000	0.000	0.250	0.000	0.000	0.250	0.000	0.250	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.000	0.250	0.500
Entering Leg	0	1	0	0	1	0	0	1	0	1	0	0	0	0	0	0	0	2	0	2	4
Exiting Leg	2					0					2					0					4
Total	3					1					2					2					8

PDI File #: **196867 (26) pm**
 Location: **N: Galileo Galilei Way S: Vassar Street**
 Location: **E: Main Street W: Main Street**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Predzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Bicycles (on Roadway and Crosswalks)

	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	2	7	0	0	1	1	11	1	10	0	0	0	0	11	6	1	0	0	1	0	8	2	4	1	0	1	0	8	38
4:45 PM	2	3	0	0	0	0	5	0	13	5	0	0	0	18	5	9	0	0	2	0	16	1	4	2	0	1	1	9	48
Total	4	10	0	0	1	1	16	1	23	5	0	0	0	29	11	10	0	0	3	0	24	3	8	3	0	2	1	17	86
5:00 PM	2	10	0	0	1	1	14	1	25	7	0	2	4	39	13	11	0	0	1	0	25	4	2	1	0	1	1	9	87
5:15 PM	4	11	0	0	0	1	16	0	21	6	0	2	2	31	7	16	2	0	1	0	26	3	4	1	0	0	0	8	81
5:30 PM	3	6	0	0	1	0	10	1	17	7	0	6	2	33	4	9	5	0	2	0	20	1	4	1	0	1	0	7	70
5:45 PM	3	12	0	0	1	3	19	0	21	5	0	0	1	27	3	5	0	0	1	1	10	1	13	0	0	1	1	16	72
Total	12	39	0	0	3	5	59	2	84	25	0	10	9	130	27	41	7	0	5	1	81	9	23	3	0	3	2	40	310
6:00 PM	4	3	1	0	0	0	8	3	19	6	0	2	1	31	5	19	0	0	3	0	27	4	3	5	0	2	0	14	80
6:15 PM	8	10	0	0	1	0	19	0	22	4	0	2	3	31	7	9	1	0	2	0	19	0	7	1	0	2	1	11	80
Total	12	13	1	0	1	0	27	3	41	10	0	4	4	62	12	28	1	0	5	0	46	4	10	6	0	4	1	25	160
Grand Total	28	62	1	0	5	6	102	6	148	40	0	14	13	221	50	79	8	0	13	1	151	16	41	12	0	9	4	82	556
Approach %	27.5	60.8	1.0	0.0	4.9	5.9		2.7	67.0	18.1	0.0	6.3	5.9		33.1	52.3	5.3	0.0	8.6	0.7		19.5	50.0	14.6	0.0	11.0	4.9		
Total %	5.0	11.2	0.2	0.0	0.9	1.1	18.3	1.1	26.6	7.2	0.0	2.5	2.3	39.7	9.0	14.2	1.4	0.0	2.3	0.2	27.2	2.9	7.4	2.2	0.0	1.6	0.7	14.7	
Exiting Leg Total	108							119							132							197							556

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	2	10	0	0	1	1	14	1	25	7	0	2	4	39	13	11	0	0	1	0	25	4	2	1	0	1	1	9	87
5:15 PM	4	11	0	0	0	1	16	0	21	6	0	2	2	31	7	16	2	0	1	0	26	3	4	1	0	0	0	8	81
5:30 PM	3	6	0	0	1	0	10	1	17	7	0	6	2	33	4	9	5	0	2	0	20	1	4	1	0	1	0	7	70
5:45 PM	3	12	0	0	1	3	19	0	21	5	0	0	1	27	3	5	0	0	1	1	10	1	13	0	0	1	1	16	72
Total Volume	12	39	0	0	3	5	59	2	84	25	0	10	9	130	27	41	7	0	5	1	81	9	23	3	0	3	2	40	310
% Approach Total	20.3	66.1	0.0	0.0	5.1	8.5		1.5	64.6	19.2	0.0	7.7	6.9		33.3	50.6	8.6	0.0	6.2	1.2		22.5	57.5	7.5	0.0	7.5	5.0		
PHF	0.750	0.813	0.000	0.000	0.750	0.417	0.776	0.500	0.840	0.893	0.000	0.417	0.563	0.833	0.519	0.641	0.350	0.000	0.625	0.250	0.779	0.563	0.442	0.750	0.000	0.750	0.500	0.625	0.891
Entering Leg	12	39	0	0	3	5	59	2	84	25	0	10	9	130	27	41	7	0	5	1	81	9	23	3	0	3	2	40	310
Exiting Leg	54							69							79							108							310
Total	113							199							160							148							620

PDI File #: 196867 (26) pm
 Location: N: Galileo Galilei Way S: Vassar Street
 Location: E: Main Street W: Main Street
 City, State: Cambridge, MA
 Client: VHB/ S. Mandzo-Predzic
 Site Code: 14777.00
 Count Date: Wednesday, May 1, 2019
 Start Time: 4:30 PM
 End Time: 6:30 PM
 Class:



Pedestrians

	Galileo Galilei Way							Main Street							Vassar Street							Main Street							Total
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	0	78	42	120	0	0	0	0	24	12	36	0	0	0	0	25	72	97	0	0	0	0	16	23	39	292
4:45 PM	0	0	0	0	81	60	141	0	0	0	0	24	26	50	0	0	0	0	25	72	97	0	0	0	0	19	34	53	341
Total	0	0	0	0	159	102	261	0	0	0	0	48	38	86	0	0	0	0	50	144	194	0	0	0	0	35	57	92	633
5:00 PM	0	0	0	0	98	61	159	0	0	0	0	24	31	55	0	0	0	0	44	119	163	0	0	0	0	25	39	64	441
5:15 PM	0	0	0	0	106	63	169	0	0	0	0	28	22	50	0	0	0	0	33	75	108	0	0	0	0	24	31	55	382
5:30 PM	0	0	0	0	71	60	131	0	0	0	0	18	36	54	0	0	0	0	44	98	142	0	0	0	0	16	25	41	368
5:45 PM	0	0	0	0	85	63	148	0	0	0	0	20	37	57	0	0	0	0	57	57	114	0	0	0	0	30	23	53	372
Total	0	0	0	0	360	247	607	0	0	0	0	90	126	216	0	0	0	0	178	349	527	0	0	0	0	95	118	213	1563
6:00 PM	0	0	0	0	63	78	141	0	0	0	0	16	21	37	0	0	0	0	33	54	87	0	0	0	0	19	25	44	309
6:15 PM	0	0	0	0	77	62	139	0	0	0	0	13	19	32	0	0	0	0	43	43	86	0	0	0	0	16	11	27	284
Total	0	0	0	0	140	140	280	0	0	0	0	29	40	69	0	0	0	0	76	97	173	0	0	0	0	35	36	71	593
Grand Total	0	0	0	0	659	489	1148	0	0	0	0	167	204	371	0	0	0	0	304	590	894	0	0	0	0	165	211	376	2789
Approach %	0	0	0	0	57.4	42.6		0	0	0	0	45	55		0	0	0	0	34	66		0	0	0	0	43.9	56.1		
Total %	0	0	0	0	23.6	17.5	41.2	0	0	0	0	5.99	7.31	13.3	0	0	0	0	10.9	21.2	32.1	0	0	0	0	5.92	7.57	13.5	
Exiting Leg Total	1148							371							894							376							2789

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Galileo Galilei Way							Main Street							Vassar Street							Main Street							
	from North							from East							from South							from West							
	Right	Thru	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	Left	U-Turn	CW-SB	CW-NB	Total	Right	Thru	Left	U-Turn	CW-WB	CW-EB	Total	Right	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	0	98	61	159	0	0	0	0	24	31	55	0	0	0	0	44	119	163	0	0	0	0	25	39	64	441
5:15 PM	0	0	0	0	106	63	169	0	0	0	0	28	22	50	0	0	0	0	33	75	108	0	0	0	0	24	31	55	382
5:30 PM	0	0	0	0	71	60	131	0	0	0	0	18	36	54	0	0	0	0	44	98	142	0	0	0	0	16	25	41	368
5:45 PM	0	0	0	0	85	63	148	0	0	0	0	20	37	57	0	0	0	0	57	57	114	0	0	0	0	30	23	53	372
Total Volume	0	0	0	0	360	247	607	0	0	0	0	90	126	216	0	0	0	0	178	349	527	0	0	0	0	95	118	213	1563
% Approach Total	0.0	0.0	0.0	0.0	59.3	40.7		0.0	0.0	0.0	0.0	41.7	58.3		0.0	0.0	0.0	0.0	33.8	66.2		0.0	0.0	0.0	0.0	44.6	55.4		
PHF	0.000	0.000	0.000	0.000	0.849	0.980	0.898	0.000	0.000	0.000	0.000	0.804	0.851	0.947	0.000	0.000	0.000	0.000	0.781	0.733	0.808	0.000	0.000	0.000	0.000	0.792	0.756	0.832	0.886
Entering Leg	0	0	0	0	360	247	607	0	0	0	0	90	126	216	0	0	0	0	178	349	527	0	0	0	0	95	118	213	1563
Exiting Leg	607							216							527							213							1563
Total	1214							432							1054							426							3126

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars and Heavy Vehicles (Combined)

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	19	4	0	23	41	206	3	250	317	0	4	321	594
7:45 AM	21	2	0	23	58	279	4	341	401	0	7	408	772
Total	40	6	0	46	99	485	7	591	718	0	11	729	1366
8:00 AM	12	5	0	17	68	231	7	306	426	0	10	436	759
8:15 AM	22	6	0	28	63	234	2	299	399	0	11	410	737
8:30 AM	30	5	0	35	69	249	4	322	408	0	8	416	773
8:45 AM	23	3	0	26	78	222	4	304	464	0	5	469	799
Total	87	19	0	106	278	936	17	1231	1697	0	34	1731	3068
9:00 AM	29	2	0	31	71	210	8	289	467	0	9	476	796
9:15 AM	24	2	0	26	65	223	9	297	432	0	5	437	760
Total	53	4	0	57	136	433	17	586	899	0	14	913	1556
Grand Total	180	29	0	209	513	1854	41	2408	3314	0	59	3373	5990
Approach %	86.1	13.9	0.0		21.3	77.0	1.7		98.3	0.0	1.7		
Total %	3.0	0.5	0.0	3.5	8.6	31.0	0.7	40.2	55.3	0.0	1.0	56.3	
Exiting Leg Total	513				3384				2093				5990
Cars	147	29	0	176	509	1845	41	2395	3310	0	59	3369	5940
% Cars	81.7	100.0	0.0	84.2	99.2	99.5	100.0	99.5	99.9	0.0	100.0	99.9	99.2
Exiting Leg Total	509				3380				2051				5940
Heavy Vehicles	33	0	0	33	4	9	0	13	4	0	0	4	50
% Heavy Vehicles	18.3	0.0	0.0	15.8	0.8	0.5	0.0	0.5	0.1	0.0	0.0	0.1	0.8
Exiting Leg Total	4				4				42				50

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:30 AM	30	5	0	35	69	249	4	322	408	0	8	416	773
8:45 AM	23	3	0	26	78	222	4	304	464	0	5	469	799
9:00 AM	29	2	0	31	71	210	8	289	467	0	9	476	796
9:15 AM	24	2	0	26	65	223	9	297	432	0	5	437	760
Total Volume	106	12	0	118	283	904	25	1212	1771	0	27	1798	3128
% Approach Total	89.8	10.2	0.0		23.3	74.6	2.1		98.5	0.0	1.5		
PHF	0.883	0.600	0.000	0.843	0.907	0.908	0.694	0.941	0.948	0.000	0.750	0.944	0.979
Cars	88	12	0	100	281	901	25	1207	1769	0	27	1796	3103
Cars %	83.0	100.0	0.0	84.7	99.3	99.7	100.0	99.6	99.9	0.0	100.0	99.9	99.2
Heavy Vehicles	18	0	0	18	2	3	0	5	2	0	0	2	25
Heavy Vehicles %	17.0	0.0	0.0	15.3	0.7	0.3	0.0	0.4	0.1	0.0	0.0	0.1	0.8
Cars Enter Leg	88	12	0	100	281	901	25	1207	1769	0	27	1796	3103
Heavy Enter Leg	18	0	0	18	2	3	0	5	2	0	0	2	25
Total Entering Leg	106	12	0	118	283	904	25	1212	1771	0	27	1798	3128
Cars Exiting Leg				281				1806				1016	3103
Heavy Exiting Leg				2				2				21	25
Total Exiting Leg				283				1808				1037	3128

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Cars

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	17	4	0	21	41	205	3	249	317	0	4	321	591
7:45 AM	18	2	0	20	58	278	4	340	401	0	7	408	768
Total	35	6	0	41	99	483	7	589	718	0	11	729	1359
8:00 AM	6	5	0	11	68	229	7	304	425	0	10	435	750
8:15 AM	18	6	0	24	61	232	2	295	398	0	11	409	728
8:30 AM	26	5	0	31	69	248	4	321	407	0	8	415	767
8:45 AM	18	3	0	21	78	222	4	304	464	0	5	469	794
Total	68	19	0	87	276	931	17	1224	1694	0	34	1728	3039
9:00 AM	26	2	0	28	71	209	8	288	467	0	9	476	792
9:15 AM	18	2	0	20	63	222	9	294	431	0	5	436	750
Total	44	4	0	48	134	431	17	582	898	0	14	912	1542
Grand Total	147	29	0	176	509	1845	41	2395	3310	0	59	3369	5940
Approach %	83.5	16.5	0.0		21.3	77.0	1.7		98.2	0.0	1.8		
Total %	2.5	0.5	0.0	3.0	8.6	31.1	0.7	40.3	55.7	0.0	1.0	56.7	
Exiting Leg Total	509				3380				2051				5940

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:30 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:30 AM	26	5	0	31	69	248	4	321	407	0	8	415	767
8:45 AM	18	3	0	21	78	222	4	304	464	0	5	469	794
9:00 AM	26	2	0	28	71	209	8	288	467	0	9	476	792
9:15 AM	18	2	0	20	63	222	9	294	431	0	5	436	750
Total Volume	88	12	0	100	281	901	25	1207	1769	0	27	1796	3103
% Approach Total	88.0	12.0	0.0		23.3	74.6	2.1		98.5	0.0	1.5		
PHF	0.846	0.600	0.000	0.806	0.901	0.908	0.694	0.940	0.947	0.000	0.750	0.943	0.977
Entering Leg	88	12	0	100	281	901	25	1207	1769	0	27	1796	3103
Exiting Leg				281				1806				1016	3103
Total				381				3013				2812	6206

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	2	0	1	0	1	0	0	0	0	3
7:45 AM	3	0	0	3	0	1	0	1	0	0	0	0	4
Total	5	0	0	5	0	2	0	2	0	0	0	0	7
8:00 AM	6	0	0	6	0	2	0	2	1	0	0	1	9
8:15 AM	4	0	0	4	2	2	0	4	1	0	0	1	9
8:30 AM	4	0	0	4	0	1	0	1	1	0	0	1	6
8:45 AM	5	0	0	5	0	0	0	0	0	0	0	0	5
Total	19	0	0	19	2	5	0	7	3	0	0	3	29
9:00 AM	3	0	0	3	0	1	0	1	0	0	0	0	4
9:15 AM	6	0	0	6	2	1	0	3	1	0	0	1	10
Total	9	0	0	9	2	2	0	4	1	0	0	1	14
Grand Total	33	0	0	33	4	9	0	13	4	0	0	4	50
Approach %	100.0	0.0	0.0		30.8	69.2	0.0		100.0	0.0	0.0		
Total %	66.0	0.0	0.0	66.0	8.0	18.0	0.0	26.0	8.0	0.0	0.0	8.0	
Exiting Leg Total	4				4				42				50
Buses	27	0	0	27	0	1	0	1	0	0	0	0	28
% Buses	81.8	0.0	0.0	81.8	0.0	11.1	0.0	7.7	0.0	0.0	0.0	0.0	56.0
Exiting Leg Total	0				0				28				28
Single-Unit Trucks	5	0	0	5	3	8	0	11	3	0	0	3	19
% Single-Unit	15.2	0.0	0.0	15.2	75.0	88.9	0.0	84.6	75.0	0.0	0.0	75.0	38.0
Exiting Leg Total	3				3				13				19
Articulated Trucks	1	0	0	1	1	0	0	1	1	0	0	1	3
% Articulated	3.0	0.0	0.0	3.0	25.0	0.0	0.0	7.7	25.0	0.0	0.0	25.0	6.0
Exiting Leg Total	1				1				1				3

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	6	0	0	6	0	2	0	2	1	0	0	1	9
8:15 AM	4	0	0	4	2	2	0	4	1	0	0	1	9
8:30 AM	4	0	0	4	0	1	0	1	1	0	0	1	6
8:45 AM	5	0	0	5	0	0	0	0	0	0	0	0	5
Total Volume	19	0	0	19	2	5	0	7	3	0	0	3	29
% Approach Total	100.0	0.0	0.0		28.6	71.4	0.0		100.0	0.0	0.0		
PHF	0.792	0.000	0.000	0.792	0.250	0.625	0.000	0.438	0.750	0.000	0.000	0.750	0.806
Buses	15	0	0	15	0	0	0	0	0	0	0	0	15
Buses %	78.9	0.0	0.0	78.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	51.7
Single-Unit Trucks	4	0	0	4	1	5	0	6	2	0	0	2	12
Single-Unit %	21.1	0.0	0.0	21.1	50.0	100.0	0.0	85.7	66.7	0.0	0.0	66.7	41.4
Articulated Trucks	0	0	0	0	1	0	0	1	1	0	0	1	2
Articulated %	0.0	0.0	0.0	0.0	50.0	0.0	0.0	14.3	33.3	0.0	0.0	33.3	6.9
Buses	15	0	0	15	0	0	0	0	0	0	0	0	15
Single-Unit Trucks	4	0	0	4	1	5	0	6	2	0	0	2	12
Articulated Trucks	0	0	0	0	1	0	0	1	1	0	0	1	2
Total Entering Leg	19	0	0	19	2	5	0	7	3	0	0	3	29
Buses				0				0				15	15
Single-Unit Trucks				1				2				9	12
Articulated Trucks				1				1				0	2
Total Exiting Leg				2				3				24	29

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Buses

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	2	0	0	2	0	0	0	0	0	0	0	0	2
7:45 AM	2	0	0	2	0	1	0	1	0	0	0	0	3
Total	4	0	0	4	0	1	0	1	0	0	0	0	5
8:00 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
8:15 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
8:30 AM	3	0	0	3	0	0	0	0	0	0	0	0	3
8:45 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
Total	15	0	0	15	0	0	0	0	0	0	0	0	15
9:00 AM	3	0	0	3	0	0	0	0	0	0	0	0	3
9:15 AM	5	0	0	5	0	0	0	0	0	0	0	0	5
Total	8	0	0	8	0	0	0	0	0	0	0	0	8
Grand Total	27	0	0	27	0	1	0	1	0	0	0	0	28
Approach %	100.0	0.0	0.0		0.0	100.0	0.0		0.0	0.0	0.0		
Total %	96.4	0.0	0.0	96.4	0.0	3.6	0.0	3.6	0.0	0.0	0.0	0.0	
Exiting Leg Total	0				0				28				28

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
8:15 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
8:30 AM	3	0	0	3	0	0	0	0	0	0	0	0	3
8:45 AM	4	0	0	4	0	0	0	0	0	0	0	0	4
Total Volume	15	0	0	15	0	0	0	0	0	0	0	0	15
% Approach Total	100.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.938	0.000	0.000	0.938	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.938
Entering Leg	15	0	0	15	0	0	0	0	0	0	0	0	15
Exiting Leg				0				0				15	15
Total				15				0				15	30

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Single-Unit Trucks

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	1	0	0	0	0	1
8:00 AM	2	0	0	2	0	2	0	2	1	0	0	1	5
8:15 AM	0	0	0	0	1	2	0	3	0	0	0	0	3
8:30 AM	1	0	0	1	0	1	0	1	1	0	0	1	3
8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	4	0	0	4	1	5	0	6	2	0	0	2	12
9:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
9:15 AM	1	0	0	1	2	1	0	3	1	0	0	1	5
Total	1	0	0	1	2	2	0	4	1	0	0	1	6
Grand Total	5	0	0	5	3	8	0	11	3	0	0	3	19
Approach %	100.0	0.0	0.0		27.3	72.7	0.0		100.0	0.0	0.0		
Total %	26.3	0.0	0.0	26.3	15.8	42.1	0.0	57.9	15.8	0.0	0.0	15.8	
Exiting Leg Total	3				3				13				19

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
8:00 AM	2	0	0	2	0	2	0	2	1	0	0	1	5
8:15 AM	0	0	0	0	1	2	0	3	0	0	0	0	3
8:30 AM	1	0	0	1	0	1	0	1	1	0	0	1	3
8:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	4	0	0	4	1	5	0	6	2	0	0	2	12
% Approach Total	100.0	0.0	0.0		16.7	83.3	0.0		100.0	0.0	0.0		
PHF	0.500	0.000	0.000	0.500	0.250	0.625	0.000	0.500	0.500	0.000	0.000	0.500	0.600
Entering Leg	4	0	0	4	1	5	0	6	2	0	0	2	12
Exiting Leg				1				2				9	12
Total				5				8				11	24

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Articulated Trucks

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total	1	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	1	1	0	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	1	0	0	1	1	0	0	1	2
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	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
Grand Total	1	0	0	1	1	0	0	1	1	0	0	1	3
Approach %	100.0	0.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
Total %	33.3	0.0	0.0	33.3	33.3	0.0	0.0	33.3	33.3	0.0	0.0	33.3	
Exiting Leg Total	1				1				1				3

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:30 AM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	1	0	0	1	1	0	0	1	2
Total Volume	1	0	0	1	1	0	0	1	1	0	0	1	3
% Approach Total	100.0	0.0	0.0		100.0	0.0	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.250	0.000	0.000	0.250	0.375
Entering Leg	1	0	0	1	1	0	0	1	1	0	0	1	3
Exiting Leg				1				1				1	3
Total				2				2				2	6

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**



Bicycles (on Roadway and Crosswalks)

	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	1	0	0	4	0	5	1	0	0	0	1	2	0	1	0	2	0	3	10
7:45 AM	0	0	0	2	1	3	0	0	0	0	0	0	0	1	0	1	0	2	5
Total	1	0	0	6	1	8	1	0	0	0	1	2	0	2	0	3	0	5	15
8:00 AM	0	0	0	4	4	8	1	0	0	0	1	2	0	0	0	1	0	1	11
8:15 AM	0	0	0	6	2	8	2	1	0	0	1	4	0	2	0	2	1	5	17
8:30 AM	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	1	1	5
8:45 AM	0	0	0	9	1	10	0	1	0	0	0	1	0	0	0	0	0	0	11
Total	0	0	0	23	7	30	3	2	0	0	2	7	0	2	0	3	2	7	44
9:00 AM	0	0	0	2	1	3	1	0	0	0	1	2	0	0	0	0	0	0	5
9:15 AM	0	0	0	4	0	4	4	0	0	0	5	9	0	0	0	0	0	0	13
Total	0	0	0	6	1	7	5	0	0	0	6	11	0	0	0	0	0	0	18
Grand Total	1	0	0	35	9	45	9	2	0	0	9	20	0	4	0	6	2	12	77
Approach %	2.2	0.0	0.0	77.8	20.0		45.0	10.0	0.0	0.0	45.0		0.0	33.3	0.0	50.0	16.7		
Total %	1.3	0.0	0.0	45.5	11.7	58.4	11.7	2.6	0.0	0.0	11.7	26.0	0.0	5.2	0.0	7.8	2.6	15.6	
Exiting Leg Total	57						9						11						77

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

8:00 AM	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
8:00 AM	0	0	0	4	4	8	1	0	0	0	1	2	0	0	0	1	0	1	11
8:15 AM	0	0	0	6	2	8	2	1	0	0	1	4	0	2	0	2	1	5	17
8:30 AM	0	0	0	4	0	4	0	0	0	0	0	0	0	0	0	0	1	1	5
8:45 AM	0	0	0	9	1	10	0	1	0	0	0	1	0	0	0	0	0	0	11
Total Volume	0	0	0	23	7	30	3	2	0	0	2	7	0	2	0	3	2	7	44
% Approach Total	0.0	0.0	0.0	76.7	23.3		42.9	28.6	0.0	0.0	28.6		0.0	28.6	0.0	42.9	28.6		
PHF	0.000	0.000	0.000	0.639	0.438	0.750	0.375	0.500	0.000	0.000	0.500	0.438	0.000	0.250	0.000	0.375	0.500	0.350	0.647
Entering Leg	0	0	0	23	7	30	3	2	0	0	2	7	0	2	0	3	2	7	44
Exiting Leg	35						2						7						44
Total	65						9						14						88

PDI File #: **196867 (30) am**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **7:30 AM**
 End Time: **9:30 AM**
 Class:



Pedestrians

	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:30 AM	0	0	0	4	4	8	0	0	0	2	1	3	0	0	0	1	0	1	12
7:45 AM	0	0	0	8	6	14	0	0	0	0	2	2	0	0	0	1	0	1	17
Total	0	0	0	12	10	22	0	0	0	2	3	5	0	0	0	2	0	2	29
8:00 AM	0	0	0	16	6	22	0	0	0	2	0	2	0	0	0	0	1	1	25
8:15 AM	0	0	0	14	4	18	0	0	0	0	3	3	0	0	0	1	1	2	23
8:30 AM	0	0	0	6	12	18	0	0	0	0	0	0	0	0	0	0	1	1	19
8:45 AM	0	0	0	8	5	13	0	0	0	0	0	0	0	0	0	1	2	3	16
Total	0	0	0	44	27	71	0	0	0	2	3	5	0	0	0	2	5	7	83
9:00 AM	0	0	0	7	5	12	0	0	0	0	0	0	0	0	0	0	2	2	14
9:15 AM	0	0	0	9	12	21	0	0	0	1	1	2	0	0	0	0	0	0	23
Total	0	0	0	16	17	33	0	0	0	1	1	2	0	0	0	0	2	2	37
Grand Total	0	0	0	72	54	126	0	0	0	5	7	12	0	0	0	4	7	11	149
Approach %	0	0	0	57.143	42.857		0	0	0	41.667	58.333		0	0	0	36.364	63.636		
Total %	0	0	0	48.322	36.242	84.564	0	0	0	3.3557	4.698	8.0537	0	0	0	2.6846	4.698	7.3826	
Exiting Leg Total	126						12						11						149

Peak Hour Analysis from 07:30 AM to 09:30 AM begins at:

7:45 AM	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
7:45 AM	0	0	0	8	6	14	0	0	0	0	2	2	0	0	0	1	0	1	17
8:00 AM	0	0	0	16	6	22	0	0	0	2	0	2	0	0	0	0	1	1	25
8:15 AM	0	0	0	14	4	18	0	0	0	0	3	3	0	0	0	1	1	2	23
8:30 AM	0	0	0	6	12	18	0	0	0	0	0	0	0	0	0	0	1	1	19
Total Volume	0	0	0	44	28	72	0	0	0	2	5	7	0	0	0	2	3	5	84
% Approach Total	0.0	0.0	0.0	61.1	38.9		0.0	0.0	0.0	28.6	71.4		0.0	0.0	0.0	40.0	60.0		
PHF	0.000	0.000	0.000	0.688	0.583	0.818	0.000	0.000	0.000	0.250	0.417	0.583	0.000	0.000	0.000	0.500	0.750	0.625	0.840
Entering Leg	0	0	0	44	28	72	0	0	0	2	5	7	0	0	0	2	3	5	84
Exiting Leg	72						7						5						84
Total	144						14						10						168

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars and Heavy Vehicles (Combined)

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	47	4	0	51	33	251	10	294	428	0	10	438	783
4:45 PM	40	1	0	41	29	315	11	355	415	0	7	422	818
Total	87	5	0	92	62	566	21	649	843	0	17	860	1601
5:00 PM	55	6	0	61	38	324	12	374	420	0	5	425	860
5:15 PM	45	2	0	47	65	291	3	359	363	0	11	374	780
5:30 PM	42	1	0	43	49	281	6	336	313	0	9	322	701
5:45 PM	53	7	0	60	73	255	3	331	364	0	9	373	764
Total	195	16	0	211	225	1151	24	1400	1460	0	34	1494	3105
6:00 PM	48	3	0	51	54	234	3	291	367	0	9	376	718
6:15 PM	43	3	0	46	39	258	7	304	336	1	9	346	696
Total	91	6	0	97	93	492	10	595	703	1	18	722	1414
Grand Total	373	27	0	400	380	2209	55	2644	3006	1	69	3076	6120
Approach %	93.3	6.8	0.0		14.4	83.5	2.1		97.7	0.0	2.2		
Total %	6.1	0.4	0.0	6.5	6.2	36.1	0.9	43.2	49.1	0.0	1.1	50.3	
Exiting Leg Total				381				3088				2651	6120
Cars	348	27	0	375	378	2205	55	2638	3002	1	69	3072	6085
% Cars	93.3	100.0	0.0	93.8	99.5	99.8	100.0	99.8	99.9	100.0	100.0	99.9	99.4
Exiting Leg Total				379				3084				2622	6085
Heavy Vehicles	25	0	0	25	2	4	0	6	4	0	0	4	35
% Heavy Vehicles	6.7	0.0	0.0	6.3	0.5	0.2	0.0	0.2	0.1	0.0	0.0	0.1	0.6
Exiting Leg Total				2				4				29	35

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Ames Street					Memorial Drive				Memorial Drive				Total
	from North					from East				from West				
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	47	4	0	51		33	251	10	294	428	0	10	438	783
4:45 PM	40	1	0	41		29	315	11	355	415	0	7	422	818
5:00 PM	55	6	0	61		38	324	12	374	420	0	5	425	860
5:15 PM	45	2	0	47		65	291	3	359	363	0	11	374	780
Total Volume	187	13	0	200		165	1181	36	1382	1626	0	33	1659	3241
% Approach Total	93.5	6.5	0.0			11.9	85.5	2.6		98.0	0.0	2.0		
PHF	0.850	0.542	0.000	0.820		0.635	0.911	0.750	0.924	0.950	0.000	0.750	0.947	0.942
Cars	175	13	0	188		164	1179	36	1379	1625	0	33	1658	3225
Cars %	93.6	100.0	0.0	94.0		99.4	99.8	100.0	99.8	99.9	0.0	100.0	99.9	99.5
Heavy Vehicles	12	0	0	12		1	2	0	3	1	0	0	1	16
Heavy Vehicles %	6.4	0.0	0.0	6.0		0.6	0.2	0.0	0.2	0.1	0.0	0.0	0.1	0.5
Cars Enter Leg	175	13	0	188		164	1179	36	1379	1625	0	33	1658	3225
Heavy Enter Leg	12	0	0	12		1	2	0	3	1	0	0	1	16
Total Entering Leg	187	13	0	200		165	1181	36	1382	1626	0	33	1659	3241
Cars Exiting Leg				164					1674				1387	3225
Heavy Exiting Leg				1					1				14	16
Total Exiting Leg				165					1675				1401	3241

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Cars

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	44	4	0	48	32	250	10	292	428	0	10	438	778
4:45 PM	36	1	0	37	29	315	11	355	415	0	7	422	814
Total	80	5	0	85	61	565	21	647	843	0	17	860	1592
5:00 PM	53	6	0	59	38	324	12	374	419	0	5	424	857
5:15 PM	42	2	0	44	65	290	3	358	363	0	11	374	776
5:30 PM	38	1	0	39	49	280	6	335	312	0	9	321	695
5:45 PM	49	7	0	56	73	254	3	330	362	0	9	371	757
Total	182	16	0	198	225	1148	24	1397	1456	0	34	1490	3085
6:00 PM	45	3	0	48	54	234	3	291	367	0	9	376	715
6:15 PM	41	3	0	44	38	258	7	303	336	1	9	346	693
Total	86	6	0	92	92	492	10	594	703	1	18	722	1408
Grand Total	348	27	0	375	378	2205	55	2638	3002	1	69	3072	6085
Approach %	92.8	7.2	0.0		14.3	83.6	2.1		97.7	0.0	2.2		
Total %	5.7	0.4	0.0	6.2	6.2	36.2	0.9	43.4	49.3	0.0	1.1	50.5	
Exiting Leg Total	379				3084				2622				6085

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	44	4	0	48	32	250	10	292	428	0	10	438	778
4:45 PM	36	1	0	37	29	315	11	355	415	0	7	422	814
5:00 PM	53	6	0	59	38	324	12	374	419	0	5	424	857
5:15 PM	42	2	0	44	65	290	3	358	363	0	11	374	776
Total Volume	175	13	0	188	164	1179	36	1379	1625	0	33	1658	3225
% Approach Total	93.1	6.9	0.0		11.9	85.5	2.6		98.0	0.0	2.0		
PHF	0.825	0.542	0.000	0.797	0.631	0.910	0.750	0.922	0.949	0.000	0.750	0.946	0.941
Entering Leg	175	13	0	188	164	1179	36	1379	1625	0	33	1658	3225
Exiting Leg				164				1674				1387	3225
Total				352				3053				3045	6450

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Class: **Heavy Vehicles-Combined (Buses, Single-Unit Trucks, Articulated Trucks)**

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	3	0	0	3	1	1	0	2	0	0	0	0	5
4:45 PM	4	0	0	4	0	0	0	0	0	0	0	0	4
Total	7	0	0	7	1	1	0	2	0	0	0	0	9
5:00 PM	2	0	0	2	0	0	0	0	1	0	0	1	3
5:15 PM	3	0	0	3	0	1	0	1	0	0	0	0	4
5:30 PM	4	0	0	4	0	1	0	1	1	0	0	1	6
5:45 PM	4	0	0	4	0	1	0	1	2	0	0	2	7
Total	13	0	0	13	0	3	0	3	4	0	0	4	20
6:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
6:15 PM	2	0	0	2	1	0	0	1	0	0	0	0	3
Total	5	0	0	5	1	0	0	1	0	0	0	0	6
Grand Total	25	0	0	25	2	4	0	6	4	0	0	4	35
Approach %	100.0	0.0	0.0		33.3	66.7	0.0		100.0	0.0	0.0		
Total %	71.4	0.0	0.0	71.4	5.7	11.4	0.0	17.1	11.4	0.0	0.0	11.4	
Exiting Leg Total	2				4				29				35
Buses	24	0	0	24	1	2	0	3	1	0	0	1	28
% Buses	96.0	0.0	0.0	96.0	50.0	50.0	0.0	50.0	25.0	0.0	0.0	25.0	80.0
Exiting Leg Total	1				1				26				28
Single-Unit Trucks	1	0	0	1	1	2	0	3	3	0	0	3	7
% Single-Unit	4.0	0.0	0.0	4.0	50.0	50.0	0.0	50.0	75.0	0.0	0.0	75.0	20.0
Exiting Leg Total	1				3				3				7
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
% Articulated	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
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
5:00 PM	2	0	0	2	0	0	0	0	1	0	0	1	3
5:15 PM	3	0	0	3	0	1	0	1	0	0	0	0	4
5:30 PM	4	0	0	4	0	1	0	1	1	0	0	1	6
5:45 PM	4	0	0	4	0	1	0	1	2	0	0	2	7
Total Volume	13	0	0	13	0	3	0	3	4	0	0	4	20
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.813	0.000	0.000	0.813	0.000	0.750	0.000	0.750	0.500	0.000	0.000	0.500	0.714
Buses	13	0	0	13	0	2	0	2	1	0	0	1	16
Buses %	100.0	0.0	0.0	100.0	0.0	66.7	0.0	66.7	25.0	0.0	0.0	25.0	80.0
Single-Unit Trucks	0	0	0	0	0	1	0	1	3	0	0	3	4
Single-Unit %	0.0	0.0	0.0	0.0	0.0	33.3	0.0	33.3	75.0	0.0	0.0	75.0	20.0
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Articulated %	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
Buses	13	0	0	13	0	2	0	2	1	0	0	1	16
Single-Unit Trucks	0	0	0	0	0	1	0	1	3	0	0	3	4
Articulated Trucks	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Entering Leg	13	0	0	13	0	3	0	3	4	0	0	4	20
Buses				0				1				15	16
Single-Unit Trucks				0				3				1	4
Articulated Trucks				0				0				0	0
Total Exiting Leg				0				4				16	20

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Buses

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
4:45 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
Total	6	0	0	6	0	0	0	0	0	0	0	0	6
5:00 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
5:15 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:30 PM	4	0	0	4	0	1	0	1	0	0	0	0	5
5:45 PM	4	0	0	4	0	1	0	1	1	0	0	1	6
Total	13	0	0	13	0	2	0	2	1	0	0	1	16
6:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
6:15 PM	2	0	0	2	1	0	0	1	0	0	0	0	3
Total	5	0	0	5	1	0	0	1	0	0	0	0	6
Grand Total	24	0	0	24	1	2	0	3	1	0	0	1	28
Approach %	100.0	0.0	0.0		33.3	66.7	0.0		100.0	0.0	0.0		
Total %	85.7	0.0	0.0	85.7	3.6	7.1	0.0	10.7	3.6	0.0	0.0	3.6	
Exiting Leg Total	1				1				26				28

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:15 PM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
5:15 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
5:30 PM	4	0	0	4	0	1	0	1	0	0	0	0	5
5:45 PM	4	0	0	4	0	1	0	1	1	0	0	1	6
6:00 PM	3	0	0	3	0	0	0	0	0	0	0	0	3
Total Volume	14	0	0	14	0	2	0	2	1	0	0	1	17
% Approach Total	100.0	0.0	0.0		0.0	100.0	0.0		100.0	0.0	0.0		
PHF	0.875	0.000	0.000	0.875	0.000	0.500	0.000	0.500	0.250	0.000	0.000	0.250	0.708
Entering Leg	14	0	0	14	0	2	0	2	1	0	0	1	17
Exiting Leg				0				1				16	17
Total				14				3				17	34

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Single-Unit Trucks

	Ames Street					Memorial Drive					Memorial Drive					Total
	from North					from East					from West					
	Right	Left	U-Turn	Total		Right	Thru	U-Turn	Total		Thru	Left	U-Turn	Total		
4:30 PM	0	0	0	0		1	1	0	2		0	0	0	0		2
4:45 PM	1	0	0	1		0	0	0	0		0	0	0	0		1
Total	1	0	0	1		1	1	0	2		0	0	0	0		3
5:00 PM	0	0	0	0		0	0	0	0		1	0	0	1		1
5:15 PM	0	0	0	0		0	1	0	1		0	0	0	0		1
5:30 PM	0	0	0	0		0	0	0	0		1	0	0	1		1
5:45 PM	0	0	0	0		0	0	0	0		1	0	0	1		1
Total	0	0	0	0		0	1	0	1		3	0	0	3		4
6:00 PM	0	0	0	0		0	0	0	0		0	0	0	0		0
6:15 PM	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
Grand Total	1	0	0	1		1	2	0	3		3	0	0	3		7
Approach %	100.0	0.0	0.0			33.3	66.7	0.0			100.0	0.0	0.0			
Total %	14.3	0.0	0.0	14.3		14.3	28.6	0.0	42.9		42.9	0.0	0.0	42.9		
Exiting Leg Total	1					3					3					7

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	1	1	0	2	0	0	0	0	2
4:45 PM	1	0	0	1	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	1	0	0	1	1
5:15 PM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	1	0	0	1	1	2	0	3	1	0	0	1	5
% Approach Total	100.0	0.0	0.0		33.3	66.7	0.0		100.0	0.0	0.0		
PHF	0.250	0.000	0.000	0.250	0.250	0.500	0.000	0.375	0.250	0.000	0.000	0.250	0.625
Entering Leg	1	0	0	1	1	2	0	3	1	0	0	1	5
Exiting Leg				1				1				3	5
Total				2				4				4	10

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Articulated Trucks

	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	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
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	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
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0
Approach %	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	0.0	0.0	
Exiting Leg Total	0				0				0				0

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

4:30 PM	Ames Street				Memorial Drive				Memorial Drive				Total
	from North				from East				from West				
	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Thru	Left	U-Turn	Total	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	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
% Approach Total	0.0	0.0	0.0		0.0	0.0	0.0		0.0	0.0	0.0		
PHF	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Entering Leg	0	0	0	0	0	0	0	0	0	0	0	0	0
Exiting Leg				0				0				0	0
Total				0				0				0	0

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**



Bicycles (on Roadway and Crosswalks)

	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	1	0	0	1	1	3	1	0	0	1	0	2	0	0	0	0	1	1	6
4:45 PM	3	0	0	2	2	7	0	1	0	0	0	1	0	0	0	0	3	3	11
Total	4	0	0	3	3	10	1	1	0	1	0	3	0	0	0	0	4	4	17
5:00 PM	2	0	0	3	2	7	0	0	0	0	0	0	0	0	0	0	4	4	11
5:15 PM	3	0	0	6	3	12	0	1	0	0	1	2	0	0	0	0	4	4	18
5:30 PM	3	0	0	1	2	6	0	0	0	1	0	1	0	0	0	0	8	8	15
5:45 PM	1	0	0	2	5	8	0	2	0	0	0	2	0	1	0	0	2	3	13
Total	9	0	0	12	12	33	0	3	0	1	1	5	0	1	0	0	18	19	57
6:00 PM	0	0	0	2	3	5	0	0	0	0	0	0	0	0	0	0	3	3	8
6:15 PM	0	0	0	3	4	7	0	0	0	0	1	1	0	0	0	1	2	3	11
Total	0	0	0	5	7	12	0	0	0	0	1	1	0	0	0	1	5	6	19
Grand Total	13	0	0	20	22	55	1	4	0	2	2	9	0	1	0	1	27	29	93
Approach %	23.6	0.0	0.0	36.4	40.0		11.1	44.4	0.0	22.2	22.2		0.0	3.4	0.0	3.4	93.1		
Total %	14.0	0.0	0.0	21.5	23.7	59.1	1.1	4.3	0.0	2.2	2.2	9.7	0.0	1.1	0.0	1.1	29.0	31.2	
Exiting Leg Total	44						4						45						93

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ames Street						Memorial Drive						Memorial Drive							
	from North						from East						from West							
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	Total	
5:00 PM	2	0	0	3	2	7	0	0	0	0	0	0	0	0	0	0	4	4	11	
5:15 PM	3	0	0	6	3	12	0	1	0	0	1	2	0	0	0	0	4	4	18	
5:30 PM	3	0	0	1	2	6	0	0	0	1	0	1	0	0	0	0	8	8	15	
5:45 PM	1	0	0	2	5	8	0	2	0	0	0	2	0	1	0	0	2	3	13	
Total Volume	9	0	0	12	12	33	0	3	0	1	1	5	0	1	0	0	18	19	57	
% Approach Total	27.3	0.0	0.0	36.4	36.4		0.0	60.0	0.0	20.0	20.0		0.0	5.3	0.0	0.0	94.7			
PHF	0.750	0.000	0.000	0.500	0.600	0.688	0.000	0.375	0.000	0.250	0.250	0.625	0.000	0.250	0.000	0.000	0.563	0.594	0.792	
Entering Leg	9	0	0	12	12	33	0	3	0	1	1	5	0	1	0	0	18	19	57	
Exiting Leg	25						2						30						57	
Total	58						7						49						114	

PDI File #: **196867 (30) pm**
 Location: **N: Ames Street**
 Location: **E: Memorial Drive W: Memorial Drive**
 City, State: **Cambridge, MA**
 Client: **VHB/ S. Mandzo-Prelidzic**
 Site Code: **14777.00**
 Count Date: **Wednesday, May 1, 2019**
 Start Time: **4:30 PM**
 End Time: **6:30 PM**
 Class:



Pedestrians

	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
4:30 PM	0	0	0	22	15	37	0	0	0	0	2	2	0	0	0	3	7	10	49
4:45 PM	0	0	0	4	19	23	0	0	0	2	4	6	0	0	0	3	7	10	39
Total	0	0	0	26	34	60	0	0	0	2	6	8	0	0	0	6	14	20	88
5:00 PM	0	0	0	13	10	23	0	0	0	2	1	3	0	0	0	1	3	4	30
5:15 PM	0	0	0	14	17	31	0	0	0	2	2	4	0	0	0	0	11	11	46
5:30 PM	0	0	0	15	21	36	0	0	0	8	2	10	0	0	0	0	9	9	55
5:45 PM	0	0	0	13	13	26	0	0	0	4	6	10	0	0	0	1	5	6	42
Total	0	0	0	55	61	116	0	0	0	16	11	27	0	0	0	2	28	30	173
6:00 PM	0	0	0	1	12	13	0	0	0	2	1	3	0	0	0	0	5	5	21
6:15 PM	0	0	0	9	10	19	0	0	0	5	2	7	0	0	0	0	4	4	30
Total	0	0	0	10	22	32	0	0	0	7	3	10	0	0	0	0	9	9	51
Grand Total	0	0	0	91	117	208	0	0	0	25	20	45	0	0	0	8	51	59	312
Approach %	0	0	0	43.75	56.25		0	0	0	55.556	44.444		0	0	0	13.559	86.441		
Total %	0	0	0	29.167	37.5	66.667	0	0	0	8.0128	6.4103	14.423	0	0	0	2.5641	16.346	18.91	
Exiting Leg Total	208						45						59						312

Peak Hour Analysis from 04:30 PM to 06:30 PM begins at:

5:00 PM	Ames Street						Memorial Drive						Memorial Drive						Total
	from North						from East						from West						
	Right	Left	U-Turn	CW-EB	CW-WB	Total	Right	Thru	U-Turn	CW-SB	CW-NB	Total	Thru	Left	U-Turn	CW-NB	CW-SB	Total	
5:00 PM	0	0	0	13	10	23	0	0	0	2	1	3	0	0	0	1	3	4	30
5:15 PM	0	0	0	14	17	31	0	0	0	2	2	4	0	0	0	0	11	11	46
5:30 PM	0	0	0	15	21	36	0	0	0	8	2	10	0	0	0	0	9	9	55
5:45 PM	0	0	0	13	13	26	0	0	0	4	6	10	0	0	0	1	5	6	42
Total Volume	0	0	0	55	61	116	0	0	0	16	11	27	0	0	0	2	28	30	173
% Approach Total	0.0	0.0	0.0	47.4	52.6		0.0	0.0	0.0	59.3	40.7		0.0	0.0	0.0	6.7	93.3		
PHF	0.000	0.000	0.000	0.917	0.726	0.806	0.000	0.000	0.000	0.500	0.458	0.675	0.000	0.000	0.000	0.500	0.636	0.682	0.786
Entering Leg	0	0	0	55	61	116	0	0	0	16	11	27	0	0	0	2	28	30	173
Exiting Leg	116						27						30						173
Total	232						54						60						346

Synchro Results

2016 Theoretical Existing Conditions

2016 Build Condition

2016 Updated Build Condition

2021 Future Condition

2021 Updated Future Condition

2024 Future Condition




2016 Theoretical Existing Conditions

Queues

2016 Theoretical Existing

1: Third Street & O'Brien Highway

8:15 AM - 9:15 AM

			
Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	211	2353	437
v/c Ratio	0.18	1.36	0.35
Control Delay	19.9	190.7	6.9
Queue Delay	0.0	0.0	0.0
Total Delay	19.9	190.7	6.9
Queue Length 50th (ft)	25	~639	8
Queue Length 95th (ft)	m65	#737	9
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1174	1732	1243
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	26	31
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.18	1.38	0.36

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2016 Theoretical Existing

8:15 AM - 9:15 AM

							
Movement	NBL	NBR	SET	SER	NWU	NWL	NWT
Lane Configurations							
Volume (vph)	146	25	1585	604	22	51	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	11
Total Lost time (s)	3.0		3.0				3.0
Lane Util. Factor	0.97		0.91				0.91
Frpb, ped/bikes	1.00		0.99				1.00
Flpb, ped/bikes	1.00		1.00				1.00
Frt	0.98		0.96				1.00
Flt Protected	0.96		1.00				0.99
Satd. Flow (prot)	2740		4256				4082
Flt Permitted	0.96		1.00				0.66
Satd. Flow (perm)	2740		4256				2732
Peak-hour factor, PHF	0.81	0.81	0.93	0.93	0.92	0.91	0.91
Adj. Flow (vph)	180	31	1704	649	24	56	357
RTOR Reduction (vph)	12	0	81	0	0	0	0
Lane Group Flow (vph)	199	0	2272	0	0	0	437
Confl. Bikes (#/hr)				6			
Heavy Vehicles (%)	6%	6%	3%	3%	2%	10%	10%
Bus Blockages (#/hr)	0	0	10	0	0	0	0
Turn Type	Prot		NA		Prot	D.P+P	NA
Protected Phases	3		2		4	4	2 4
Permitted Phases						2	
Actuated Green, G (s)	37.2		30.8				35.8
Effective Green, g (s)	38.2		31.8				37.8
Actuated g/C Ratio	0.42		0.35				0.42
Clearance Time (s)	4.0		4.0				
Vehicle Extension (s)	3.0		3.0				
Lane Grp Cap (vph)	1162		1503				1237
v/s Ratio Prot	c0.07		c0.53				c0.02
v/s Ratio Perm							0.12
v/c Ratio	0.17		1.51				0.35
Uniform Delay, d1	16.1		29.1				17.8
Progression Factor	1.19		1.00				0.40
Incremental Delay, d2	0.3		233.8				0.8
Delay (s)	19.3		262.9				7.9
Level of Service	B		F				A
Approach Delay (s)	19.3		262.9				7.9
Approach LOS	B		F				A
Intersection Summary							
HCM 2000 Control Delay			208.6		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio			0.72				
Actuated Cycle Length (s)			90.0		Sum of lost time (s)		12.0
Intersection Capacity Utilization			78.7%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

Queues

2016 Theoretical Existing

2: Third Street & Cambridge Street

8:15 AM - 9:15 AM

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	369	313	207	60	603
v/c Ratio	0.80	0.78	0.41	0.13	0.86
Control Delay	41.5	51.3	19.9	34.5	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	51.3	19.9	34.5	48.1
Queue Length 50th (ft)	186	164	74	35	361
Queue Length 95th (ft)	#337	m142	109	m30	m283
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	460	400	500	461	698
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.78	0.41	0.13	0.86

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.


















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	253	54	42	206	37	19	121	19	58	530	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.97			0.97			0.99		1.00	0.99	
Flpb, ped/bikes		0.98			0.99			1.00		0.96	1.00	
Frt		0.98			0.98			0.98		1.00	0.99	
Flt Protected		0.99			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		1385			1264			1391		1471	1572	
Flt Permitted		0.93			0.88			0.80		0.67	1.00	
Satd. Flow (perm)		1295			1125			1125		1039	1572	
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77	0.96	0.96	0.96
Adj. Flow (vph)	39	272	58	46	226	41	25	157	25	60	552	51
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	369	0	0	313	0	0	207	0	60	603	0
Confl. Peds. (#/hr)	172		66	66		172	60		42	42		60
Confl. Bikes (#/hr)			88			7			2			10
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.0			32.0			40.0		40.0	40.0	
Effective Green, g (s)		32.0			32.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.36			0.36			0.44		0.44	0.44	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		460			400			500		461	698	
v/s Ratio Prot											c0.38	
v/s Ratio Perm		c0.28			0.28			0.18		0.06		
v/c Ratio		0.80			0.78			0.41		0.13	0.86	
Uniform Delay, d1		26.1			25.9			17.0		14.7	22.5	
Progression Factor		1.00			1.75			1.01		2.26	2.03	
Incremental Delay, d2		13.7			4.5			2.1		0.1	1.4	
Delay (s)		39.9			49.8			19.2		33.4	47.2	
Level of Service		D			D			B		C	D	
Approach Delay (s)		39.9			49.8			19.2			46.0	
Approach LOS		D			D			B			D	
Intersection Summary												
HCM 2000 Control Delay			41.7				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			76.3%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

3: First Street & Cambridge Street

8:15 AM - 9:15 AM

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	300	340	288	39	141
v/c Ratio	1.12	1.29	1.07	0.23	0.36
Control Delay	117.8	181.8	104.7	38.0	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	117.8	181.8	104.7	38.0	24.9
Queue Length 50th (ft)	~207	~216	~99	20	59
Queue Length 95th (ft)	m#316	#388	#315	45	98
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	268	264	269	169	387
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.12	1.29	1.07	0.23	0.36

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2016 Theoretical Existing

8:15 AM - 9:15 AM









						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	215	55	306	259	32	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		4.0	4.0	3.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1274		1490	1517	1175	1089
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1274		1490	1517	1175	1089
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.82	0.82
Adj. Flow (vph)	239	61	340	288	39	141
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	300	0	340	288	39	141
Confl. Bikes (#/hr)		76				
Heavy Vehicles (%)	9%	9%	9%	9%	29%	29%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		15.0	15.0	12.0	27.0
Effective Green, g (s)	20.0		16.0	16.0	13.0	29.0
Actuated g/C Ratio	0.22		0.18	0.18	0.14	0.32
Clearance Time (s)			5.0	5.0	4.0	5.0
Lane Grp Cap (vph)	283		264	269	169	350
v/s Ratio Prot	c0.24		c0.23	0.19		c0.07
v/s Ratio Perm					0.03	0.06
v/c Ratio	1.06		1.29	1.07	0.23	0.40
Uniform Delay, d1	35.0		37.0	37.0	34.1	23.8
Progression Factor	0.94		0.82	0.85	1.00	1.00
Incremental Delay, d2	62.9		152.1	71.2	3.2	3.4
Delay (s)	95.8		182.6	102.5	37.2	27.2
Level of Service	F		F	F	D	C
Approach Delay (s)	95.8			145.9	29.4	
Approach LOS	F			F	C	
Intersection Summary						
HCM 2000 Control Delay			113.4		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.70			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	23.0
Intersection Capacity Utilization			55.1%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

2016 Theoretical Existing

4: Cambridge Street & O'Brien Highway

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	90	1462	111	480	375	61	287	110
v/c Ratio	0.37	0.96	0.23	0.60	0.34	0.17	0.25	0.28
Control Delay	23.5	33.1	20.2	32.5	22.3	11.4	1.1	16.6
Queue Delay	0.0	0.0	0.0	0.9	0.0	0.0	0.0	0.3
Total Delay	23.5	33.1	20.2	33.5	22.3	11.4	1.1	16.9
Queue Length 50th (ft)	54	332	64	122	79	5	0	26
Queue Length 95th (ft)	m42	m245	m47	169	114	m12	m0	68
Internal Link Dist (ft)		1079			832	195		257
Turn Bay Length (ft)	250		175	200			100	
Base Capacity (vph)	244	1523	474	800	1087	361	1156	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	125	0	0	0	61
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.96	0.23	0.71	0.34	0.17	0.25	0.33

Intersection Summary





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	1360	103	422	301	29	21	37	273	14	40	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	4.0	3.0			2.0	4.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99			1.00	0.99		0.94	
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00			0.97	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1494	4424	1378	3001	3134			1355	2106		1290	
Flt Permitted	0.45	1.00	1.00	0.95	1.00			0.91	1.00		0.97	
Satd. Flow (perm)	710	4424	1378	3001	3134			1251	2106		1260	
Peak-hour factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	90	1462	111	480	342	33	22	39	287	15	44	51
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	35	0	35	0
Lane Group Flow (vph)	90	1462	111	480	367	0	0	61	252	0	75	0
Confl. Peds. (#/hr)	24					24	111		4	4		111
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	16%	16%	16%	16%	16%	16%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	236	1474	459	833	1044			361	1099		364	
v/s Ratio Prot		c0.33	0.08	c0.16	0.12				c0.06			
v/s Ratio Perm	0.13							0.05	0.06		c0.06	
v/c Ratio	0.38	0.99	0.24	0.58	0.35			0.17	0.23		0.21	
Uniform Delay, d1	22.9	29.9	21.8	27.9	22.7			23.9	11.7		24.2	
Progression Factor	0.99	1.04	0.93	1.00	1.00			0.44	0.13		1.00	
Incremental Delay, d2	0.4	5.4	0.1	2.9	0.9			0.5	0.3		1.3	
Delay (s)	23.0	36.5	20.4	30.8	23.6			11.1	1.7		25.5	
Level of Service	C	D	C	C	C			B	A		C	
Approach Delay (s)		34.7			27.7			3.4			25.5	
Approach LOS		C			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			28.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			68.5%			ICU Level of Service			C			
Analysis Period (min)			15									











c Critical Lane Group

Queues

2016 Theoretical Existing

5: Land Boulevard & O'Brien Highway

8:15 AM - 9:15 AM

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	137	1028	565	229	568	299	150	405	212	1230
v/c Ratio	0.45	1.18	0.38	0.44	1.07	0.36	0.96	1.24	0.63	1.20
Control Delay	50.1	137.9	0.8	49.0	107.0	2.2	116.7	178.0	15.6	135.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.1	137.9	0.8	49.0	107.0	2.2	116.7	178.0	15.6	135.0
Queue Length 50th (ft)	99	~368	0	86	~269	1	124	~215	0	~638
Queue Length 95th (ft)	166	#462	0	127	#387	25	#243	#301	64	#777
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	302	869	1475	516	532	821	157	326	339	1027
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	1.18	0.38	0.44	1.07	0.36	0.96	1.24	0.63	1.20

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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard & O'Brien Highway

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	130	977	537	213	528	278	129	348	182	328	700	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.99	1.00	1.00	1.00		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2922	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2922	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	137	1028	565	229	568	299	150	405	212	349	745	136
RTOR Reduction (vph)	0	0	0	0	0	137	0	0	188	0	8	0
Lane Group Flow (vph)	137	1028	565	229	568	162	150	405	24	0	1222	0
Confl. Peds. (#/hr)			91	91			119		11	11		119
Confl. Bikes (#/hr)			51			2			1			11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	24.0	24.0	126.0	22.0	22.0	65.0	13.0	13.0	13.0		43.0	
Effective Green, g (s)	25.0	25.0	126.0	23.0	23.0	67.0	14.0	14.0	14.0		44.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.18	0.18	0.53	0.11	0.11	0.11		0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	302	869	1475	516	532	684	157	326	150		1020	
v/s Ratio Prot	0.09	c0.23		0.08	c0.19		0.11	c0.14	0.02		c0.42	
v/s Ratio Perm			0.38			0.13						
v/c Ratio	0.45	1.18	0.38	0.44	1.07	0.24	0.96	1.24	0.16		1.20	
Uniform Delay, d1	44.5	50.5	0.0	45.8	51.5	15.8	55.7	56.0	50.7		41.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	4.9	94.1	0.8	2.8	58.3	0.2	60.9	132.4	2.2		98.8	
Delay (s)	49.3	144.6	0.8	48.6	109.8	16.0	116.6	188.4	52.9		139.8	
Level of Service	D	F	A	D	F	B	F	F	D		F	
Approach Delay (s)		90.1			71.4			136.9			139.8	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			106.0			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			126.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			92.4%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	603	310	46	364	84	268
v/c Ratio	0.98	0.63	0.17	0.68	0.37	0.51
Control Delay	56.5	40.2	22.0	32.3	13.0	12.4
Queue Delay	40.4	17.0	0.0	46.8	3.7	2.6
Total Delay	96.9	57.1	22.0	79.1	16.7	15.0
Queue Length 50th (ft)	321	192	18	173	15	48
Queue Length 95th (ft)	#514	259	44	275	m23	m73
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	617	494	272	536	227	523
Starvation Cap Reductn	0	170	0	0	37	152
Spillback Cap Reductn	160	50	0	197	83	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.96	0.17	1.07	0.58	0.72

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	403	40	35	221	8	43	250	88	77	188	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	0.96		1.00	0.95	
Flpb, ped/bikes		0.99			0.99		0.90	1.00		0.93	1.00	
Frt		0.99			1.00		1.00	0.96		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1458			1197		1313	1510		1413	1473	
Flt Permitted		0.90			0.88		0.55	1.00		0.43	1.00	
Satd. Flow (perm)		1317			1057		766	1510		640	1473	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	87	469	47	41	260	9	46	269	95	84	204	64
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	600	0	0	309	0	46	364	0	84	268	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		614			493		272	536		227	523	
v/s Ratio Prot								c0.24			0.18	
v/s Ratio Perm		c0.46			0.29		0.06			0.13		
v/c Ratio		0.98			0.63		0.17	0.68		0.37	0.51	
Uniform Delay, d1		23.5			18.1		19.9	24.6		21.5	22.9	
Progression Factor		1.00			1.84		1.00	1.00		0.44	0.43	
Incremental Delay, d2		31.1			5.1		1.3	6.8		3.0	2.4	
Delay (s)		54.6			38.4		21.2	31.4		12.4	12.1	
Level of Service		D			D		C	C		B	B	
Approach Delay (s)		54.6			38.4			30.3			12.2	
Approach LOS		D			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			36.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			94.3%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

7: Technology Square/Hampshire Street & Broadway

8:15 AM - 9:15 AM

									
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	511	156	161	294	234	4	30	289	53
v/c Ratio	0.93	0.43	1.31	0.57	0.39	0.06	0.12	1.01	0.21
Control Delay	46.6	25.3	187.8	9.6	2.8	32.0	31.1	67.3	22.6
Queue Delay	46.2	0.0	0.0	0.8	0.0	0.7	0.0	0.0	0.0
Total Delay	92.8	25.3	187.8	10.4	2.8	32.7	31.1	67.3	22.6
Queue Length 50th (ft)	296	72	~116	60	10	2	14	~149	18
Queue Length 95th (ft)	m#334	m88	m#163	m82	m14	10	34	m#199	m22
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	548	366	123	520	599	65	249	286	258
Starvation Cap Reductn	132	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	67	0	21	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.43	1.31	0.65	0.39	0.09	0.12	1.01	0.21

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	430	133	142	259	206	3	9	15	266	46	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.74	1.00	1.00	0.87	1.00	0.87		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.93	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1550	1030	1300	1464	1079	1402	1245		1430	1293	
Flt Permitted		1.00	1.00	0.25	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1544	1030	346	1464	1079	328	1245		1430	1293	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	506	156	161	294	234	4	11	19	289	50	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	511	156	161	294	234	4	30	0	289	53	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		548	366	123	520	695	65	249		286	258	
v/s Ratio Prot					0.20	0.07		c0.02		c0.20	0.04	
v/s Ratio Perm		0.33	0.15	c0.47		0.15	0.01					
v/c Ratio		0.93	0.43	1.31	0.57	0.34	0.06	0.12		1.01	0.21	
Uniform Delay, d1		28.0	22.0	29.0	23.4	10.9	29.2	29.5		36.0	30.0	
Progression Factor		1.04	1.02	0.38	0.30	0.23	1.00	1.00		0.68	0.71	
Incremental Delay, d2		15.8	1.9	167.4	2.4	0.7	1.8	1.0		38.6	0.8	
Delay (s)		44.9	24.4	178.5	9.4	3.2	31.0	30.5		63.1	22.1	
Level of Service		D	C	F	A	A	C	C		E	C	
Approach Delay (s)		40.1			46.8			30.6			56.7	
Approach LOS		D			D			C			E	
Intersection Summary												
HCM 2000 Control Delay			45.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			96.4%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

Queues

2016 Theoretical Existing

8: Galileo Galilei Way & Binney Street & Fulkerson Street

8:15 AM - 9:15 AM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	479	599	361	202	27
v/c Ratio	0.27	0.68	0.98	0.62	0.10
Control Delay	9.7	24.3	70.2	40.9	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	24.3	70.2	40.9	29.0
Queue Length 50th (ft)	77	112	157	104	12
Queue Length 95th (ft)	122	m159	#326	176	34
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1806	882	367	327	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.27	0.68	0.98	0.62	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.












m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street

2016 Theoretical Existing

8:15 AM - 9:15 AM







											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations		↑↑	↑↑				↔			↔	↔
Volume (vph)	0	412	446	97	38	0	272	46	134	45	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.90				1.00			1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2755	2562				1203			1472	1277
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2755	2562				1203			1472	1277
Peak-hour factor, PHF	0.86	0.86	0.97	0.97	0.97	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	0	479	460	100	39	0	309	52	151	51	27
RTOR Reduction (vph)	0	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	479	599	0	0	0	288	0	0	202	27
Confl. Peds. (#/hr)	101			41	101	4		41	101		6
Confl. Bikes (#/hr)				8	11			24			11
Heavy Vehicles (%)	14%	14%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		59.0	31.0				22.0			20.0	20.0
Effective Green, g (s)		59.0	31.0				22.0			20.0	20.0
Actuated g/C Ratio		0.66	0.34				0.24			0.22	0.22
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1806	882				294			327	283
v/s Ratio Prot		0.17	c0.23				c0.24			c0.14	
v/s Ratio Perm											0.02
v/c Ratio		0.27	0.68				0.98			0.62	0.10
Uniform Delay, d1		6.5	25.2				33.8			31.6	27.8
Progression Factor		1.44	0.81				1.00			1.00	1.00
Incremental Delay, d2		0.3	3.3				47.3			8.5	0.7
Delay (s)		9.6	23.9				81.1			40.0	28.5
Level of Service		A	C				F			D	C
Approach Delay (s)		9.6	23.9			81.1				38.7	
Approach LOS		A	C			F				D	
Intersection Summary											
HCM 2000 Control Delay			34.2			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.75								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			61.8%			ICU Level of Service			B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street

2016 Theoretical Existing

8:15 AM - 9:15 AM










						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	457	0	0	580	0	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	497	0	0	630	0	2
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			497		812	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			369		701	108
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)			1128		355	880
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	248	248	315	315	2	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	2	
cSH	1700	1700	1700	1700	880	
Volume to Capacity	0.15	0.15	0.19	0.19	0.00	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	9.1	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.1	
Approach LOS					A	
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			24.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: North Garage East Driveway & Binney Street

2016 Theoretical Existing








8:15 AM - 9:15 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	335	122	86	580	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	364	133	93	630	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.97		0.97	0.97
vC, conflicting volume			497		933	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			429		877	174
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		100	100
cM capacity (veh/h)			1097		256	817
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	243	254	93	315	315	
Volume Left	0	0	93	0	0	
Volume Right	0	133	0	0	0	
cSH	1700	1700	1097	1700	1700	
Volume to Capacity	0.14	0.15	0.09	0.19	0.19	
Queue Length 95th (ft)	0	0	7	0	0	
Control Delay (s)	0.0	0.0	8.6	0.0	0.0	
Lane LOS			A			
Approach Delay (s)	0.0		1.1			
Approach LOS						
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			26.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
11: Third Street & Binney Street

2016 Theoretical Existing

8:15 AM - 9:15 AM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	101	264	179	508	200	71	555
v/c Ratio	0.65	0.43	0.86	0.61	0.54	0.16	0.96
Control Delay	40.5	38.7	73.1	31.7	14.3	7.8	33.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	40.5	38.7	73.1	31.7	14.3	7.8	33.7
Queue Length 50th (ft)	34	86	100	138	73	21	340
Queue Length 95th (ft)	m#66	127	#182	173	m88	m23	m#442
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	178	610	217	830	379	442	596
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.43	0.82	0.61	0.53	0.16	0.93

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: Third Street & Binney Street

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	190	58	147	368	48	79	113	68	49	337	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.98			1.00	0.80		0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.96		1.00	0.98			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1342	2435		1307	2618			1511	1075		1518	
Flt Permitted	0.95	1.00		0.95	1.00			0.60	1.00		0.95	
Satd. Flow (perm)	1342	2435		1307	2618			921	1075		1451	
Peak-hour factor, PHF	0.94	0.94	0.94	0.82	0.82	0.82	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	101	202	62	179	449	59	82	118	71	53	362	140
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	101	264	0	179	508	0	0	200	71	0	555	0
Confl. Peds. (#/hr)	38		33	33		38	147		163	163		147
Confl. Bikes (#/hr)			14			12			12			17
Heavy Vehicles (%)	17%	17%	17%	16%	16%	16%	5%	5%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	9.2	22.5		14.4	27.7			36.1	36.1		36.1	
Effective Green, g (s)	9.2	22.5		14.4	27.7			36.1	36.1		36.1	
Actuated g/C Ratio	0.10	0.25		0.16	0.31			0.40	0.40		0.40	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	137	608		209	805			369	431		582	
v/s Ratio Prot	0.08	0.11		c0.14	c0.19							
v/s Ratio Perm								0.22	0.07		c0.38	
v/c Ratio	0.74	0.43		0.86	0.63			0.54	0.16		0.95	
Uniform Delay, d1	39.2	28.4		36.8	26.8			20.6	17.3		26.1	
Progression Factor	0.58	1.24		1.00	1.00			0.55	0.43		0.52	
Incremental Delay, d2	18.1	2.2		27.4	3.7			0.7	0.1		16.2	
Delay (s)	40.8	37.3		64.2	30.5			12.1	7.5		29.8	
Level of Service	D	D		E	C			B	A		C	
Approach Delay (s)		38.3			39.3			10.9			29.8	
Approach LOS		D			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			32.2			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			84.9%			ICU Level of Service			E			
Analysis Period (min)			15									







c Critical Lane Group

Queues

2016 Theoretical Existing

12: First Street & Binney Street

8:15 AM - 9:15 AM

						
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	147	243	833	12	143	125
v/c Ratio	0.45	0.13	0.52	0.07	0.61	0.80
Control Delay	11.7	4.7	21.9	40.6	57.4	80.7
Queue Delay	0.0	0.0	20.9	0.0	0.0	0.0
Total Delay	11.7	4.7	42.8	40.6	57.4	80.7
Queue Length 50th (ft)	39	24	320	8	103	93
Queue Length 95th (ft)	81	37	382	16	163	#164
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	327	1859	1604	227	288	194
Starvation Cap Reductn	0	0	784	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	0.45	0.13	1.02	0.05	0.50	0.64

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.



















Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2016 Theoretical Existing

8:15 AM - 9:15 AM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	122	114	88	134	419	163	0	3	4	9	117	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96			0.95			0.93			1.00	0.77
Flpb, ped/bikes	0.94	1.00			0.99			1.00			0.99	1.00
Frt	1.00	0.93			0.97			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1301	2463			2569			1136			1459	971
Flt Permitted	0.32	1.00			0.81			1.00			0.98	1.00
Satd. Flow (perm)	438	2463			2111			1136			1440	971
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.58	0.58	0.58	0.88	0.88	0.88
Adj. Flow (vph)	147	137	106	156	487	190	0	5	7	10	133	125
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	147	243	0	0	833	0	0	12	0	0	143	125
Confl. Peds. (#/hr)	55		21	21		55	95		46	46		95
Confl. Bikes (#/hr)			2			10			5			4
Heavy Vehicles (%)	18%	18%	18%	6%	6%	6%	29%	29%	29%	16%	16%	16%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	90.6	90.6			91.1			19.4			19.4	19.4
Effective Green, g (s)	90.6	90.6			91.1			19.4			19.4	19.4
Actuated g/C Ratio	0.75	0.75			0.76			0.16			0.16	0.16
Clearance Time (s)	5.0	5.0			4.5			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)	330	1859			1602			183			232	156
v/s Ratio Prot		0.10						0.01				
v/s Ratio Perm	0.34				c0.39						0.10	c0.13
v/c Ratio	0.45	0.13			0.52			0.07			0.62	0.80
Uniform Delay, d1	5.4	4.0			5.7			42.6			46.8	48.4
Progression Factor	1.00	1.00			3.18			1.00			1.00	1.00
Incremental Delay, d2	4.3	0.1			0.2			0.2			4.8	24.8
Delay (s)	9.7	4.1			18.5			42.8			51.6	73.2
Level of Service	A	A			B			D			D	E
Approach Delay (s)		6.2			18.5			42.8			61.7	
Approach LOS		A			B			D			E	
Intersection Summary												
HCM 2000 Control Delay			23.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			63.4%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

13: Land Boulevard & Binney Street

8:15 AM - 9:15 AM













					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	160	470	704	973	347
v/c Ratio	0.30	0.59	0.22	0.81	0.65
Control Delay	41.2	40.7	6.2	39.7	37.2
Queue Delay	0.0	32.5	0.0	0.0	14.2
Total Delay	41.2	73.2	6.2	39.7	51.4
Queue Length 50th (ft)	56	161	61	351	218
Queue Length 95th (ft)	80	218	76	439	328
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	534	795	3273	1197	535
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	342	0	0	169
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.30	1.04	0.22	0.81	0.95
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2016 Theoretical Existing

8:15 AM - 9:15 AM

							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	130	1	33	390	634	915	326
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2565			2808	4622	3124	1398
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2565			2808	4622	3124	1398
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.90	0.94	0.94
Adj. Flow (vph)	159	1	37	433	704	973	347
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	160	0	0	470	704	973	347
Confl. Bikes (#/hr)							3
Heavy Vehicles (%)	19%	19%	1%	1%	1%	4%	4%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	25.0			34.0	85.0	46.0	46.0
Effective Green, g (s)	25.0			34.0	85.0	46.0	46.0
Actuated g/C Ratio	0.21			0.28	0.71	0.38	0.38
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534			795	3273	1197	535
v/s Ratio Prot	c0.06			c0.17	0.15	c0.31	0.25
v/s Ratio Perm							
v/c Ratio	0.30			0.59	0.22	0.81	0.65
Uniform Delay, d1	40.1			37.0	6.0	33.1	30.4
Progression Factor	0.98			1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4			3.2	0.2	6.1	6.0
Delay (s)	40.8			40.2	6.2	39.2	36.4
Level of Service	D			D	A	D	D
Approach Delay (s)	40.8				19.8	38.5	
Approach LOS	D				B	D	
Intersection Summary							
HCM 2000 Control Delay			30.4		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.62				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			60.7%		ICU Level of Service		B
Analysis Period (min)			15				











c Critical Lane Group

Queues

2016 Theoretical Existing

14: Binney Street/Galileo Galilei Way & Broadway

8:15 AM - 9:15 AM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	153	562	113	84	408	85	403	114	471	197
v/c Ratio	0.69	1.24	0.46	0.79	0.74	0.71	0.57	0.73	0.87	1.16
Control Delay	57.8	152.3	37.9	81.7	58.1	71.0	31.0	62.5	37.6	137.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	152.3	37.9	81.7	58.1	71.0	31.0	62.5	37.6	137.0
Queue Length 50th (ft)	95	~423	49	52	132	53	106	54	274	~136
Queue Length 95th (ft)	m101	m#460	m53	m#87	m176	m#91	142	m76	m#375	m#206
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	222	453	248	106	551	120	709	161	543	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	1.24	0.46	0.79	0.74	0.71	0.57	0.71	0.87	1.16

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Binney Street/Galileo Galilei Way & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	132	483	97	78	343	36	76	245	114	108	447	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	7.0	4.0	4.0	7.0	4.0		4.0	4.0		7.0	4.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.99		1.00	0.95		1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1430	1613	880	1366	2717		1354	2457		1450	1476	1096
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1430	1613	880	1366	2717		1354	2457		1450	1476	1096
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	153	562	113	84	369	39	85	275	128	114	471	197
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	153	562	113	84	408	0	85	403	0	114	471	197
Confl. Peds. (#/hr)			150			70			60			55
Confl. Bikes (#/hr)			175			6			7			9
Heavy Vehicles (%)	6%	6%	6%	11%	11%	11%	16%	16%	16%	12%	12%	12%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	13.0	23.3	23.3	6.0	16.3		5.6	26.0		8.7	32.1	13.0
Effective Green, g (s)	14.0	24.3	24.3	7.0	17.3		6.6	27.0		9.7	33.1	14.0
Actuated g/C Ratio	0.16	0.27	0.27	0.08	0.19		0.07	0.30		0.11	0.37	0.16
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	222	435	237	106	522		99	737		156	542	170
v/s Ratio Prot	0.11	c0.35		0.06	0.15		0.06	0.16		c0.08	c0.32	
v/s Ratio Perm			0.13									c0.18
v/c Ratio	0.69	1.29	0.48	0.79	0.78		0.86	0.55		0.73	0.87	1.16
Uniform Delay, d1	35.9	32.9	27.5	40.8	34.6		41.2	26.4		38.9	26.4	38.0
Progression Factor	1.40	1.28	1.27	1.04	1.50		1.13	1.03		1.16	0.89	0.85
Incremental Delay, d2	3.3	137.9	2.5	26.6	8.9		39.8	2.2		10.2	11.2	103.7
Delay (s)	53.6	179.9	37.5	68.9	60.6		86.4	29.4		55.1	34.6	135.8
Level of Service	D	F	D	E	E		F	C		E	C	F
Approach Delay (s)		137.1			62.0			39.3			63.1	
Approach LOS		F			E			D			E	
Intersection Summary												
HCM 2000 Control Delay			82.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			22.0			
Intersection Capacity Utilization			80.2%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2016 Theoretical Existing

8:15 AM - 9:15 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	703	457	41	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	764	497	45	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.74	
vC, conflicting volume	541				1283	188
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541				1207	188
tC, single (s)	4.2				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)	1010				130	822
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	764	199	199	144		
Volume Left	0	0	0	0		
Volume Right	0	0	0	45		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.45	0.12	0.12	0.08		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			44.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2016 Theoretical Existing

8:15 AM - 9:15 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Volume (veh/h)	0	703	462	0	0	36
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	764	502	0	0	39
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	702				1466	451
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	702				1455	451
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	91
cM capacity (veh/h)	737				73	456
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	764	335	167	39		
Volume Left	0	0	0	0		
Volume Right	0	0	0	39		
cSH	1700	1700	1700	456		
Volume to Capacity	0.45	0.20	0.10	0.09		
Queue Length 95th (ft)	0	0	0	7		
Control Delay (s)	0.0	0.0	0.0	13.6		
Lane LOS				B		
Approach Delay (s)	0.0	0.0		13.6		
Approach LOS				B		
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			44.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	671	117	124	410	80	94
v/c Ratio	1.24	0.36	0.33	0.76	0.26	0.27
Control Delay	133.4	33.5	10.3	41.1	37.5	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.4	33.5	10.3	41.1	37.5	11.7
Queue Length 50th (ft)	~490	45	32	200	42	4
Queue Length 95th (ft)	m#453	m49	m38	m223	87	44
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	539	324	376	539	313	347
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	1.24	0.36	0.33	0.76	0.26	0.27

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

17: Ames Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM







						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	604	105	117	385	74	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1565	1330	1540	1565	1486	1219
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1565	1330	1540	1565	1486	1219
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.93	0.93
Adj. Flow (vph)	671	117	124	410	80	94
RTOR Reduction (vph)	0	44	0	0	0	50
Lane Group Flow (vph)	671	73	124	410	80	44
Confl. Peds. (#/hr)		395	395		206	132
Confl. Bikes (#/hr)		140				
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	31.0	19.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.34	0.21	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	539	280	376	539	313	297
v/s Ratio Prot	c0.43	c0.05	c0.08	0.26	0.05	0.04
v/s Ratio Perm						
v/c Ratio	1.24	0.26	0.33	0.76	0.26	0.15
Uniform Delay, d1	29.5	29.6	27.9	26.2	29.6	26.7
Progression Factor	0.60	1.91	0.32	1.34	1.18	0.86
Incremental Delay, d2	111.7	0.2	1.1	4.9	1.9	1.0
Delay (s)	129.5	56.9	10.1	39.9	36.7	24.0
Level of Service	F	E	B	D	D	C
Approach Delay (s)	118.8			33.0	29.8	
Approach LOS	F			C	C	
Intersection Summary						
HCM 2000 Control Delay			77.8		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.71			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			71.7%		ICU Level of Service	C
Analysis Period (min)			15			

c Critical Lane Group

Queues
18: Third Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM

						
Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	247	467	549	344	190	111
v/c Ratio	0.81	0.49	0.95	0.94	0.49	0.40
Control Delay	37.8	33.6	57.7	68.0	28.0	26.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.8	33.6	57.7	68.0	28.0	26.1
Queue Length 50th (ft)	154	101	300	191	80	49
Queue Length 95th (ft)	m135	m89	#509	#358	m95	m58
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	306	951	576	367	387	279
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	0.81	0.49	0.95	0.94	0.49	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.



















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	232	387	52	0	511	320	0	0	0	130	50	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.97			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1454	2678			1621	1378					1453	1326
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1454	2678			1621	1378					1453	1326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	247	412	55	0	549	344	0	0	0	137	53	111
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	247	467	0	0	549	344	0	0	0	0	190	111
Confl. Peds. (#/hr)	59					59				911		263
Confl. Bikes (#/hr)			217			18						
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	19.0	32.0			32.0	24.0					24.0	19.0
Effective Green, g (s)	19.0	32.0			32.0	24.0					24.0	19.0
Actuated g/C Ratio	0.21	0.36			0.36	0.27					0.27	0.21
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	306	952			576	367					387	279
v/s Ratio Prot	c0.17	0.17			c0.34	c0.25					0.13	0.08
v/s Ratio Perm												
v/c Ratio	0.81	0.49			0.95	0.94					0.49	0.40
Uniform Delay, d1	33.8	22.6			28.3	32.3					27.8	30.6
Progression Factor	1.01	1.45			1.00	1.00					0.90	0.76
Incremental Delay, d2	2.2	0.2			27.6	33.5					2.2	2.1
Delay (s)	36.2	33.0			55.8	65.8					27.3	25.5
Level of Service	D	C			E	E					C	C
Approach Delay (s)		34.1			59.7			0.0			26.6	
Approach LOS		C			E			A			C	
Intersection Summary												
HCM 2000 Control Delay			44.9				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			73.3%				ICU Level of Service			D		
Analysis Period (min)			15									


















c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2016 Theoretical Existing

8:15 AM - 9:15 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	0	601	97	0	892	256	0	0	0	0	0	95
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.25	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	646	104	0	980	281	0	0	0	0	0	106
Pedestrians								159			128	
Lane Width (ft)								0.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			11	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1279										
pX, platoon unblocked												
vC, conflicting volume	1390			910			1453	2247	534	1572	2158	759
vC1, stage 1 conf vol							857	857		1249	1249	
vC2, stage 2 conf vol							596	1390		323	910	
vCu, unblocked vol	1390			910			1453	2247	534	1572	2158	759
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	66
cM capacity (veh/h)	427			744			166	128	490	134	138	308
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	431	320	653	608	106							
Volume Left	0	0	0	0	0							
Volume Right	0	104	0	281	106							
cSH	1700	1700	1700	1700	308							
Volume to Capacity	0.25	0.19	0.38	0.36	0.34							
Queue Length 95th (ft)	0	0	0	0	37							
Control Delay (s)	0.0	0.0	0.0	0.0	22.7							
Lane LOS					C							
Approach Delay (s)	0.0		0.0		22.7							
Approach LOS					C							
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization			51.2%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

2016 Theoretical Existing

20: Vassar Street/Binney Street & Main Street

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	229	330	55	209	515	59	361	243
v/c Ratio	0.66	0.55	0.21	0.42	0.70	0.27	0.65	0.63
Control Delay	31.5	23.5	34.6	38.7	29.2	36.3	41.7	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.5	23.5	34.6	38.7	29.2	36.3	41.7	43.5
Queue Length 50th (ft)	100	136	30	115	126	34	226	152
Queue Length 95th (ft)	177	207	m55	m179	187	m44	m273	m187
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	346	595	267	495	738	218	558	383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.55	0.21	0.42	0.70	0.27	0.65	0.63

Intersection Summary





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Binney Street & Main Street

2016 Theoretical Existing

8:15 AM - 9:15 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	197	211	73	53	94	107	68	250	150	55	339	228
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.93		1.00	1.00	0.84
Flpb, ped/bikes	0.79	1.00		0.85	1.00			0.99		0.92	1.00	1.00
Frt	1.00	0.96		1.00	0.92			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1211	1374		1145	1143			2472		1216	1437	985
Flt Permitted	0.63	1.00		0.51	1.00			0.76		0.44	1.00	1.00
Satd. Flow (perm)	800	1374		617	1143			1899		562	1437	985
Peak-hour factor, PHF	0.86	0.86	0.86	0.96	0.96	0.96	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	229	245	85	55	98	111	75	275	165	59	361	243
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	229	330	0	55	209	0	0	515	0	59	361	243
Confl. Peds. (#/hr)	398		210	210		398	76		127	127		76
Confl. Bikes (#/hr)			84			7			36			57
Heavy Vehicles (%)	10%	10%	10%	13%	13%	13%	15%	15%	15%	15%	15%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Effective Green, g (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.39		0.39	0.39	0.39
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	346	595		267	495			738		218	558	383
v/s Ratio Prot		0.24			0.18						0.25	
v/s Ratio Perm	c0.29			0.09				c0.27		0.11		0.25
v/c Ratio	0.66	0.55		0.21	0.42			0.70		0.27	0.65	0.63
Uniform Delay, d1	20.3	19.0		15.9	17.7			23.1		18.8	22.5	22.3
Progression Factor	1.00	1.00		1.97	1.98			1.00		1.72	1.64	1.65
Incremental Delay, d2	9.6	3.7		1.5	2.3			5.4		1.8	3.4	4.7
Delay (s)	29.8	22.7		32.8	37.3			28.5		34.1	40.3	41.4
Level of Service	C	C		C	D			C		C	D	D
Approach Delay (s)		25.6			36.3			28.5			40.2	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			32.6				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.68									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			129.6%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

21: Ames Street & Main Street

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	82	372	13	118	70	120	97	160
v/c Ratio	0.28	0.59	0.06	0.25	0.32	0.32	0.38	0.69
Control Delay	13.3	15.8	5.8	5.4	30.1	27.3	30.9	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.3	15.8	5.8	5.4	30.1	27.3	30.9	47.2
Queue Length 50th (ft)	22	132	1	9	31	53	58	97
Queue Length 95th (ft)	m48	240	m3	19	70	100	106	#173
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	632	230	481	219	377	257	232
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.59	0.06	0.25	0.32	0.32	0.38	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street

2016 Theoretical Existing

8:15 AM - 9:15 AM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	272	70	10	54	37	64	99	10	52	32	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.88		1.00	0.77		1.00	0.96			1.00	0.68
Flpb, ped/bikes	0.53	1.00		0.70	1.00		0.74	1.00			0.77	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	760	1162		822	884		1039	1259			1098	776
Flt Permitted	0.68	1.00		0.50	1.00		0.69	1.00			0.76	1.00
Satd. Flow (perm)	545	1162		432	884		760	1259			856	776
Peak-hour factor, PHF	0.92	0.92	0.92	0.77	0.77	0.77	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	82	296	76	13	70	48	70	109	11	60	37	160
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	82	372	0	13	118	0	70	120	0	0	97	160
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	14%	14%	14%	39%	39%	39%	16%	16%	16%	8%	8%	8%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	48.0	48.0		48.0	48.0		26.0	26.0			26.0	26.0
Effective Green, g (s)	48.0	49.0		48.0	49.0		26.0	27.0			27.0	27.0
Actuated g/C Ratio	0.53	0.54		0.53	0.54		0.29	0.30			0.30	0.30
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	632		230	481		219	377			256	232
v/s Ratio Prot		c0.32			0.13			0.10				
v/s Ratio Perm	0.15			0.03			0.09				0.11	c0.21
v/c Ratio	0.28	0.59		0.06	0.25		0.32	0.32			0.38	0.69
Uniform Delay, d1	11.5	13.7		10.1	10.8		25.1	24.4			24.9	27.8
Progression Factor	0.91	0.86		0.51	0.38		1.00	1.00			1.03	1.08
Incremental Delay, d2	2.0	3.3		0.4	1.1		3.8	2.2			4.1	15.0
Delay (s)	12.5	15.1		5.6	5.2		28.9	26.6			29.8	44.9
Level of Service	B	B		A	A		C	C			C	D
Approach Delay (s)		14.7			5.3			27.4			39.2	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay			21.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			76.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway

2016 Theoretical Existing

8:15 AM - 9:15 AM















						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	517	0	0	831	0	222
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	562	0	0	903	0	241
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			792		1244	511
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			514		1023	198
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	59
cM capacity (veh/h)			752		166	582
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	281	281	452	452	241	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	241	
cSH	1700	1700	1700	1700	582	
Volume to Capacity	0.17	0.17	0.27	0.27	0.41	
Queue Length 95th (ft)	0	0	0	0	51	
Control Delay (s)	0.0	0.0	0.0	0.0	15.5	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		15.5	
Approach LOS					C	
Intersection Summary						
Average Delay			2.2			
Intersection Capacity Utilization			37.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Ames Street & Memorial Drive WB

2016 Theoretical Existing

8:15 AM - 9:15 AM




												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	14	1077	430	0	0	0	0	14	75
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	16	1252	500	0	0	0	0	16	85
Pedestrians		58						9			59	
Lane Width (ft)		0.0						0.0			14.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			6	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					974							
pX, platoon unblocked												
vC, conflicting volume	1811			9			819	1853	9	1594	1603	993
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1811			9			819	1853	9	1594	1603	993
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.8	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			99			100	100	100	100	82	60
cM capacity (veh/h)	316			1624			131	68	1070	57	88	212
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	642	1126	101									
Volume Left	16	0	0									
Volume Right	0	500	85									
cSH	1624	1700	173									
Volume to Capacity	0.01	0.66	0.58									
Queue Length 95th (ft)	1	0	78									
Control Delay (s)	0.3	0.0	51.3									
Lane LOS	A		F									
Approach Delay (s)	0.1		51.3									
Approach LOS			F									
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			104.2%		ICU Level of Service					G		
Analysis Period (min)			15									

Queues

2016 Theoretical Existing

1: Third Street & O'Brien Highway

5:00 PM - 6:00 PM

			
Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	873	1513	1088
v/c Ratio	0.53	2.16	1.56
Control Delay	14.8	548.7	283.1
Queue Delay	0.0	0.0	0.0
Total Delay	14.8	548.7	283.1
Queue Length 50th (ft)	119	~508	~333
Queue Length 95th (ft)	m224	#577	m#413
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1632	701	697
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.53	2.16	1.56

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2016 Theoretical Existing

5:00 PM - 6:00 PM

								
Movement	NBL	NBR	SEU	SET	SER	NWU	NWL	NWT
Lane Configurations								
Volume (vph)	819	19	12	928	376	12	46	987
Ideal Flow (vphpl)	1900	1900	1900	2200	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	11
Total Lost time (s)	4.0			4.0				4.0
Lane Util. Factor	0.97			0.91				0.91
Frt	1.00			0.96				1.00
Flt Protected	0.95			1.00				1.00
Satd. Flow (prot)	2913			5052				4369
Flt Permitted	0.95			0.74				0.67
Satd. Flow (perm)	2913			3717				2920
Peak-hour factor, PHF	0.96	0.96	0.87	0.87	0.87	0.96	0.96	0.96
Adj. Flow (vph)	853	20	14	1067	432	12	48	1028
RTOR Reduction (vph)	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	872	0	0	1513	0	0	0	1088
Heavy Vehicles (%)	1%	1%	1%	1%	1%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	10	0	0	0	0
Turn Type	Prot		Perm	NA		Prot	D.P+P	NA
Protected Phases	3			2		4	4	2 4
Permitted Phases			2				2	
Actuated Green, G (s)	50.4			14.6				19.6
Effective Green, g (s)	50.4			14.6				19.6
Actuated g/C Ratio	0.56			0.16				0.22
Clearance Time (s)	4.0			4.0				
Vehicle Extension (s)	3.0			3.0				
Lane Grp Cap (vph)	1631			602				716
v/s Ratio Prot	c0.30							c0.08
v/s Ratio Perm				c0.41				0.25
v/c Ratio	0.53			2.51				1.52
Uniform Delay, d1	12.4			37.7				35.2
Progression Factor	0.99			1.00				0.89
Incremental Delay, d2	0.1			685.9				238.6
Delay (s)	12.5			723.6				269.8
Level of Service	B			F				F
Approach Delay (s)	12.5			723.6				269.8
Approach LOS	B			F				F
Intersection Summary								
HCM 2000 Control Delay			402.8		HCM 2000 Level of Service			F
HCM 2000 Volume to Capacity ratio			0.93					
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			14.0
Intersection Capacity Utilization			84.6%		ICU Level of Service			E
Analysis Period (min)			15					
c Critical Lane Group								

Queues

2016 Theoretical Existing

2: Third Street & Cambridge Street

5:00 PM - 6:00 PM

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	454	497	575	48	430
v/c Ratio	1.30	1.35	0.86	0.17	0.59
Control Delay	185.3	209.8	19.5	0.1	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	185.3	209.8	19.5	0.1	6.2
Queue Length 50th (ft)	~335	~390	171	0	78
Queue Length 95th (ft)	#422	#587	m#288	m0	m0
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	348	367	671	288	731
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.30	1.35	0.86	0.17	0.59

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	256	35	10	218	244	18	502	8	43	325	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.85			1.00		1.00	0.99	
Flpb, ped/bikes		0.98			1.00			1.00		0.98	1.00	
Frt		0.99			0.93			1.00		1.00	0.98	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1503			1117			1473		1513	1567	
Flt Permitted		0.69			0.98			0.98		0.39	1.00	
Satd. Flow (perm)		1044			1101			1440		619	1567	
Peak-hour factor, PHF	0.78	0.78	0.78	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	81	328	45	11	229	257	20	546	9	48	361	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	454	0	0	497	0	0	575	0	48	430	0
Confl. Peds. (#/hr)	152		93	93		152	36		41	41		36
Confl. Bikes (#/hr)			17			56			3			1
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			42.0		42.0	42.0	
Effective Green, g (s)		30.0			30.0			42.0		42.0	42.0	
Actuated g/C Ratio		0.33			0.33			0.47		0.47	0.47	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		348			367			672		288	731	
v/s Ratio Prot											0.27	
v/s Ratio Perm		0.43			c0.45			c0.40		0.08		
v/c Ratio		1.30			1.35			0.86		0.17	0.59	
Uniform Delay, d1		30.0			30.0			21.3		13.9	17.6	
Progression Factor		1.00			1.47			0.45		0.00	0.32	
Incremental Delay, d2		156.5			174.2			8.0		0.1	0.3	
Delay (s)		186.5			218.3			17.6		0.1	6.0	
Level of Service		F			F			B		A	A	
Approach Delay (s)		186.5			218.3			17.6			5.4	
Approach LOS		F			F			B			A	
Intersection Summary												
HCM 2000 Control Delay			102.7				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.06									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			118.7%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

3: First Street & Cambridge Street

5:00 PM - 6:00 PM

	→	↖	←	↗	↘
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	335	190	194	159	499
v/c Ratio	1.16	0.73	0.73	0.76	1.07
Control Delay	127.3	42.2	42.0	61.0	93.5
Queue Delay	0.3	0.0	0.0	0.0	10.6
Total Delay	127.6	42.2	42.0	61.0	104.1
Queue Length 50th (ft)	~234	61	62	88	~318
Queue Length 95th (ft)	m175	#91	#94	#186	#508
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	288	262	267	210	465
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	8	0	0	0	24
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.20	0.73	0.73	0.76	1.13

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2016 Theoretical Existing

5:00 PM - 6:00 PM









						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	241	54	154	157	149	469
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		5.0	5.0	3.0	5.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1368		1577	1605	1458	1351
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1368		1577	1605	1458	1351
Peak-hour factor, PHF	0.88	0.88	0.81	0.81	0.94	0.94
Adj. Flow (vph)	274	61	190	194	159	499
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	335	0	190	194	159	499
Confl. Bikes (#/hr)		16				
Heavy Vehicles (%)	4%	4%	3%	3%	4%	4%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		14.0	14.0	12.0	26.0
Effective Green, g (s)	20.0		15.0	15.0	13.0	28.0
Actuated g/C Ratio	0.22		0.17	0.17	0.14	0.31
Clearance Time (s)			6.0	6.0	4.0	6.0
Lane Grp Cap (vph)	304		262	267	210	420
v/s Ratio Prot	c0.24		0.12	0.12		c0.20
v/s Ratio Perm					0.11	0.17
v/c Ratio	1.10		0.73	0.73	0.76	1.19
Uniform Delay, d1	35.0		35.5	35.6	37.0	31.0
Progression Factor	1.65		0.69	0.69	1.00	1.00
Incremental Delay, d2	51.1		15.8	15.6	22.2	106.2
Delay (s)	108.9		40.4	40.2	59.2	137.2
Level of Service	F		D	D	E	F
Approach Delay (s)	108.9			40.3	118.4	
Approach LOS	F			D	F	
Intersection Summary						
HCM 2000 Control Delay			94.3		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.84			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	24.0
Intersection Capacity Utilization			57.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

2016 Theoretical Existing

4: Cambridge Street & O'Brien Highway

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	82	826	86	211	840	236	535	183
v/c Ratio	0.99	0.54	0.18	0.26	0.73	0.94	0.43	0.40
Control Delay	47.6	2.7	0.8	27.8	30.5	42.6	0.9	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	47.6	2.7	0.8	27.9	30.5	42.6	1.0	14.2
Queue Length 50th (ft)	25	2	1	49	217	124	0	33
Queue Length 95th (ft)	m1	m1	m1	79	288	m105	m0	47
Internal Link Dist (ft)		1079			832	195		257
Turn Bay Length (ft)	250		175	200			100	
Base Capacity (vph)	83	1538	479	797	1144	252	1252	455
Starvation Cap Reductn	0	0	0	0	0	0	106	0
Spillback Cap Reductn	0	0	0	24	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.54	0.18	0.27	0.73	0.94	0.47	0.40

Intersection Summary





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	752	78	198	788	2	164	53	492	5	36	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	5.0	3.0			2.0	5.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00	0.97		0.92	
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00			0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		1.00	
Satd. Flow (prot)	1526	4468	1391	3120	3322			1499	2382		1330	
Flt Permitted	0.15	1.00	1.00	0.95	1.00			0.56	1.00		0.99	
Satd. Flow (perm)	242	4468	1391	3120	3322			874	2382		1316	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.66	0.66	0.66
Adj. Flow (vph)	82	826	86	211	838	2	178	58	535	8	55	120
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	36	0	76	0
Lane Group Flow (vph)	82	826	86	211	840	0	0	236	499	0	107	0
Confl. Peds. (#/hr)	45					45	98		21	21		98
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	8%	8%	8%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	80	1489	463	866	1107			252	1243		380	
v/s Ratio Prot		0.18	0.06	0.07	0.25				c0.11			
v/s Ratio Perm	c0.34							c0.27	0.10		0.08	
v/c Ratio	1.02	0.55	0.19	0.24	0.76			0.94	0.40		0.28	
Uniform Delay, d1	30.0	24.5	21.3	25.2	26.8			31.2	13.0		24.8	
Progression Factor	0.29	0.11	0.03	1.00	1.00			1.03	0.09		1.00	
Incremental Delay, d2	36.7	0.1	0.1	0.7	4.9			7.5	0.1		1.8	
Delay (s)	45.3	2.8	0.8	25.8	31.7			39.8	1.2		26.6	
Level of Service	D	A	A	C	C			D	A		C	
Approach Delay (s)		6.1			30.5			13.0			26.6	
Approach LOS		A			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			17.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			62.5%			ICU Level of Service				B		
Analysis Period (min)			15									











c Critical Lane Group

Queues

2016 Theoretical Existing

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

5:00 PM - 6:00 PM

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	398	590	296	224	604	398	426	1035	324	731
v/c Ratio	1.29	0.67	0.20	0.41	1.06	0.70	1.22	1.43	0.61	1.16
Control Delay	192.9	48.6	0.3	45.1	101.5	19.3	157.9	233.5	14.3	129.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	192.9	48.6	0.3	45.1	101.5	19.3	157.9	233.5	14.3	129.2
Queue Length 50th (ft)	~393	156	0	78	~270	97	~408	~576	76	~348
Queue Length 95th (ft)	#580	197	0	109	#346	139	#571	#667	133	#475
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	308	884	1503	552	569	566	350	725	532	632
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.67	0.20	0.41	1.06	0.70	1.22	1.43	0.61	1.16

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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	354	525	263	188	507	334	366	890	279	177	388	93
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	1.00		0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2980	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2980	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	398	590	296	224	604	398	426	1035	324	197	431	103
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	196	0	11	0
Lane Group Flow (vph)	398	590	296	224	604	349	426	1035	128	0	720	0
Confl. Peds. (#/hr)			91	91			156		33	33		156
Confl. Bikes (#/hr)			10			27						6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	23.0	23.0	120.0	22.0	22.0	46.0	27.0	27.0	27.0		24.0	
Effective Green, g (s)	24.0	24.0	120.0	23.0	23.0	48.0	28.0	28.0	28.0		25.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.19	0.19	0.40	0.23	0.23	0.23		0.21	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	308	884	1503	552	569	517	350	725	335		620	
v/s Ratio Prot	c0.26	0.13		0.08	c0.20		0.28	c0.33	0.09		c0.24	
v/s Ratio Perm			0.20			0.27						
v/c Ratio	1.29	0.67	0.20	0.41	1.06	0.67	1.22	1.43	0.38		1.16	
Uniform Delay, d1	48.0	44.3	0.0	42.5	48.5	29.6	46.0	46.0	38.7		47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.92	0.92	0.94		1.00	
Incremental Delay, d2	153.6	4.0	0.3	2.2	55.1	6.9	120.3	200.1	3.2		89.5	
Delay (s)	201.6	48.3	0.3	44.7	103.6	36.5	162.7	242.5	39.7		137.0	
Level of Service	F	D	A	D	F	D	F	F	D		F	
Approach Delay (s)		84.8			71.1			186.7			137.0	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			125.2									
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			120.0							21.0		
Intersection Capacity Utilization			103.3%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

6: Portland Street & Broadway

5:00 PM - 6:00 PM

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	530	503	80	450	16	287
v/c Ratio	1.06	0.97	0.25	0.68	0.07	0.46
Control Delay	85.3	59.9	20.1	28.0	7.1	9.1
Queue Delay	18.4	42.8	0.0	26.4	0.2	1.9
Total Delay	103.7	102.7	20.1	54.4	7.4	11.0
Queue Length 50th (ft)	~334	257	29	204	3	46
Queue Length 95th (ft)	#439	m#458	64	315	m3	m63
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	500	518	320	662	236	618
Starvation Cap Reductn	0	183	0	0	0	196
Spillback Cap Reductn	157	71	0	220	78	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.55	1.50	0.25	1.02	0.10	0.68

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	346	16	25	409	19	76	377	50	14	184	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.94	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1495			1315		1341	1611		1473	1504	
Flt Permitted		0.81			0.95		0.55	1.00		0.37	1.00	
Satd. Flow (perm)		1214			1257		779	1611		576	1504	
Peak-hour factor, PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	78	432	20	28	454	21	80	397	53	16	207	80
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	528	0	0	501	0	80	450	0	16	287	0
Confl. Peds. (#/hr)	98		158	158		98	123		110	110		123
Confl. Bikes (#/hr)			15			84			42			19
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio		0.41			0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		499			516		320	662		236	618	
v/s Ratio Prot								c0.28			0.19	
v/s Ratio Perm		c0.44			0.40		0.10			0.03		
v/c Ratio		1.06			0.97		0.25	0.68		0.07	0.46	
Uniform Delay, d1		26.5			26.0		17.4	21.7		16.1	19.3	
Progression Factor		1.00			1.35		1.00	1.00		0.41	0.37	
Incremental Delay, d2		56.7			24.0		1.9	5.6		0.4	1.6	
Delay (s)		83.2			59.1		19.3	27.2		6.9	8.8	
Level of Service		F			E		B	C		A	A	
Approach Delay (s)		83.2			59.1			26.0			8.7	
Approach LOS		F			E			C			A	
Intersection Summary												
HCM 2000 Control Delay			48.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			101.2%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

7: Technology Square/Hampshire Street & Broadway

5:00 PM - 6:00 PM

									
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	474	14	33	412	352	80	124	254	23
v/c Ratio	0.88	0.03	0.21	0.74	0.58	1.18	0.38	0.89	0.11
Control Delay	38.3	19.9	25.8	28.9	17.0	201.9	35.2	44.2	22.2
Queue Delay	51.2	0.0	0.0	25.5	0.0	9.9	0.0	0.0	0.0
Total Delay	89.5	19.9	25.8	54.4	17.0	211.8	35.2	44.2	22.2
Queue Length 50th (ft)	284	7	9	129	112	~55	62	118	7
Queue Length 95th (ft)	m280	m7	m12	m186	m130	#135	107	m138	m9
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	536	455	160	556	611	68	326	286	217
Starvation Cap Reductn	182	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	150	0	18	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	0.03	0.21	1.01	0.58	1.60	0.38	0.89	0.11

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.
























m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	383	12	30	375	320	68	102	3	231	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.92	1.00	1.00	0.83	1.00	0.99		1.00	0.90	
Flpb, ped/bikes		1.00	1.00	0.97	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1545	1282	1447	1565	1102	1458	1632		1430	1088	
Flt Permitted		0.97	1.00	0.30	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1507	1282	451	1565	1102	341	1632		1430	1088	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	18	456	14	33	412	352	80	120	4	254	10	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	474	14	33	412	352	80	124	0	254	23	0
Confl. Peds. (#/hr)	81		45	45		81	59		154	154		59
Confl. Bikes (#/hr)			1			94			18			5
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		535	455	160	556	710	68	326		286	217	
v/s Ratio Prot					0.26	0.10		0.08		c0.18	0.02	
v/s Ratio Perm		c0.31	0.01	0.07		0.22	c0.23					
v/c Ratio		0.89	0.03	0.21	0.74	0.50	1.18	0.38		0.89	0.11	
Uniform Delay, d1		27.3	18.9	20.2	25.4	12.3	36.0	31.2		35.0	29.4	
Progression Factor		1.14	1.04	1.15	0.98	1.78	1.00	1.00		0.68	0.72	
Incremental Delay, d2		5.9	0.0	1.0	3.0	0.8	164.6	3.3		17.1	0.4	
Delay (s)		36.9	19.7	24.3	27.8	22.7	200.6	34.5		41.0	21.8	
Level of Service		D	B	C	C	C	F	C		D	C	
Approach Delay (s)		36.4			25.4			99.6			39.4	
Approach LOS		D			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			39.2				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			88.3%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

8: Galileo Galilei Way & Binney Street & Fulkerson Street

5:00 PM - 6:00 PM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	676	444	261	308	82
v/c Ratio	0.35	0.50	0.72	0.88	0.27
Control Delay	15.2	37.6	32.9	60.8	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	37.6	32.9	60.8	31.1
Queue Length 50th (ft)	174	142	86	170	38
Queue Length 95th (ft)	m243	m178	#200	#212	62
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1909	888	360	350	306
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.35	0.50	0.72	0.88	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.












m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street

2016 Theoretical Existing

5:00 PM - 6:00 PM







											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations		↑↑	↑↑				↔			↔	↔
Volume (vph)	0	588	308	59	24	0	192	54	141	84	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.92				1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2963	2580				1227			1501	1314
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2963	2580				1227			1501	1314
Peak-hour factor, PHF	0.87	0.87	0.88	0.88	0.88	0.94	0.94	0.94	0.73	0.73	0.73
Adj. Flow (vph)	0	676	350	67	27	0	204	57	193	115	82
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	676	444	0	0	0	187	0	0	308	82
Confl. Peds. (#/hr)	48			63	48	14		63	48		7
Confl. Bikes (#/hr)				23	31			19			1
Heavy Vehicles (%)	6%	6%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		58.0	31.0				21.0			21.0	21.0
Effective Green, g (s)		58.0	31.0				21.0			21.0	21.0
Actuated g/C Ratio		0.64	0.34				0.23			0.23	0.23
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1909	888				286			350	306
v/s Ratio Prot		0.23	c0.17				c0.15			c0.21	
v/s Ratio Perm											0.06
v/c Ratio		0.35	0.50				0.65			0.88	0.27
Uniform Delay, d1		7.4	23.4				31.2			33.3	28.2
Progression Factor		1.99	1.51				1.00			1.00	1.00
Incremental Delay, d2		0.3	1.7				11.0			25.6	2.1
Delay (s)		15.0	37.0				42.2			58.9	30.4
Level of Service		B	D				D			E	C
Approach Delay (s)		15.0	37.0			42.2				52.9	
Approach LOS		B	D			D				D	
Intersection Summary											
HCM 2000 Control Delay			32.9				HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.65								
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		17.0		
Intersection Capacity Utilization			57.7%				ICU Level of Service		B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street

2016 Theoretical Existing

5:00 PM - 6:00 PM










						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	672	0	0	390	0	113
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	730	0	0	424	0	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			730		942	365
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			514		746	114
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	85
cM capacity (veh/h)			957		319	838
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	365	365	212	212	123	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	123	
cSH	1700	1700	1700	1700	838	
Volume to Capacity	0.21	0.21	0.12	0.12	0.15	
Queue Length 95th (ft)	0	0	0	0	13	
Control Delay (s)	0.0	0.0	0.0	0.0	10.0	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.0	
Approach LOS					B	
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			35.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: North Garage East Driveway & Binney Street

2016 Theoretical Existing








5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	771	13	5	390	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	838	14	5	424	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.93		0.93	0.93
vC, conflicting volume			852		1068	426
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			685		917	225
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		100	100
cM capacity (veh/h)			839		250	721
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	559	293	5	212	212	
Volume Left	0	0	5	0	0	
Volume Right	0	14	0	0	0	
cSH	1700	1700	839	1700	1700	
Volume to Capacity	0.33	0.17	0.01	0.12	0.12	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	9.3	0.0	0.0	
Lane LOS			A			
Approach Delay (s)	0.0		0.1			
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			27.5%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
11: Third Street & Binney Street

2016 Theoretical Existing

5:00 PM - 6:00 PM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	296	595	83	274	402	156	329
v/c Ratio	0.84	0.55	0.52	0.40	0.95	0.49	0.87
Control Delay	51.8	36.0	48.6	32.3	63.6	30.3	69.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.8	36.0	48.6	32.3	63.6	30.3	69.7
Queue Length 50th (ft)	179	173	45	72	245	90	202
Queue Length 95th (ft)	m#270	m226	89	112	m#365	m133	m#300
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	398	1082	206	682	440	333	392
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.55	0.40	0.40	0.91	0.47	0.84

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2016 Theoretical Existing

11: Third Street & Binney Street

5:00 PM - 6:00 PM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	266	455	80	76	215	37	73	273	134	42	202	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			1.00	0.70		0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.98	
Frt	1.00	0.98		1.00	0.98			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)	1496	2777		1430	2815			1588	968		1504	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.75	
Satd. Flow (perm)	1496	2777		1430	2815			1280	968		1139	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.86	0.86	0.86	0.98	0.98	0.98
Adj. Flow (vph)	296	506	89	83	234	40	85	317	156	43	206	80
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	296	595	0	83	274	0	0	402	156	0	329	0
Confl. Peds. (#/hr)	55		32	32		55	150		216	216		150
Confl. Bikes (#/hr)			11			20			19			11
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	21.3	34.3		8.9	21.9			29.8	29.8		29.8	
Effective Green, g (s)	21.3	34.3		8.9	21.9			29.8	29.8		29.8	
Actuated g/C Ratio	0.24	0.38		0.10	0.24			0.33	0.33		0.33	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	354	1058		141	684			423	320		377	
v/s Ratio Prot	c0.20	c0.21		0.06	0.10							
v/s Ratio Perm								c0.31	0.16		0.29	
v/c Ratio	0.84	0.56		0.59	0.40			0.95	0.49		0.87	
Uniform Delay, d1	32.7	21.9		38.8	28.5			29.4	24.0		28.3	
Progression Factor	0.98	1.44		1.00	1.00			1.07	1.05		1.83	
Incremental Delay, d2	15.0	2.1		6.2	1.7			29.3	1.1		14.8	
Delay (s)	47.0	33.7		45.0	30.3			60.8	26.2		66.6	
Level of Service	D	C		D	C			E	C		E	
Approach Delay (s)		38.1			33.7			51.1			66.6	
Approach LOS		D			C			D			E	
Intersection Summary												
HCM 2000 Control Delay			45.1			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			89.9%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

12: First Street & Binney Street

5:00 PM - 6:00 PM

						
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	299	314	541	28	294	85
v/c Ratio	0.70	0.15	0.35	0.08	0.83	0.37
Control Delay	23.1	6.9	6.5	35.5	63.8	43.4
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	23.1	6.9	7.0	35.5	63.8	43.4
Queue Length 50th (ft)	124	39	36	17	217	56
Queue Length 95th (ft)	#339	65	58	27	304	100
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	429	2032	1543	416	437	280
Starvation Cap Reductn	0	0	589	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	0.70	0.15	0.57	0.07	0.67	0.30

Intersection Summary



















95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2016 Theoretical Existing

5:00 PM - 6:00 PM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	231	58	31	245	222	0	11	6	4	264	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.98			0.87			0.96			1.00	0.75
Flpb, ped/bikes	0.88	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.97			0.93			0.95			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1343	2904			2390			1560			1641	1052
Flt Permitted	0.44	1.00			0.91			1.00			1.00	1.00
Satd. Flow (perm)	620	2904			2191			1560			1638	1052
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.91	0.91	0.91
Adj. Flow (vph)	299	251	63	34	266	241	0	18	10	4	290	85
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	299	314	0	0	541	0	0	28	0	0	294	85
Confl. Peds. (#/hr)	75		26	26		75	106		45	45		106
Confl. Bikes (#/hr)			1			3			5			3
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	84.0	84.0			84.5			26.0			26.0	26.0
Effective Green, g (s)	84.0	84.0			84.5			26.0			26.0	26.0
Actuated g/C Ratio	0.70	0.70			0.70			0.22			0.22	0.22
Clearance Time (s)	5.0	5.0			4.5			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)	434	2032			1542			338			354	227
v/s Ratio Prot		0.11						0.02				
v/s Ratio Perm	c0.48				0.25						c0.18	0.08
v/c Ratio	0.69	0.15			0.35			0.08			0.83	0.37
Uniform Delay, d1	10.4	6.1			7.0			37.5			44.9	40.1
Progression Factor	1.00	1.00			0.77			1.00			1.00	1.00
Incremental Delay, d2	8.7	0.2			0.1			0.1			15.1	1.0
Delay (s)	19.1	6.2			5.5			37.6			60.0	41.1
Level of Service	B	A			A			D			E	D
Approach Delay (s)		12.5			5.5			37.6			55.8	
Approach LOS		B			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			21.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			66.7%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

13: Land Boulevard & Binney Street

5:00 PM - 6:00 PM

					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	242	436	1192	901	156
v/c Ratio	0.29	0.66	0.41	0.80	0.31
Control Delay	28.3	47.2	11.8	44.2	32.0
Queue Delay	0.9	0.0	0.0	0.0	0.0
Total Delay	29.3	47.2	11.8	44.2	32.0
Queue Length 50th (ft)	51	158	158	374	98
Queue Length 95th (ft)	71	209	183	m381	m130
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	847	661	2917	1125	503
Starvation Cap Reductn	372	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.51	0.66	0.41	0.80	0.31

Intersection Summary













m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2016 Theoretical Existing

5:00 PM - 6:00 PM











							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	239	3	21	363	1049	775	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2905			2836	4668	3217	1439
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2905			2836	4668	3217	1439
Peak-hour factor, PHF	1.00	0.91	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	239	3	24	412	1192	901	156
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	242	0	0	436	1192	901	156
Confl. Peds. (#/hr)	1			74			74
Confl. Bikes (#/hr)							5
Heavy Vehicles (%)	5%	5%	0%	0%	0%	1%	1%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	35.0			28.0	75.0	42.0	42.0
Effective Green, g (s)	35.0			28.0	75.0	42.0	42.0
Actuated g/C Ratio	0.29			0.23	0.62	0.35	0.35
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	847			661	2917	1125	503
v/s Ratio Prot	c0.08			c0.15	0.26	c0.28	0.11
v/s Ratio Perm							
v/c Ratio	0.29			0.66	0.41	0.80	0.31
Uniform Delay, d1	32.8			41.7	11.3	35.2	28.4
Progression Factor	0.83			1.00	1.00	1.10	1.06
Incremental Delay, d2	0.8			5.1	0.4	4.8	1.3
Delay (s)	28.1			46.8	11.8	43.7	31.4
Level of Service	C			D	B	D	C
Approach Delay (s)	28.1				21.1	41.9	
Approach LOS	C				C	D	
Intersection Summary							
HCM 2000 Control Delay			29.2		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.59				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			56.2%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Queues

2016 Theoretical Existing

14: Galileo Galilei Way & Broadway

5:00 PM - 6:00 PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	144	451	62	187	569	132	629	80	352	176
v/c Ratio	0.82	1.00	0.25	1.65	0.84	0.81	0.73	0.67	0.79	1.36
Control Delay	59.8	52.0	19.9	353.6	53.0	79.2	30.2	58.1	45.4	237.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.8	52.0	19.9	353.6	53.0	79.2	30.2	58.1	45.4	237.2
Queue Length 50th (ft)	74	195	21	~161	180	81	182	50	213	~139
Queue Length 95th (ft)	m85	m#329	m26	m#266	#231	m#139	208	m#100	m#331	m#254
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	176	452	249	113	676	166	862	121	445	129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.82	1.00	0.25	1.65	0.84	0.80	0.73	0.66	0.79	1.36

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.























m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Galileo Galilei Way & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	424	58	159	459	25	112	428	106	74	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.98		1.00	0.96		1.00	1.00	0.78
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1444	1629	895	1458	2899		1496	2776		1562	1589	1056
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1444	1629	895	1458	2899		1496	2776		1562	1589	1056
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	144	451	62	187	540	29	132	504	125	80	352	176
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	144	451	62	187	569	0	132	629	0	80	352	176
Confl. Peds. (#/hr)			207			165			76			76
Confl. Bikes (#/hr)			54			180			13			19
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	11.0	23.4	23.4	7.0	19.4		9.8	28.0		5.6	26.8	11.0
Effective Green, g (s)	11.0	23.4	23.4	7.0	19.4		9.8	28.0		5.6	26.8	11.0
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.11	0.31		0.06	0.30	0.12
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	423	232	113	624		162	863		97	473	129
v/s Ratio Prot	0.10	c0.28		0.13	0.20		c0.09	c0.23		0.05	0.22	
v/s Ratio Perm			0.07									c0.17
v/c Ratio	0.82	1.07	0.27	1.65	0.91		0.81	0.73		0.82	0.74	1.36
Uniform Delay, d1	38.5	33.3	26.5	41.5	34.5		39.2	27.6		41.7	28.5	39.5
Progression Factor	1.06	0.63	0.72	0.70	1.25		1.23	0.86		0.81	1.08	1.16
Incremental Delay, d2	12.4	48.6	1.3	328.0	18.7		22.5	4.5		36.2	8.7	200.3
Delay (s)	53.1	69.6	20.3	356.9	61.6		70.8	28.3		69.8	39.5	246.1
Level of Service	D	E	C	F	E		E	C		E	D	F
Approach Delay (s)		61.3			134.6			35.7			103.3	
Approach LOS		E			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			83.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			26.0			
Intersection Capacity Utilization			79.6%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2016 Theoretical Existing

5:00 PM - 6:00 PM













Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	604	605	6	0	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	657	658	7	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.75	
vC, conflicting volume	664				1317	222
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	664				1256	222
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	95
cM capacity (veh/h)	907				122	781
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	657	263	263	138		
Volume Left	0	0	0	0		
Volume Right	0	0	0	7		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.39	0.15	0.15	0.08		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			Err%	ICU Level of Service		H
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2016 Theoretical Existing







5:00 PM - 6:00 PM

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			 			
Volume (veh/h)	0	604	472	0	0	139
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	657	513	0	0	151
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	713				1370	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	713				1327	457
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	67
cM capacity (veh/h)	730				90	452
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	657	342	171	151		
Volume Left	0	0	0	0		
Volume Right	0	0	0	151		
cSH	1700	1700	1700	452		
Volume to Capacity	0.39	0.20	0.10	0.33		
Queue Length 95th (ft)	0	0	0	36		
Control Delay (s)	0.0	0.0	0.0	16.9		
Lane LOS				C		
Approach Delay (s)	0.0	0.0		16.9		
Approach LOS				C		
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization			38.7%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	612	66	88	363	165	157
v/c Ratio	1.15	0.22	0.23	0.67	0.56	0.46
Control Delay	107.0	11.9	38.6	23.2	32.0	37.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.0	11.9	38.6	23.2	32.0	37.2
Queue Length 50th (ft)	~421	6	49	220	90	56
Queue Length 95th (ft)	m#492	m8	m74	m303	147	109
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	530	305	376	539	296	341
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	1.15	0.22	0.23	0.67	0.56	0.46

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

17: Ames Street & Broadway

2016 Theoretical Existing







5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	545	59	85	352	142	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	3.0	6.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1492	1268	1540	1565	1404	1151
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1492	1268	1540	1565	1404	1151
Peak-hour factor, PHF	0.89	0.89	0.97	0.97	0.86	0.86
Adj. Flow (vph)	612	66	88	363	165	157
RTOR Reduction (vph)	0	23	0	0	0	60
Lane Group Flow (vph)	612	43	88	363	165	97
Confl. Peds. (#/hr)		444	444		221	403
Confl. Bikes (#/hr)		51				
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	32.0	20.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.36	0.22	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	530	281	376	539	296	281
v/s Ratio Prot	c0.41	0.03	0.06	0.23	c0.12	c0.08
v/s Ratio Perm						
v/c Ratio	1.15	0.15	0.23	0.67	0.56	0.35
Uniform Delay, d1	29.0	28.2	27.2	25.2	31.7	28.1
Progression Factor	0.90	0.61	1.35	0.71	0.76	2.12
Incremental Delay, d2	79.7	0.5	1.0	4.7	7.2	3.3
Delay (s)	105.8	17.6	37.8	22.6	31.3	62.9
Level of Service	F	B	D	C	C	E
Approach Delay (s)	97.2			25.6	46.7	
Approach LOS	F			C	D	
Intersection Summary						
HCM 2000 Control Delay			63.8		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.77			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			67.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues
18: Third Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM

						
Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	228	682	424	171	456	118
v/c Ratio	0.81	0.70	0.76	0.41	1.01	0.45
Control Delay	38.5	28.5	36.7	28.9	74.2	32.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.5	28.5	36.7	28.9	74.2	32.9
Queue Length 50th (ft)	96	214	211	77	~234	57
Queue Length 95th (ft)	m108	m208	#352	137	m#428	m96
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	282	970	558	413	453	262
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	0.81	0.70	0.76	0.41	1.01	0.45

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	203	534	73	0	411	166	0	0	0	388	31	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1496	2818			1621	1378					1510	1391
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1496	2818			1621	1378					1510	1391
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	228	600	82	0	424	171	0	0	0	422	34	118
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	228	682	0	0	424	171	0	0	0	0	456	118
Confl. Peds. (#/hr)	72					72						320
Confl. Bikes (#/hr)			29			173						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	17.0	31.0			31.0	27.0					27.0	17.0
Effective Green, g (s)	17.0	31.0			31.0	27.0					27.0	17.0
Actuated g/C Ratio	0.19	0.34			0.34	0.30					0.30	0.19
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	970			558	413					453	262
v/s Ratio Prot	c0.15	0.24			c0.26	0.12					c0.30	0.08
v/s Ratio Perm												
v/c Ratio	0.81	0.70			0.76	0.41					1.01	0.45
Uniform Delay, d1	34.9	25.5			26.2	25.2					31.5	32.4
Progression Factor	0.70	1.02			1.00	1.00					0.95	0.84
Incremental Delay, d2	11.6	2.1			9.4	3.0					42.0	5.0
Delay (s)	36.2	28.1			35.6	28.2					72.0	32.2
Level of Service	D	C			D	C					E	C
Approach Delay (s)		30.1			33.5			0.0			63.8	
Approach LOS		C			C			A			E	
Intersection Summary												
HCM 2000 Control Delay			40.4				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			76.5%				ICU Level of Service			D		
Analysis Period (min)			15									
















c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2016 Theoretical Existing

5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1136	227	0	486	134	0	0	0	0	0	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.92	0.92	0.61	0.61	0.61
Hourly flow rate (vph)	0	1196	239	0	512	141	0	0	0	0	0	113
Pedestrians		187						314			187	
Lane Width (ft)		12.0						0.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		16						0			16	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1279										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	840			1749			2185	2469	1031	1367	2518	700
vC1, stage 1 conf vol							1629	1629		769	769	
vC2, stage 2 conf vol							556	840		598	1749	
vCu, unblocked vol	840			1660			2127	2431	892	1251	2484	700
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	57
cM capacity (veh/h)	668			363			74	109	266	207	96	264
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	797	638	341	312	113							
Volume Left	0	0	0	0	0							
Volume Right	0	239	0	141	113							
cSH	1700	1700	1700	1700	264							
Volume to Capacity	0.47	0.38	0.20	0.18	0.43							
Queue Length 95th (ft)	0	0	0	0	51							
Control Delay (s)	0.0	0.0	0.0	0.0	28.5							
Lane LOS					D							
Approach Delay (s)	0.0		0.0		28.5							
Approach LOS					D							
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			47.7%		ICU Level of Service					A		
Analysis Period (min)			15									

Queues

2016 Theoretical Existing

20: Vassar Street/Galileo Galilei Way & Main Street

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	265	362	61	182	551	51	351	163
v/c Ratio	0.69	0.53	0.22	0.26	0.70	0.26	0.62	0.52
Control Delay	30.1	20.5	19.8	17.5	30.7	33.6	38.8	37.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	30.1	20.5	19.8	17.5	30.7	33.6	38.8	37.7
Queue Length 50th (ft)	114	140	15	47	139	31	216	100
Queue Length 95th (ft)	#221	224	48	109	173	m36	m234	m110
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	386	686	280	689	784	196	570	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.53	0.22	0.26	0.70	0.26	0.62	0.52

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.






















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Galileo Galilei Way & Main Street

2016 Theoretical Existing

5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	254	273	75	51	128	25	38	268	140	48	333	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.91		1.00	0.94			0.91		1.00	1.00	0.67
Flpb, ped/bikes	0.75	1.00		0.79	1.00			0.99		0.89	1.00	1.00
Frt	1.00	0.97		1.00	0.98			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	1.00
Satd. Flow (prot)	1224	1470		1160	1479			2580		1310	1605	888
Flt Permitted	0.64	1.00		0.49	1.00			0.85		0.40	1.00	1.00
Satd. Flow (perm)	828	1470		601	1479			2204		555	1605	888
Peak-hour factor, PHF	0.96	0.96	0.96	0.84	0.84	0.84	0.81	0.81	0.81	0.95	0.95	0.95
Adj. Flow (vph)	265	284	78	61	152	30	47	331	173	51	351	163
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	265	362	0	61	182	0	0	551	0	51	351	163
Confl. Peds. (#/hr)	629		344	344		629	201		177	177		201
Confl. Bikes (#/hr)			29			36			39			39
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	7%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Effective Green, g (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.36		0.36	0.36	0.36
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	386	686		280	690			783		197	570	315
v/s Ratio Prot		0.25			0.12						0.22	
v/s Ratio Perm	c0.32			0.10			c0.25			0.09		0.18
v/c Ratio	0.69	0.53		0.22	0.26		0.70			0.26	0.62	0.52
Uniform Delay, d1	18.8	17.0		14.2	14.6		24.9			20.6	23.9	22.9
Progression Factor	1.00	1.00		1.20	1.11		1.00			1.52	1.55	1.54
Incremental Delay, d2	9.6	2.9		1.7	0.9		5.3			0.3	0.5	0.6
Delay (s)	28.4	19.9		18.8	17.1		30.2			31.6	37.6	35.9
Level of Service	C	B		B	B		C			C	D	D
Approach Delay (s)		23.5			17.5		30.2				36.6	
Approach LOS		C			B		C				D	
Intersection Summary												
HCM 2000 Control Delay			28.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			120.3%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Theoretical Existing

21: Ames Street & Main Street

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	461	17	111	84	195	136	99
v/c Ratio	0.14	0.70	0.08	0.22	0.29	0.40	0.37	0.35
Control Delay	16.7	26.1	7.8	7.5	26.3	26.1	23.5	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.7	26.1	7.8	7.5	26.3	26.1	23.5	24.0
Queue Length 50th (ft)	11	233	2	13	35	84	40	29
Queue Length 95th (ft)	m21	345	m3	m18	68	131	63	49
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	655	212	509	289	490	363	285
Starvation Cap Reductn	0	3	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.71	0.08	0.22	0.29	0.40	0.37	0.35

Intersection Summary





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street

2016 Theoretical Existing

5:00 PM - 6:00 PM







												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	347	77	15	58	38	70	150	12	43	63	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.90		1.00	0.77		1.00	0.97			1.00	0.72
Flpb, ped/bikes	0.52	1.00		0.75	1.00		0.79	1.00			0.88	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	805	1282		989	996		1272	1471			1327	855
Flt Permitted	0.69	1.00		0.41	1.00		0.67	1.00			0.80	1.00
Satd. Flow (perm)	581	1282		424	996		897	1471			1090	855
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.83	0.83	0.83	0.78	0.78	0.78
Adj. Flow (vph)	40	377	84	17	67	44	84	181	14	55	81	99
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	40	461	0	17	111	0	84	195	0	0	136	99
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	1%	1%	1%	4%	4%	4%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	45.0	45.0		45.0	45.0		29.0	29.0			29.0	29.0
Effective Green, g (s)	45.0	46.0		45.0	46.0		29.0	30.0			30.0	30.0
Actuated g/C Ratio	0.50	0.51		0.50	0.51		0.32	0.33			0.33	0.33
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	655		212	509		289	490			363	285
v/s Ratio Prot		c0.36			0.11			c0.13				
v/s Ratio Perm	0.07			0.04			0.09				0.12	0.12
v/c Ratio	0.14	0.70		0.08	0.22		0.29	0.40			0.37	0.35
Uniform Delay, d1	12.1	16.8		11.7	12.1		22.8	23.1			22.9	22.6
Progression Factor	1.25	1.17		0.59	0.54		1.00	1.00			0.87	0.87
Incremental Delay, d2	0.8	5.2		0.5	0.7		2.5	2.4			2.9	3.3
Delay (s)	16.0	24.9		7.4	7.2		25.3	25.5			22.8	23.1
Level of Service	B	C		A	A		C	C			C	C
Approach Delay (s)		24.2			7.3			25.4			22.9	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			79.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway

2016 Theoretical Existing

5:00 PM - 6:00 PM















						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	922	0	0	577	0	369
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1002	0	0	627	0	401
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			1232		1546	731
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			823		1210	207
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	24
cM capacity (veh/h)			527		115	525
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	501	501	314	314	401	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	401	
cSH	1700	1700	1700	1700	525	
Volume to Capacity	0.29	0.29	0.18	0.18	0.76	
Queue Length 95th (ft)	0	0	0	0	169	
Control Delay (s)	0.0	0.0	0.0	0.0	30.7	
Lane LOS					D	
Approach Delay (s)	0.0		0.0		30.7	
Approach LOS					D	
Intersection Summary						
Average Delay			6.1			
Intersection Capacity Utilization			60.4%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Ames Street & Memorial Drive WB

2016 Theoretical Existing

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	65	1266	188	0	0	0	0	33	124
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	73	1422	211	0	0	0	0	37	138
Pedestrians		81			32			42			74	
Lane Width (ft)		0.0			10.0			0.0			14.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			2			0			7	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					974							
pX, platoon unblocked												
vC, conflicting volume	1708			42			1136	1896	74	1780	1790	972
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1708			42			1136	1896	74	1780	1790	972
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			95			100	100	100	100	46	39
cM capacity (veh/h)	342			1580			33	61	951	41	68	227
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	784	922	174									
Volume Left	73	0	0									
Volume Right	0	211	138									
cSH	1580	1700	152									
Volume to Capacity	0.05	0.54	1.15									
Queue Length 95th (ft)	4	0	240									
Control Delay (s)	1.2	0.0	176.6									
Lane LOS	A		F									
Approach Delay (s)	0.6		176.6									
Approach LOS			F									
Intersection Summary												
Average Delay			16.9									
Intersection Capacity Utilization			115.4%		ICU Level of Service					H		
Analysis Period (min)			15									

2016 Build Conditions

Queues

2016 Build

1: Third Street & O'Brien Highway

8:15 AM - 9:15 AM



Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	221	2378	437
v/c Ratio	0.19	1.41	0.38
Control Delay	23.1	214.1	8.2
Queue Delay	0.0	0.1	0.0
Total Delay	23.1	214.1	8.2
Queue Length 50th (ft)	31	~661	36
Queue Length 95th (ft)	m72	#759	9
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1145	1685	1164
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	32	30
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.19	1.44	0.39











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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2016 Build
8:15 AM - 9:15 AM

							
Movement	NBL	NBR	SET	SER	NWU	NWL	NWT
Lane Configurations							
Volume (vph)	154	25	1589	622	22	51	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	11
Total Lost time (s)	4.0		4.0				4.0
Lane Util. Factor	0.97		0.91				0.91
Frpb, ped/bikes	1.00		0.99				1.00
Flpb, ped/bikes	1.00		1.00				1.00
Frt	0.98		0.96				1.00
Flt Protected	0.96		1.00				0.99
Satd. Flow (prot)	2742		4251				4082
Flt Permitted	0.96		1.00				0.66
Satd. Flow (perm)	2742		4251				2721
Peak-hour factor, PHF	0.81	0.81	0.93	0.93	0.92	0.91	0.91
Adj. Flow (vph)	190	31	1709	669	24	56	357
RTOR Reduction (vph)	12	0	83	0	0	0	0
Lane Group Flow (vph)	209	0	2295	0	0	0	437
Confl. Bikes (#/hr)				6			
Heavy Vehicles (%)	6%	6%	3%	3%	2%	10%	10%
Bus Blockages (#/hr)	0	0	10	0	0	0	0
Turn Type	Prot		NA		custom	D.P+P	NA
Protected Phases	3		2			4	2 4
Permitted Phases					4	2	
Actuated Green, G (s)	37.2		30.8				35.8
Effective Green, g (s)	37.2		30.8				35.8
Actuated g/C Ratio	0.41		0.34				0.40
Clearance Time (s)	4.0		4.0				
Vehicle Extension (s)	3.0		3.0				
Lane Grp Cap (vph)	1133		1454				1157
v/s Ratio Prot	c0.08		c0.54				c0.02
v/s Ratio Perm							0.13
v/c Ratio	0.18		1.58				0.38
Uniform Delay, d1	16.8		29.6				19.2
Progression Factor	1.31		1.00				0.43
Incremental Delay, d2	0.3		263.7				0.9
Delay (s)	22.3		293.3				9.3
Level of Service	C		F				A
Approach Delay (s)	22.3		293.3				9.3
Approach LOS	C		F				A
Intersection Summary							
HCM 2000 Control Delay			232.7		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio			0.75				
Actuated Cycle Length (s)			90.0		Sum of lost time (s)		14.0
Intersection Capacity Utilization			79.5%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

Queues

2016 Build

2: Third Street & Cambridge Street

8:15 AM - 9:15 AM

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	369	318	222	60	622
v/c Ratio	0.80	0.81	0.46	0.13	0.89
Control Delay	41.5	52.4	20.9	35.3	49.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	52.4	20.9	35.3	49.9
Queue Length 50th (ft)	186	168	82	35	376
Queue Length 95th (ft)	#337	m146	m117	m29	m283
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	460	392	484	452	699
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.81	0.46	0.13	0.89

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.


















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	253	54	46	206	37	19	129	22	58	548	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.97			0.97			0.99		1.00	0.99	
Flpb, ped/bikes		0.99			0.99			1.00		0.97	1.00	
Frt		0.98			0.98			0.98		1.00	0.99	
Flt Protected		0.99			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		1385			1263			1389		1472	1573	
Flt Permitted		0.93			0.87			0.78		0.66	1.00	
Satd. Flow (perm)		1294			1102			1092		1016	1573	
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77	0.96	0.96	0.96
Adj. Flow (vph)	39	272	58	51	226	41	25	168	29	60	571	51
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	369	0	0	318	0	0	222	0	60	622	0
Confl. Peds. (#/hr)	172		66	66		172	60		42	42		60
Confl. Bikes (#/hr)			88			7			2			10
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.0			32.0			40.0		40.0	40.0	
Effective Green, g (s)		32.0			32.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.36			0.36			0.44		0.44	0.44	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		460			391			485		451	699	
v/s Ratio Prot											c0.40	
v/s Ratio Perm		0.29			c0.29			0.20		0.06		
v/c Ratio		0.80			0.81			0.46		0.13	0.89	
Uniform Delay, d1		26.1			26.3			17.4		14.8	23.0	
Progression Factor		1.00			1.76			1.01		2.31	2.07	
Incremental Delay, d2		13.7			5.0			2.4		0.1	1.8	
Delay (s)		39.9			51.2			20.1		34.2	49.3	
Level of Service		D			D			C		C	D	
Approach Delay (s)		39.9			51.2			20.1			48.0	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			42.8				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			78.2%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

3: First Street & Cambridge Street

8:15 AM - 9:15 AM

	→	↖	←	↙	↗
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	305	359	292	39	150
v/c Ratio	1.13	1.36	1.09	0.23	0.39
Control Delay	122.4	210.8	109.4	38.0	25.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	122.4	210.8	109.4	38.0	25.4
Queue Length 50th (ft)	~213	~238	~106	20	63
Queue Length 95th (ft)	m#323	#414	#323	45	104
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	269	264	269	169	387
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	1.36	1.09	0.23	0.39












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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2016 Build
8:15 AM - 9:15 AM









						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	220	55	323	263	32	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		4.0	4.0	3.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1275		1490	1517	1175	1089
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1275		1490	1517	1175	1089
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.82	0.82
Adj. Flow (vph)	244	61	359	292	39	150
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	305	0	359	292	39	150
Confl. Bikes (#/hr)		76				
Heavy Vehicles (%)	9%	9%	9%	9%	29%	29%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		15.0	15.0	12.0	27.0
Effective Green, g (s)	20.0		16.0	16.0	13.0	29.0
Actuated g/C Ratio	0.22		0.18	0.18	0.14	0.32
Clearance Time (s)			5.0	5.0	4.0	5.0
Lane Grp Cap (vph)	283		264	269	169	350
v/s Ratio Prot	c0.24		c0.24	0.19		c0.08
v/s Ratio Perm					0.03	0.06
v/c Ratio	1.08		1.36	1.09	0.23	0.43
Uniform Delay, d1	35.0		37.0	37.0	34.1	24.0
Progression Factor	0.94		0.84	0.86	1.00	1.00
Incremental Delay, d2	68.4		181.7	75.7	3.2	3.8
Delay (s)	101.2		212.7	107.6	37.2	27.8
Level of Service	F		F	F	D	C
Approach Delay (s)	101.2			165.6	29.7	
Approach LOS	F			F	C	
Intersection Summary						
HCM 2000 Control Delay			126.0		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	23.0
Intersection Capacity Utilization			56.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

2016 Build

4: Cambridge Street & O'Brien Highway

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	90	1462	111	492	375	61	300	110
v/c Ratio	0.37	0.96	0.23	0.61	0.34	0.17	0.26	0.28
Control Delay	23.8	33.5	20.6	32.9	22.3	12.2	1.2	16.6
Queue Delay	0.0	0.0	0.1	1.2	0.0	0.0	0.0	0.3
Total Delay	23.8	33.5	20.7	34.1	22.3	12.2	1.2	16.9
Queue Length 50th (ft)	54	332	66	126	79	5	0	26
Queue Length 95th (ft)	m40	m236	m47	173	114	m12	m0	68
Internal Link Dist (ft)		1079			832	195		257
Turn Bay Length (ft)	250		175	200			100	
Base Capacity (vph)	244	1523	474	800	1087	361	1156	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	51	135	0	0	0	64
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.96	0.26	0.74	0.34	0.17	0.26	0.33





















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	84	1360	103	433	301	29	21	37	285	14	40	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	4.0	3.0			2.0	4.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	0.99			1.00	0.99		0.94	
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00			0.97	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1494	4424	1378	3001	3134			1355	2106		1290	
Flt Permitted	0.45	1.00	1.00	0.95	1.00			0.91	1.00		0.97	
Satd. Flow (perm)	710	4424	1378	3001	3134			1251	2106		1260	
Peak-hour factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	90	1462	111	492	342	33	22	39	300	15	44	51
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	35	0	35	0
Lane Group Flow (vph)	90	1462	111	492	367	0	0	61	265	0	75	0
Confl. Peds. (#/hr)	24					24	111		4	4		111
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	16%	16%	16%	16%	16%	16%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	236	1474	459	833	1044			361	1099		364	
v/s Ratio Prot		c0.33	0.08	c0.16	0.12				c0.07			
v/s Ratio Perm	0.13							0.05	0.06		c0.06	
v/c Ratio	0.38	0.99	0.24	0.59	0.35			0.17	0.24		0.21	
Uniform Delay, d1	22.9	29.9	21.8	28.1	22.7			23.9	11.8		24.2	
Progression Factor	1.00	1.05	0.95	1.00	1.00			0.47	0.13		1.00	
Incremental Delay, d2	0.4	5.4	0.1	3.1	0.9			0.5	0.3		1.3	
Delay (s)	23.4	36.9	20.8	31.1	23.6			11.9	1.7		25.5	
Level of Service	C	D	C	C	C			B	A		C	
Approach Delay (s)		35.1			27.9			3.5			25.5	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			28.8			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			68.8%			ICU Level of Service			C			
Analysis Period (min)			15									











c Critical Lane Group

Queues

2016 Build

5: Land Boulevard & O'Brien Highway

8:15 AM - 9:15 AM

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	142	1036	565	247	580	299	150	409	220	1258
v/c Ratio	0.47	1.19	0.38	0.48	1.09	0.37	0.96	1.25	0.64	1.23
Control Delay	50.6	141.4	0.8	49.7	113.7	2.4	116.7	182.5	15.7	146.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.6	141.4	0.8	49.7	113.7	2.4	116.7	182.5	15.7	146.9
Queue Length 50th (ft)	103	~373	0	93	~280	3	124	~219	0	~664
Queue Length 95th (ft)	172	#467	0	137	#398	27	#243	#305	65	#804
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	302	869	1475	516	532	817	157	326	346	1025
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	1.19	0.38	0.48	1.09	0.37	0.96	1.25	0.64	1.23

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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard & O'Brien Highway

2016 Build
8:15 AM - 9:15 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	135	984	537	230	539	278	129	352	189	328	716	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.99	1.00	1.00	1.00		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2915	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2915	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	142	1036	565	247	580	299	150	409	220	349	762	147
RTOR Reduction (vph)	0	0	0	0	0	133	0	0	196	0	8	0
Lane Group Flow (vph)	142	1036	565	247	580	166	150	409	24	0	1250	0
Confl. Peds. (#/hr)			91	91			119		11	11		119
Confl. Bikes (#/hr)			51			2			1			11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	24.0	24.0	126.0	22.0	22.0	65.0	13.0	13.0	13.0		43.0	
Effective Green, g (s)	25.0	25.0	126.0	23.0	23.0	67.0	14.0	14.0	14.0		44.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.18	0.18	0.53	0.11	0.11	0.11		0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	302	869	1475	516	532	684	157	326	150		1017	
v/s Ratio Prot	0.09	c0.24		0.09	c0.20		0.11	c0.14	0.02		c0.43	
v/s Ratio Perm			0.38			0.13						
v/c Ratio	0.47	1.19	0.38	0.48	1.09	0.24	0.96	1.25	0.16		1.23	
Uniform Delay, d1	44.6	50.5	0.0	46.1	51.5	15.9	55.7	56.0	50.7		41.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	5.2	97.8	0.8	0.7	65.8	0.2	58.1	137.3	0.5		111.7	
Delay (s)	49.8	148.3	0.8	46.8	117.3	16.1	113.7	193.3	51.2		152.7	
Level of Service	D	F	A	D	F	B	F	F	D		F	
Approach Delay (s)		92.5			75.0			137.8			152.7	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			111.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.20									
Actuated Cycle Length (s)			126.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			94.1%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	628	322	46	364	84	268
v/c Ratio	1.01	0.65	0.17	0.68	0.37	0.51
Control Delay	65.7	41.0	22.0	32.3	13.0	12.4
Queue Delay	32.4	24.7	0.0	46.8	3.7	2.6
Total Delay	98.2	65.7	22.0	79.1	16.7	15.0
Queue Length 50th (ft)	~355	200	18	173	15	48
Queue Length 95th (ft)	#546	269	44	275	m23	m73
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	619	494	272	536	227	523
Starvation Cap Reductn	0	171	0	0	37	152
Spillback Cap Reductn	182	50	0	197	83	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.44	1.00	0.17	1.07	0.58	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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	425	40	35	231	8	43	250	88	77	188	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	0.96		1.00	0.95	
Flpb, ped/bikes		0.99			0.99		0.90	1.00		0.93	1.00	
Frt		0.99			1.00		1.00	0.96		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1461			1198		1313	1510		1413	1473	
Flt Permitted		0.90			0.88		0.55	1.00		0.43	1.00	
Satd. Flow (perm)		1322			1057		766	1510		640	1473	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	87	494	47	41	272	9	46	269	95	84	204	64
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	625	0	0	321	0	46	364	0	84	268	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		616			493		272	536		227	523	
v/s Ratio Prot								c0.24			0.18	
v/s Ratio Perm		c0.47			0.30		0.06			0.13		
v/c Ratio		1.01			0.65		0.17	0.68		0.37	0.51	
Uniform Delay, d1		24.0			18.4		19.9	24.6		21.5	22.9	
Progression Factor		1.00			1.83		1.00	1.00		0.43	0.43	
Incremental Delay, d2		39.9			5.5		1.3	6.8		3.0	2.4	
Delay (s)		63.9			39.2		21.2	31.4		12.4	12.1	
Level of Service		E			D		C	C		B	B	
Approach Delay (s)		63.9			39.2			30.3			12.2	
Approach LOS		E			D			C			B	
Intersection Summary												
HCM 2000 Control Delay			40.5			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			95.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

									
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	537	156	161	306	243	4	30	295	53
v/c Ratio	0.98	0.43	1.49	0.59	0.41	0.06	0.12	1.03	0.21
Control Delay	54.1	25.3	264.6	9.8	2.9	32.0	31.1	72.9	22.6
Queue Delay	39.6	0.0	0.0	1.0	0.0	1.0	0.0	0.0	0.0
Total Delay	93.7	25.3	264.6	10.8	2.9	33.0	31.1	72.9	22.6
Queue Length 50th (ft)	320	73	~126	62	10	2	14	~161	18
Queue Length 95th (ft)	m#356	m86	m#168	m81	m13	10	34	m#208	m22
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	548	366	108	520	599	65	249	286	258
Starvation Cap Reductn	131	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	67	0	27	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.29	0.43	1.49	0.68	0.41	0.11	0.12	1.03	0.21
























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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	452	133	142	269	214	3	9	15	271	46	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.74	1.00	1.00	0.87	1.00	0.87		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1550	1030	1307	1464	1079	1402	1245		1430	1293	
Flt Permitted		1.00	1.00	0.22	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1544	1030	306	1464	1079	328	1245		1430	1293	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	532	156	161	306	243	4	11	19	295	50	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	537	156	161	306	243	4	30	0	295	53	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		548	366	108	520	695	65	249		286	258	
v/s Ratio Prot					0.21	0.07		c0.02		c0.21	0.04	
v/s Ratio Perm		0.35	0.15	c0.53		0.16	0.01					
v/c Ratio		0.98	0.43	1.49	0.59	0.35	0.06	0.12		1.03	0.21	
Uniform Delay, d1		28.7	22.0	29.0	23.6	11.0	29.2	29.5		36.0	30.0	
Progression Factor		1.05	1.03	0.38	0.30	0.24	1.00	1.00		0.68	0.71	
Incremental Delay, d2		22.3	1.7	244.4	2.5	0.7	1.8	1.0		44.3	0.8	
Delay (s)		52.3	24.4	255.6	9.6	3.3	31.0	30.5		68.8	22.1	
Level of Service		D	C	F	A	A	C	C		E	C	
Approach Delay (s)		46.0			63.2			30.6			61.7	
Approach LOS		D			E			C			E	
Intersection Summary												
HCM 2000 Control Delay			55.6				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			96.7%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

8: Galileo Galilei Way & Binney Street & Fulkerson Street

8:15 AM - 9:15 AM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	584	599	361	208	27
v/c Ratio	0.32	0.68	0.98	0.64	0.10
Control Delay	8.3	21.8	70.2	41.7	29.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	21.8	70.2	41.7	29.0
Queue Length 50th (ft)	89	95	157	108	12
Queue Length 95th (ft)	m72	m147	#326	181	34
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1806	882	367	327	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	0.68	0.98	0.64	0.10

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street







2016 Build
8:15 AM - 9:15 AM

											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	502	446	97	38	0	272	46	134	51	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.90				1.00			1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2755	2562				1203			1472	1277
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2755	2562				1203			1472	1277
Peak-hour factor, PHF	0.86	0.86	0.97	0.97	0.97	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	0	584	460	100	39	0	309	52	151	57	27
RTOR Reduction (vph)	0	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	584	599	0	0	0	288	0	0	208	27
Confl. Peds. (#/hr)	101			41	101	4		41	101		6
Confl. Bikes (#/hr)				8	11			24			11
Heavy Vehicles (%)	14%	14%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		59.0	31.0				22.0			20.0	20.0
Effective Green, g (s)		59.0	31.0				22.0			20.0	20.0
Actuated g/C Ratio		0.66	0.34				0.24			0.22	0.22
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1806	882				294			327	283
v/s Ratio Prot		0.21	c0.23				c0.24			c0.14	
v/s Ratio Perm											0.02
v/c Ratio		0.32	0.68				0.98			0.64	0.10
Uniform Delay, d1		6.8	25.2				33.8			31.7	27.8
Progression Factor		1.20	0.74				1.00			1.00	1.00
Incremental Delay, d2		0.0	2.8				47.3			9.1	0.7
Delay (s)		8.2	21.4				81.1			40.8	28.5
Level of Service		A	C				F			D	C
Approach Delay (s)		8.2	21.4			81.1				39.4	
Approach LOS		A	C			F				D	
Intersection Summary											
HCM 2000 Control Delay			31.6			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.76								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			61.8%			ICU Level of Service			B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street










2016 Build
8:15 AM - 9:15 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	553	0	0	580	0	50
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	601	0	0	630	0	54
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.93		0.93	0.93
vC, conflicting volume			601		916	301
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			422		761	99
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	94
cM capacity (veh/h)			1055		318	872
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	301	301	315	315	54	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	54	
cSH	1700	1700	1700	1700	872	
Volume to Capacity	0.18	0.18	0.19	0.19	0.06	
Queue Length 95th (ft)	0	0	0	0	5	
Control Delay (s)	0.0	0.0	0.0	0.0	9.4	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.4	
Approach LOS					A	
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			27.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: North Garage East Driveway & Binney Street

2016 Build
8:15 AM - 9:15 AM








						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	385	218	171	580	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	418	237	186	630	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			655		1224	328
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			532		1130	187
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			81		100	100
cM capacity (veh/h)			980		152	782
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	279	376	186	315	315	
Volume Left	0	0	186	0	0	
Volume Right	0	237	0	0	0	
cSH	1700	1700	980	1700	1700	
Volume to Capacity	0.16	0.22	0.19	0.19	0.19	
Queue Length 95th (ft)	0	0	17	0	0	
Control Delay (s)	0.0	0.0	9.5	0.0	0.0	
Lane LOS			A			
Approach Delay (s)	0.0		2.2			
Approach LOS						
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			36.8%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

2016 Build

11: Third Street & Binney Street

8:15 AM - 9:15 AM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	112	306	182	571	201	71	579
v/c Ratio	0.70	0.53	0.87	0.78	0.53	0.16	0.98
Control Delay	52.8	23.9	74.7	39.1	14.2	7.8	37.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.8	23.9	74.7	39.1	14.2	7.8	37.6
Queue Length 50th (ft)	42	67	101	160	73	21	362
Queue Length 95th (ft)	m#124	97	#185	197	m88	m23	m#457
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	178	577	217	733	377	442	592
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.53	0.84	0.78	0.53	0.16	0.98

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: Third Street & Binney Street

2016 Build

8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	105	210	78	149	420	48	79	114	68	49	339	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.80		0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.96		1.00	0.98			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1342	2410		1307	2627			1512	1076		1507	
Flt Permitted	0.95	1.00		0.95	1.00			0.59	1.00		0.95	
Satd. Flow (perm)	1342	2410		1307	2627			918	1076		1443	
Peak-hour factor, PHF	0.94	0.94	0.94	0.82	0.82	0.82	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	112	223	83	182	512	59	82	119	71	53	365	161
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	112	306	0	182	571	0	0	201	71	0	579	0
Confl. Peds. (#/hr)	38		33	33		38	147		163	163		147
Confl. Bikes (#/hr)			14			12			12			17
Heavy Vehicles (%)	17%	17%	17%	16%	16%	16%	5%	5%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	10.9	21.6		14.4	25.1			37.0	37.0		37.0	
Effective Green, g (s)	10.9	21.6		14.4	25.1			37.0	37.0		37.0	
Actuated g/C Ratio	0.12	0.24		0.16	0.28			0.41	0.41		0.41	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	162	578		209	732			377	442		593	
v/s Ratio Prot	0.08	0.13		c0.14	c0.22							
v/s Ratio Perm								0.22	0.07		c0.40	
v/c Ratio	0.69	0.53		0.87	0.78			0.53	0.16		0.98	
Uniform Delay, d1	37.9	29.8		36.9	29.9			20.0	16.7		26.1	
Progression Factor	0.81	0.67		1.00	1.00			0.56	0.43		0.53	
Incremental Delay, d2	11.6	3.3		30.2	8.1			0.6	0.1		19.3	
Delay (s)	42.2	23.3		67.1	38.0			11.8	7.3		33.2	
Level of Service	D	C		E	D			B	A		C	
Approach Delay (s)		28.4			45.0			10.6			33.2	
Approach LOS		C			D			B			C	
Intersection Summary												
HCM 2000 Control Delay			33.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			86.6%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

Queues

2016 Build

12: First Street & Binney Street

8:15 AM - 9:15 AM



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	155	257	872	12	143	144
v/c Ratio	0.51	0.14	0.55	0.06	0.57	0.85
Control Delay	14.3	5.1	22.7	40.0	53.7	85.7
Queue Delay	0.0	0.0	43.3	0.0	0.0	0.0
Total Delay	14.3	5.1	65.9	40.0	53.7	85.7
Queue Length 50th (ft)	48	28	343	8	99	106
Queue Length 95th (ft)	94	39	390	16	163	#201
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	305	1836	1582	227	288	194
Starvation Cap Reductn	0	0	775	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	0.51	0.14	1.08	0.05	0.50	0.74



















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2016 Build
8:15 AM - 9:15 AM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	129	125	88	134	452	163	0	3	4	9	117	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96			0.95			0.93			1.00	0.78
Flpb, ped/bikes	0.95	1.00			0.99			1.00			0.99	1.00
Frt	1.00	0.94			0.97			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1308	2479			2582			1137			1459	971
Flt Permitted	0.30	1.00			0.81			1.00			0.98	1.00
Satd. Flow (perm)	418	2479			2121			1137			1441	971
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.58	0.58	0.58	0.88	0.88	0.88
Adj. Flow (vph)	155	151	106	156	526	190	0	5	7	10	133	144
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	155	257	0	0	872	0	0	12	0	0	143	144
Confl. Peds. (#/hr)	55		21	21		55	95		46	46		95
Confl. Bikes (#/hr)			2			10			5			4
Heavy Vehicles (%)	18%	18%	18%	6%	6%	6%	29%	29%	29%	16%	16%	16%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	88.9	88.9			89.4			21.1			21.1	21.1
Effective Green, g (s)	88.9	88.9			89.4			21.1			21.1	21.1
Actuated g/C Ratio	0.74	0.74			0.75			0.18			0.18	0.18
Clearance Time (s)	5.0	5.0			4.5			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)	309	1836			1580			199			253	170
v/s Ratio Prot		0.10						0.01				
v/s Ratio Perm	0.37				c0.41						0.10	c0.15
v/c Ratio	0.50	0.14			0.55			0.06			0.57	0.85
Uniform Delay, d1	6.4	4.5			6.6			41.2			45.3	47.9
Progression Factor	1.00	1.00			2.95			1.00			1.00	1.00
Incremental Delay, d2	5.7	0.2			0.3			0.1			2.9	30.3
Delay (s)	12.1	4.7			19.9			41.3			48.1	78.2
Level of Service	B	A			B			D			D	E
Approach Delay (s)		7.5			19.9			41.3			63.2	
Approach LOS		A			B			D			E	
Intersection Summary												
HCM 2000 Control Delay			24.7				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			64.4%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

13: Land Boulevard & Binney Street













8:15 AM - 9:15 AM

					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	173	470	704	973	382
v/c Ratio	0.32	0.59	0.22	0.81	0.71
Control Delay	40.9	40.7	6.2	39.7	40.3
Queue Delay	0.0	34.8	0.0	0.0	55.8
Total Delay	40.9	75.4	6.2	39.7	96.1
Queue Length 50th (ft)	61	161	61	351	248
Queue Length 95th (ft)	86	218	76	439	370
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	534	795	3273	1197	535
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	345	0	0	190
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.32	1.04	0.22	0.81	1.11
Intersection Summary					

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2016 Build
8:15 AM - 9:15 AM

							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	141	1	33	390	634	915	359
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2565			2808	4622	3124	1398
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2565			2808	4622	3124	1398
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.90	0.94	0.94
Adj. Flow (vph)	172	1	37	433	704	973	382
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	173	0	0	470	704	973	382
Confl. Bikes (#/hr)							3
Heavy Vehicles (%)	19%	19%	1%	1%	1%	4%	4%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	25.0			34.0	85.0	46.0	46.0
Effective Green, g (s)	25.0			34.0	85.0	46.0	46.0
Actuated g/C Ratio	0.21			0.28	0.71	0.38	0.38
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534			795	3273	1197	535
v/s Ratio Prot	c0.07			c0.17	0.15	c0.31	0.27
v/s Ratio Perm							
v/c Ratio	0.32			0.59	0.22	0.81	0.71
Uniform Delay, d1	40.3			37.0	6.0	33.1	31.4
Progression Factor	0.97			1.00	1.00	1.00	1.00
Incremental Delay, d2	1.6			3.2	0.2	6.1	7.9
Delay (s)	40.6			40.2	6.2	39.2	39.3
Level of Service	D			D	A	D	D
Approach Delay (s)	40.6				19.8	39.3	
Approach LOS	D				B	D	
Intersection Summary							
HCM 2000 Control Delay			30.9		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.62				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			60.7%		ICU Level of Service		B
Analysis Period (min)			15				












c Critical Lane Group

Queues

2016 Build

14: Binney Street/Galileo Galilei Way & Broadway

8:15 AM - 9:15 AM

											
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	185	562	113	130	427	76	355	128	114	471	197
v/c Ratio	0.83	1.24	0.46	1.23	0.77	0.68	3.70	0.45	0.73	0.87	1.16
Control Delay	62.7	151.1	37.8	188.7	56.5	64.8	1246.1	31.6	62.5	37.6	137.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.7	151.1	37.8	188.7	56.5	64.8	1246.1	31.6	62.5	37.6	137.0
Queue Length 50th (ft)	115	~423	50	~96	137	49	~389	60	54	274	~135
Queue Length 95th (ft)	m118	m#430	m51	m#149	m166	m69	m#530	m83	m76	m#375	m#206
Internal Link Dist (ft)		435			127		702			645	
Turn Bay Length (ft)	100					250			225		
Base Capacity (vph)	222	453	248	106	551	114	96	286	161	543	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	1.24	0.46	1.23	0.77	0.67	3.70	0.45	0.71	0.87	1.16

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Binney Street/Galileo Galilei Way & Broadway

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	159	483	97	121	361	36	76	308	114	108	447	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	7.0	4.0	4.0	7.0	4.0		4.0	4.0	5.0	7.0	4.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.95	0.95	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1430	1613	880	1366	2720		1286	1352	1032	1450	1476	1096
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1430	1613	880	1366	2720		1286	1341	1032	1450	1476	1096
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	185	562	113	130	388	39	85	346	128	114	471	197
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	185	562	113	130	427	0	76	355	128	114	471	197
Confl. Peds. (#/hr)			150			70			60			55
Confl. Bikes (#/hr)			175			6			7			9
Heavy Vehicles (%)	6%	6%	6%	11%	11%	11%	16%	16%	16%	12%	12%	12%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2						8			5
Actuated Green, G (s)	13.0	23.3	23.3	6.0	16.3		5.6	31.6	26.0	8.7	32.1	13.0
Effective Green, g (s)	14.0	24.3	24.3	7.0	17.3		6.6	33.6	26.0	9.7	33.1	14.0
Actuated g/C Ratio	0.16	0.27	0.27	0.08	0.19		0.07	0.37	0.29	0.11	0.37	0.16
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0	5.0	8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	222	435	237	106	522		94	501	298	156	542	170
v/s Ratio Prot	0.13	c0.35		0.10	0.16		0.06	0.05		c0.08	c0.32	
v/s Ratio Perm			0.13					0.21	0.12			c0.18
v/c Ratio	0.83	1.29	0.48	1.23	0.82		0.81	0.71	0.43	0.73	0.87	1.16
Uniform Delay, d1	36.9	32.9	27.5	41.5	34.8		41.1	24.0	26.0	38.9	26.4	38.0
Progression Factor	1.39	1.28	1.28	1.04	1.41		1.08	1.08	1.01	1.16	0.89	0.85
Incremental Delay, d2	8.0	136.7	2.1	149.4	10.4		28.0	3.1	3.0	10.2	11.2	103.7
Delay (s)	59.2	178.8	37.3	192.6	59.6		72.3	29.1	29.3	55.1	34.6	135.8
Level of Service	E	F	D	F	E		E	C	C	E	C	F
Approach Delay (s)		134.5			90.6			35.0			63.1	
Approach LOS		F			F			D			E	

Intersection Summary

HCM 2000 Control Delay	85.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	96.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2016 Build
8:15 AM - 9:15 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	703	519	126	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	764	564	137	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.74	
vC, conflicting volume	701				1397	257
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	701				1360	257
tC, single (s)	4.2				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)	879				103	743
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	764	226	226	250		
Volume Left	0	0	0	0		
Volume Right	0	0	0	137		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.45	0.13	0.13	0.15		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			44.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2016 Build
8:15 AM - 9:15 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Volume (veh/h)	0	703	548	0	0	97
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	764	596	0	0	105
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage veh						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	796				1560	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	796				1580	498
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	75
cM capacity (veh/h)	679				60	425
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	764	397	199	105		
Volume Left	0	0	0	0		
Volume Right	0	0	0	105		
cSH	1700	1700	1700	425		
Volume to Capacity	0.45	0.23	0.12	0.25		
Queue Length 95th (ft)	0	0	0	24		
Control Delay (s)	0.0	0.0	0.0	16.2		
Lane LOS				C		
Approach Delay (s)	0.0	0.0		16.2		
Approach LOS				C		
Intersection Summary						
Average Delay			1.2			
Intersection Capacity Utilization			44.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2016 Build
8:15 AM - 9:15 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	671	117	132	474	108	95
v/c Ratio	1.24	0.36	0.35	0.88	0.35	0.27
Control Delay	133.4	35.3	9.5	44.7	40.9	12.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.4	35.3	9.5	44.7	40.9	12.0
Queue Length 50th (ft)	~482	52	33	233	58	0
Queue Length 95th (ft)	m#368	m44	m36	m232	112	48
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	539	324	376	539	313	347
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	1.24	0.36	0.35	0.88	0.35	0.27













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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

17: Ames Street & Broadway

2016 Build
8:15 AM - 9:15 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	604	105	124	446	100	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1565	1330	1540	1565	1486	1219
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1565	1330	1540	1565	1486	1219
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.93	0.93
Adj. Flow (vph)	671	117	132	474	108	95
RTOR Reduction (vph)	0	44	0	0	0	50
Lane Group Flow (vph)	671	73	132	474	108	45
Confl. Peds. (#/hr)		395	395		206	132
Confl. Bikes (#/hr)		140				
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	31.0	19.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.34	0.21	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	539	280	376	539	313	297
v/s Ratio Prot	c0.43	0.05	c0.09	0.30	c0.07	0.04
v/s Ratio Perm						
v/c Ratio	1.24	0.26	0.35	0.88	0.35	0.15
Uniform Delay, d1	29.5	29.6	28.1	27.7	30.2	26.7
Progression Factor	0.61	2.01	0.30	1.35	1.23	0.88
Incremental Delay, d2	111.7	0.2	0.7	6.2	2.9	1.0
Delay (s)	129.7	59.9	9.3	43.6	40.0	24.4
Level of Service	F	E	A	D	D	C
Approach Delay (s)	119.3			36.1	32.7	
Approach LOS	F			D	C	
Intersection Summary						
HCM 2000 Control Delay			76.7		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.73			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			72.1%		ICU Level of Service	C
Analysis Period (min)			15			

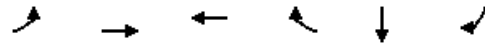
c Critical Lane Group

Queues

2016 Build

18: Third Street & Broadway

8:15 AM - 9:15 AM



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	248	467	618	344	211	115
v/c Ratio	0.81	0.49	1.07	0.94	0.55	0.41
Control Delay	37.9	33.7	88.8	68.0	29.1	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.9	33.7	88.8	68.0	29.1	27.3
Queue Length 50th (ft)	154	102	~394	191	91	51
Queue Length 95th (ft)	m136	m89	#599	#358	m107	m61
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	306	951	576	367	386	279
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	0.81	0.49	1.07	0.94	0.55	0.41



















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2016 Build
8:15 AM - 9:15 AM
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	233	387	52	0	575	320	0	0	0	150	50	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.97			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1454	2678			1621	1378					1451	1326
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1454	2678			1621	1378					1451	1326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	248	412	55	0	618	344	0	0	0	158	53	115
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	248	467	0	0	618	344	0	0	0	0	211	115
Confl. Peds. (#/hr)	59					59				911		263
Confl. Bikes (#/hr)			217			18						
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	19.0	32.0			32.0	24.0					24.0	19.0
Effective Green, g (s)	19.0	32.0			32.0	24.0					24.0	19.0
Actuated g/C Ratio	0.21	0.36			0.36	0.27					0.27	0.21
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	306	952			576	367					386	279
v/s Ratio Prot	c0.17	0.17			c0.38	c0.25					0.15	0.09
v/s Ratio Perm												
v/c Ratio	0.81	0.49			1.07	0.94					0.55	0.41
Uniform Delay, d1	33.8	22.6			29.0	32.3					28.3	30.7
Progression Factor	1.01	1.46			1.00	1.00					0.91	0.80
Incremental Delay, d2	2.2	0.2			58.6	33.5					2.5	2.0
Delay (s)	36.2	33.2			87.6	65.8					28.3	26.6
Level of Service	D	C			F	E					C	C
Approach Delay (s)		34.2			79.8			0.0			27.7	
Approach LOS		C			E			A			C	
Intersection Summary												
HCM 2000 Control Delay			55.0				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			77.1%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2016 Build
8:15 AM - 9:15 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	621	97	0	956	256	0	0	0	0	0	95
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.25	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	668	104	0	1051	281	0	0	0	0	0	106
Pedestrians								159			128	
Lane Width (ft)								0.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			11	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1279										
pX, platoon unblocked												
vC, conflicting volume	1460			931			1510	2339	545	1653	2250	794
vC1, stage 1 conf vol							879	879		1319	1319	
vC2, stage 2 conf vol							631	1460		334	931	
vCu, unblocked vol	1460			931			1510	2339	545	1653	2250	794
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	64
cM capacity (veh/h)	401			731			156	119	482	121	129	292
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	445	327	700	632	106							
Volume Left	0	0	0	0	0							
Volume Right	0	104	0	281	106							
cSH	1700	1700	1700	1700	292							
Volume to Capacity	0.26	0.19	0.41	0.37	0.36							
Queue Length 95th (ft)	0	0	0	0	40							
Control Delay (s)	0.0	0.0	0.0	0.0	24.2							
Lane LOS					C							
Approach Delay (s)	0.0		0.0		24.2							
Approach LOS					C							
Intersection Summary												
Average Delay			1.2									
Intersection Capacity Utilization			53.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

2016 Build

20: Vassar Street/Binney Street & Main Street

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	288	330	55	209	531	59	384	266
v/c Ratio	0.83	0.55	0.21	0.42	0.73	0.28	0.69	0.69
Control Delay	45.5	23.5	34.7	38.8	30.6	35.2	41.4	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.5	23.5	34.7	38.8	30.6	35.2	41.4	43.7
Queue Length 50th (ft)	141	136	30	115	132	34	241	167
Queue Length 95th (ft)	#271	207	m55	m180	197	m42	m271	m190
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	346	595	267	495	727	213	558	383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.55	0.21	0.42	0.73	0.28	0.69	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Binney Street & Main Street

2016 Build

8:15 AM - 9:15 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	248	211	73	53	94	107	68	265	150	55	361	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.92		1.00	0.85			0.94		1.00	1.00	0.84
Flpb, ped/bikes	0.79	1.00		0.85	1.00			0.99		0.92	1.00	1.00
Frt	1.00	0.96		1.00	0.92			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1211	1374		1145	1143			2483		1219	1437	985
Flt Permitted	0.63	1.00		0.51	1.00			0.75		0.43	1.00	1.00
Satd. Flow (perm)	800	1374		617	1143			1869		548	1437	985
Peak-hour factor, PHF	0.86	0.86	0.86	0.96	0.96	0.96	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	288	245	85	55	98	111	75	291	165	59	384	266
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	288	330	0	55	209	0	0	531	0	59	384	266
Confl. Peds. (#/hr)	398		210	210		398	76		127	127		76
Confl. Bikes (#/hr)			84			7			36			57
Heavy Vehicles (%)	10%	10%	10%	13%	13%	13%	15%	15%	15%	15%	15%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Effective Green, g (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.39		0.39	0.39	0.39
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	346	595		267	495			726		213	558	383
v/s Ratio Prot		0.24			0.18						0.27	
v/s Ratio Perm	c0.36			0.09			c0.28			0.11		0.27
v/c Ratio	0.83	0.55		0.21	0.42		0.73			0.28	0.69	0.69
Uniform Delay, d1	22.6	19.0		15.9	17.7		23.5			18.8	22.9	23.0
Progression Factor	1.00	1.00		1.98	1.98		1.00			1.67	1.60	1.60
Incremental Delay, d2	20.3	3.7		1.5	2.3		6.4			1.5	3.3	4.8
Delay (s)	42.9	22.7		32.9	37.4		29.9			33.0	39.9	41.7
Level of Service	D	C		C	D		C			C	D	D
Approach Delay (s)		32.1			36.4		29.9				40.0	
Approach LOS		C			D		C				D	
Intersection Summary												
HCM 2000 Control Delay			34.8				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			132.8%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

21: Ames Street & Main Street

8:15 AM - 9:15 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	82	372	13	118	70	148	97	160
v/c Ratio	0.28	0.59	0.06	0.25	0.32	0.39	0.38	0.69
Control Delay	13.1	15.6	6.4	5.9	30.1	28.7	31.2	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	15.6	6.4	5.9	30.1	28.7	31.2	47.2
Queue Length 50th (ft)	21	127	1	9	31	66	59	98
Queue Length 95th (ft)	m46	m232	m4	22	70	122	107	#172
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	632	230	481	219	381	254	232
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.59	0.06	0.25	0.32	0.39	0.38	0.69

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street

2016 Build







8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	272	70	10	54	37	64	125	10	52	32	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.88		1.00	0.77		1.00	0.97			1.00	0.68
Flpb, ped/bikes	0.53	1.00		0.70	1.00		0.74	1.00			0.77	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	760	1162		822	884		1039	1273			1110	776
Flt Permitted	0.68	1.00		0.50	1.00		0.69	1.00			0.74	1.00
Satd. Flow (perm)	545	1162		432	884		760	1273			850	776
Peak-hour factor, PHF	0.92	0.92	0.92	0.77	0.77	0.77	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	82	296	76	13	70	48	70	137	11	60	37	160
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	82	372	0	13	118	0	70	148	0	0	97	160
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	14%	14%	14%	39%	39%	39%	16%	16%	16%	8%	8%	8%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	48.0	48.0		48.0	48.0		26.0	26.0			26.0	26.0
Effective Green, g (s)	48.0	49.0		48.0	49.0		26.0	27.0			27.0	27.0
Actuated g/C Ratio	0.53	0.54		0.53	0.54		0.29	0.30			0.30	0.30
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	632		230	481		219	381			255	232
v/s Ratio Prot		c0.32			0.13			0.12				
v/s Ratio Perm	0.15			0.03			0.09				0.11	c0.21
v/c Ratio	0.28	0.59		0.06	0.25		0.32	0.39			0.38	0.69
Uniform Delay, d1	11.5	13.7		10.1	10.8		25.1	25.0			24.9	27.8
Progression Factor	0.90	0.85		0.56	0.43		1.00	1.00			1.04	1.08
Incremental Delay, d2	2.0	3.3		0.4	1.1		3.8	3.0			4.1	14.9
Delay (s)	12.3	14.9		6.1	5.7		28.9	27.9			29.9	44.9
Level of Service	B	B		A	A		C	C			C	D
Approach Delay (s)		14.4			5.7			28.2			39.3	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay			22.2				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			14.0		
Intersection Capacity Utilization			76.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway















2016 Build
8:15 AM - 9:15 AM

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	537	0	0	895	0	222
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	584	0	0	973	0	241
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			814		1300	522
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			539		1086	210
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	58
cM capacity (veh/h)			736		151	571
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	292	292	486	486	241	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	241	
cSH	1700	1700	1700	1700	571	
Volume to Capacity	0.17	0.17	0.29	0.29	0.42	
Queue Length 95th (ft)	0	0	0	0	52	
Control Delay (s)	0.0	0.0	0.0	0.0	15.8	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		15.8	
Approach LOS					C	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			38.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Ames Street & Memorial Drive WB

2016 Build
8:15 AM - 9:15 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	14	1077	430	0	0	0	0	14	75
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	16	1252	500	0	0	0	0	16	85
Pedestrians		58						9			59	
Lane Width (ft)		0.0						0.0			14.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			6	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					974							
pX, platoon unblocked												
vC, conflicting volume	1811			9			819	1853	9	1594	1603	993
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1811			9			819	1853	9	1594	1603	993
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.8	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			99			100	100	100	100	82	60
cM capacity (veh/h)	316			1624			131	68	1070	57	88	212
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	642	1126	101									
Volume Left	16	0	0									
Volume Right	0	500	85									
cSH	1624	1700	173									
Volume to Capacity	0.01	0.66	0.58									
Queue Length 95th (ft)	1	0	78									
Control Delay (s)	0.3	0.0	51.3									
Lane LOS	A		F									
Approach Delay (s)	0.1		51.3									
Approach LOS			F									
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization		105.0%		ICU Level of Service						G		
Analysis Period (min)			15									

Queues

2016 Build

1: Third Street & O'Brien Highway

5:00 PM - 6:00 PM



Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	905	1524	1088
v/c Ratio	0.55	2.52	1.56
Control Delay	14.8	708.6	283.1
Queue Delay	0.0	0.0	0.0
Total Delay	14.8	708.6	283.1
Queue Length 50th (ft)	120	~534	~333
Queue Length 95th (ft)	m225	#602	m#413
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1632	605	697
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.55	2.52	1.56

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2016 Build

5:00 PM - 6:00 PM

								
Movement	NBL	NBR	SEU	SET	SER	NWU	NWL	NWT
Lane Configurations								
Volume (vph)	850	19	12	931	383	12	46	987
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	12	11
Total Lost time (s)	4.0			4.0				4.0
Lane Util. Factor	0.97			0.91				0.91
Frt	1.00			0.96				1.00
Flt Protected	0.95			1.00				1.00
Satd. Flow (prot)	2913			4361				4369
Flt Permitted	0.95			0.74				0.67
Satd. Flow (perm)	2913			3208				2920
Peak-hour factor, PHF	0.96	0.96	0.87	0.87	0.87	0.96	0.96	0.96
Adj. Flow (vph)	885	20	14	1070	440	12	48	1028
RTOR Reduction (vph)	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	904	0	0	1524	0	0	0	1088
Heavy Vehicles (%)	1%	1%	1%	1%	1%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	10	0	0	0	0
Turn Type	Prot		Perm	NA		custom	D.P+P	NA
Protected Phases	3			2			4	2 4
Permitted Phases			2			4	2	
Actuated Green, G (s)	50.4			14.6				19.6
Effective Green, g (s)	50.4			14.6				19.6
Actuated g/C Ratio	0.56			0.16				0.22
Clearance Time (s)	4.0			4.0				
Vehicle Extension (s)	3.0			3.0				
Lane Grp Cap (vph)	1631			520				716
v/s Ratio Prot	c0.31							c0.08
v/s Ratio Perm				c0.48				0.25
v/c Ratio	0.55			2.93				1.52
Uniform Delay, d1	12.6			37.7				35.2
Progression Factor	0.98			1.00				0.89
Incremental Delay, d2	0.1			874.1				238.6
Delay (s)	12.5			911.8				269.8
Level of Service	B			F				F
Approach Delay (s)	12.5			911.8				269.8
Approach LOS	B			F				F
Intersection Summary								
HCM 2000 Control Delay			481.8		HCM 2000 Level of Service			F
HCM 2000 Volume to Capacity ratio			1.02					
Actuated Cycle Length (s)			90.0		Sum of lost time (s)			14.0
Intersection Capacity Utilization			89.9%		ICU Level of Service			E
Analysis Period (min)			15					

c Critical Lane Group

Queues

2016 Build

2: Third Street & Cambridge Street

5:00 PM - 6:00 PM



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	454	500	611	48	438
v/c Ratio	1.30	1.37	0.91	0.18	0.60
Control Delay	185.3	214.6	23.6	0.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	185.3	214.6	23.6	0.1	6.7
Queue Length 50th (ft)	~335	~394	193	0	84
Queue Length 95th (ft)	#422	#593	m#427	m0	m0
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	348	366	672	274	731
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.30	1.37	0.91	0.18	0.60


















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2016 Build
5:00 PM - 6:00 PM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	63	256	35	13	218	244	18	533	11	43	332	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.85			1.00		1.00	0.99	
Flpb, ped/bikes		0.98			1.00			1.00		0.98	1.00	
Frt		0.99			0.93			1.00		1.00	0.98	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1503			1118			1472		1514	1568	
Flt Permitted		0.69			0.98			0.98		0.37	1.00	
Satd. Flow (perm)		1044			1098			1440		588	1568	
Peak-hour factor, PHF	0.78	0.78	0.78	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	81	328	45	14	229	257	20	579	12	48	369	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	454	0	0	500	0	0	611	0	48	438	0
Confl. Peds. (#/hr)	152		93	93		152	36		41	41		36
Confl. Bikes (#/hr)			17			56			3			1
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			42.0		42.0	42.0	
Effective Green, g (s)		30.0			30.0			42.0		42.0	42.0	
Actuated g/C Ratio		0.33			0.33			0.47		0.47	0.47	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		348			366			672		274	731	
v/s Ratio Prot											0.28	
v/s Ratio Perm		0.44			c0.46			c0.42		0.08		
v/c Ratio		1.30			1.37			0.91		0.18	0.60	
Uniform Delay, d1		30.0			30.0			22.2		13.9	17.8	
Progression Factor		1.00			1.47			0.47		0.00	0.34	
Incremental Delay, d2		156.5			179.2			10.6		0.1	0.3	
Delay (s)		186.5			223.3			21.0		0.1	6.4	
Level of Service		F			F			C		A	A	
Approach Delay (s)		186.5			223.3			21.0			5.8	
Approach LOS		F			F			C			A	
Intersection Summary												
HCM 2000 Control Delay		103.4			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.10										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		117.0%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

Queues

2016 Build

3: First Street & Cambridge Street

5:00 PM - 6:00 PM

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	343	200	198	159	518
v/c Ratio	1.19	0.76	0.74	0.76	1.11
Control Delay	136.4	44.9	42.7	61.0	107.0
Queue Delay	0.3	0.0	0.0	0.0	0.5
Total Delay	136.8	44.9	42.7	61.0	107.4
Queue Length 50th (ft)	~243	62	62	88	~341
Queue Length 95th (ft)	m#180	#101	#97	#186	#535
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	289	262	267	210	465
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	8	0	0	0	24
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.22	0.76	0.74	0.76	1.17












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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2016 Build
5:00 PM - 6:00 PM









						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	248	54	162	160	149	487
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		5.0	5.0	3.0	5.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1369		1577	1605	1458	1351
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1369		1577	1605	1458	1351
Peak-hour factor, PHF	0.88	0.88	0.81	0.81	0.94	0.94
Adj. Flow (vph)	282	61	200	198	159	518
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	343	0	200	198	159	518
Confl. Bikes (#/hr)		16				
Heavy Vehicles (%)	4%	4%	3%	3%	4%	4%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		14.0	14.0	12.0	26.0
Effective Green, g (s)	20.0		15.0	15.0	13.0	28.0
Actuated g/C Ratio	0.22		0.17	0.17	0.14	0.31
Clearance Time (s)			6.0	6.0	4.0	6.0
Lane Grp Cap (vph)	304		262	267	210	420
v/s Ratio Prot	c0.25		0.13	0.12		c0.21
v/s Ratio Perm					0.11	0.18
v/c Ratio	1.13		0.76	0.74	0.76	1.23
Uniform Delay, d1	35.0		35.8	35.7	37.0	31.0
Progression Factor	1.64		0.68	0.68	1.00	1.00
Incremental Delay, d2	62.1		18.5	16.6	22.2	124.2
Delay (s)	119.6		42.8	40.8	59.2	155.2
Level of Service	F		D	D	E	F
Approach Delay (s)	119.6			41.8	132.6	
Approach LOS	F			D	F	
Intersection Summary						
HCM 2000 Control Delay			104.0		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.86			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	24.0
Intersection Capacity Utilization			59.2%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Queues

2016 Build

4: Cambridge Street & O'Brien Highway

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	82	826	86	223	840	236	562	183
v/c Ratio	0.99	0.54	0.18	0.28	0.73	0.94	0.45	0.40
Control Delay	47.7	2.7	0.8	28.0	30.5	42.8	0.9	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	47.7	2.7	0.8	28.1	30.5	42.8	1.0	14.2
Queue Length 50th (ft)	25	2	1	52	217	124	0	33
Queue Length 95th (ft)	m1	m1	m1	83	288	m99	m0	47
Internal Link Dist (ft)	1079				832	195	257	
Turn Bay Length (ft)	250	175		200			100	
Base Capacity (vph)	83	1538	479	797	1144	252	1252	455
Starvation Cap Reductn	0	0	0	0	0	0	105	0
Spillback Cap Reductn	0	0	0	24	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.54	0.18	0.29	0.73	0.94	0.49	0.40


























Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2016 Build
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		 	 				 			
Volume (vph)	75	752	78	210	788	2	164	53	517	5	36	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	5.0	3.0			2.0	5.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00	0.97		0.92	
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00			0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		1.00	
Satd. Flow (prot)	1526	4468	1391	3120	3322			1499	2382		1330	
Flt Permitted	0.15	1.00	1.00	0.95	1.00			0.56	1.00		0.99	
Satd. Flow (perm)	242	4468	1391	3120	3322			874	2382		1316	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.66	0.66	0.66
Adj. Flow (vph)	82	826	86	223	838	2	178	58	562	8	55	120
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	36	0	76	0
Lane Group Flow (vph)	82	826	86	223	840	0	0	236	526	0	107	0
Confl. Peds. (#/hr)	45					45	98		21	21		98
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	8%	8%	8%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	80	1489	463	866	1107			252	1243		380	
v/s Ratio Prot		0.18	0.06	0.07	0.25				c0.12			
v/s Ratio Perm	c0.34							c0.27	0.10		0.08	
v/c Ratio	1.02	0.55	0.19	0.26	0.76			0.94	0.42		0.28	
Uniform Delay, d1	30.0	24.5	21.3	25.3	26.8			31.2	13.2		24.8	
Progression Factor	0.28	0.11	0.03	1.00	1.00			1.04	0.09		1.00	
Incremental Delay, d2	36.7	0.1	0.1	0.7	4.9			7.5	0.1		1.8	
Delay (s)	45.2	2.8	0.8	26.0	31.7			40.0	1.2		26.6	
Level of Service	D	A	A	C	C			D	A		C	
Approach Delay (s)		6.1			30.5			12.7			26.6	
Approach LOS		A			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			17.6			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			19.0			
Intersection Capacity Utilization			62.5%			ICU Level of Service			B			
Analysis Period (min)			15									











c Critical Lane Group

Queues

2016 Build

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

5:00 PM - 6:00 PM

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	411	604	296	233	610	398	426	1053	324	748
v/c Ratio	1.33	0.68	0.20	0.42	1.07	0.70	1.22	1.45	0.61	1.19
Control Delay	209.3	49.0	0.3	45.4	104.6	19.3	158.2	244.2	14.8	140.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	209.3	49.0	0.3	45.4	104.6	19.3	158.2	244.2	14.8	140.5
Queue Length 50th (ft)	~414	160	0	82	~275	97	~409	~592	75	~363
Queue Length 95th (ft)	#604	201	0	113	#352	139	#575	#683	137	#490
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	308	884	1503	552	569	566	350	725	528	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.33	0.68	0.20	0.42	1.07	0.70	1.22	1.45	0.61	1.19























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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

2016 Build
5:00 PM - 6:00 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	366	538	263	196	512	334	366	906	279	177	396	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	1.00		0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2970	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2970	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	411	604	296	233	610	398	426	1053	324	197	440	111
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	193	0	12	0
Lane Group Flow (vph)	411	604	296	233	610	349	426	1053	131	0	736	0
Confl. Peds. (#/hr)			91	91			156		33	33		156
Confl. Bikes (#/hr)			10			27						6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	23.0	23.0	120.0	22.0	22.0	46.0	27.0	27.0	27.0		24.0	
Effective Green, g (s)	24.0	24.0	120.0	23.0	23.0	48.0	28.0	28.0	28.0		25.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.19	0.19	0.40	0.23	0.23	0.23		0.21	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	308	884	1503	552	569	517	350	725	335		618	
v/s Ratio Prot	c0.27	0.14		0.08	c0.21		0.28	c0.34	0.09		c0.25	
v/s Ratio Perm			0.20			0.27						
v/c Ratio	1.33	0.68	0.20	0.42	1.07	0.67	1.22	1.45	0.39		1.19	
Uniform Delay, d1	48.0	44.5	0.0	42.7	48.5	29.6	46.0	46.0	38.8		47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.93	0.93	0.94		1.00	
Incremental Delay, d2	171.0	4.3	0.3	2.4	58.5	6.9	120.3	211.0	3.3		101.4	
Delay (s)	219.0	48.7	0.3	45.0	107.0	36.5	163.2	254.0	39.8		148.9	
Level of Service	F	D	A	D	F	D	F	F	D		F	
Approach Delay (s)		91.2			72.7			194.0			148.9	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			131.5									
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			120.0						21.0			
Intersection Capacity Utilization			105.2%									
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

6: Portland Street & Broadway

5:00 PM - 6:00 PM

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	544	525	80	450	16	287
v/c Ratio	1.10	1.01	0.25	0.68	0.07	0.46
Control Delay	97.3	68.4	20.1	28.0	7.1	9.1
Queue Delay	5.2	34.1	0.0	26.4	0.2	1.9
Total Delay	102.5	102.5	20.1	54.4	7.4	11.0
Queue Length 50th (ft)	~354	~286	29	204	3	46
Queue Length 95th (ft)	#459	m#407	64	315	m3	m63
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	496	519	320	662	236	618
Starvation Cap Reductn	0	184	0	0	0	196
Spillback Cap Reductn	166	72	0	220	78	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.65	1.57	0.25	1.02	0.10	0.68



















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2016 Build
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	357	16	25	428	19	76	377	50	14	184	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.94	1.00	
Frt		1.00			0.99		1.00	0.98		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1496			1316		1341	1611		1473	1504	
Flt Permitted		0.80			0.95		0.55	1.00		0.37	1.00	
Satd. Flow (perm)		1204			1259		779	1611		576	1504	
Peak-hour factor, PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	78	446	20	28	476	21	80	397	53	16	207	80
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	542	0	0	523	0	80	450	0	16	287	0
Confl. Peds. (#/hr)	98		158	158		98	123		110	110		123
Confl. Bikes (#/hr)			15			84			42			19
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio		0.41			0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		494			517		320	662		236	618	
v/s Ratio Prot								c0.28			0.19	
v/s Ratio Perm		c0.45			0.42		0.10			0.03		
v/c Ratio		1.10			1.01		0.25	0.68		0.07	0.46	
Uniform Delay, d1		26.5			26.5		17.4	21.7		16.1	19.3	
Progression Factor		1.00			1.36		1.00	1.00		0.41	0.37	
Incremental Delay, d2		69.7			32.1		1.9	5.6		0.4	1.6	
Delay (s)		96.2			68.1		19.3	27.2		6.9	8.8	
Level of Service		F			E		B	C		A	A	
Approach Delay (s)		96.2			68.1			26.0			8.7	
Approach LOS		F			E			C			A	
Intersection Summary												
HCM 2000 Control Delay			55.0				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			102.4%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

7: Technology Square/Hampshire Street & Broadway

5:00 PM - 6:00 PM

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	487	14	33	433	368	80	124	259	23
v/c Ratio	0.91	0.03	0.22	0.78	0.60	1.18	0.38	0.91	0.11
Control Delay	35.8	19.9	26.7	30.5	18.1	201.9	35.2	46.5	22.2
Queue Delay	49.6	0.0	0.0	53.8	0.0	9.9	0.0	0.0	0.0
Total Delay	85.3	19.9	26.7	84.3	18.1	211.8	35.2	46.5	22.2
Queue Length 50th (ft)	294	7	10	150	122	~55	62	122	7
Queue Length 95th (ft)	m280	m7	m11	m186	m133	#135	107	m141	m9
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	535	455	152	556	611	68	326	286	217
Starvation Cap Reductn	181	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	171	0	18	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.38	0.03	0.22	1.12	0.60	1.60	0.38	0.91	0.11

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2016 Build
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	394	12	30	394	335	68	102	3	236	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.92	1.00	1.00	0.83	1.00	0.99		1.00	0.90	
Flpb, ped/bikes		1.00	1.00	0.97	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1545	1282	1449	1565	1102	1458	1632		1430	1088	
Flt Permitted		0.97	1.00	0.28	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1507	1282	428	1565	1102	341	1632		1430	1088	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	18	469	14	33	433	368	80	120	4	259	10	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	487	14	33	433	368	80	124	0	259	23	0
Confl. Peds. (#/hr)	81		45	45		81	59		154	154		59
Confl. Bikes (#/hr)			1			94			18			5
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		535	455	152	556	710	68	326		286	217	
v/s Ratio Prot					0.28	0.10		0.08		c0.18	0.02	
v/s Ratio Perm		c0.32	0.01	0.08		0.23	c0.23					
v/c Ratio		0.91	0.03	0.22	0.78	0.52	1.18	0.38		0.91	0.11	
Uniform Delay, d1		27.6	18.9	20.3	25.8	12.5	36.0	31.2		35.2	29.4	
Progression Factor		1.13	1.04	1.19	1.01	1.86	1.00	1.00		0.68	0.72	
Incremental Delay, d2		2.9	0.0	0.9	3.0	0.7	164.6	3.3		19.1	0.4	
Delay (s)		34.2	19.7	25.0	29.2	24.0	200.6	34.5		43.0	21.8	
Level of Service		C	B	C	C	C	F	C		D	C	
Approach Delay (s)		33.8			26.8			99.6			41.3	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			39.1				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			88.4%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

8: Galileo Galilei Way & Binney Street & Fulkerson Street

5:00 PM - 6:00 PM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	743	444	261	314	82
v/c Ratio	0.39	0.50	0.72	0.90	0.27
Control Delay	15.9	37.8	32.9	63.4	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.9	37.8	32.9	63.4	31.1
Queue Length 50th (ft)	206	142	86	174	38
Queue Length 95th (ft)	m276	m177	#200	#226	62
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1909	888	360	350	306
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.50	0.72	0.90	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.












Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street







2016 Build
5:00 PM - 6:00 PM

											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations		↑↑	↑↑				↔			↔	↔
Volume (vph)	0	646	308	59	24	0	192	54	141	88	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.92				1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2963	2580				1227			1501	1314
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2963	2580				1227			1501	1314
Peak-hour factor, PHF	0.87	0.87	0.88	0.88	0.88	0.94	0.94	0.94	0.73	0.73	0.73
Adj. Flow (vph)	0	743	350	67	27	0	204	57	193	121	82
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	743	444	0	0	0	187	0	0	314	82
Confl. Peds. (#/hr)	48			63	48	14		63	48		7
Confl. Bikes (#/hr)				23	31			19			1
Heavy Vehicles (%)	6%	6%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		58.0	31.0				21.0			21.0	21.0
Effective Green, g (s)		58.0	31.0				21.0			21.0	21.0
Actuated g/C Ratio		0.64	0.34				0.23			0.23	0.23
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1909	888				286			350	306
v/s Ratio Prot		0.25	c0.17				c0.15			c0.21	
v/s Ratio Perm											0.06
v/c Ratio		0.39	0.50				0.65			0.90	0.27
Uniform Delay, d1		7.6	23.4				31.2			33.5	28.2
Progression Factor		2.01	1.52				1.00			1.00	1.00
Incremental Delay, d2		0.3	1.7				11.0			28.0	2.1
Delay (s)		15.6	37.2				42.2			61.4	30.4
Level of Service		B	D				D			E	C
Approach Delay (s)		15.6	37.2			42.2				55.0	
Approach LOS		B	D			D				D	
Intersection Summary											
HCM 2000 Control Delay			33.0				HCM 2000 Level of Service			C	
HCM 2000 Volume to Capacity ratio			0.66								
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		17.0		
Intersection Capacity Utilization			59.8%				ICU Level of Service		B		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street










2016 Build
5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	734	0	0	390	0	252
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	798	0	0	424	0	274
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			798		1010	399
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			549		785	105
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	67
cM capacity (veh/h)			914		296	835
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	399	399	212	212	274	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	274	
cSH	1700	1700	1700	1700	835	
Volume to Capacity	0.23	0.23	0.12	0.12	0.33	
Queue Length 95th (ft)	0	0	0	0	36	
Control Delay (s)	0.0	0.0	0.0	0.0	11.4	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		11.4	
Approach LOS					B	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			46.5%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

10: North Garage East Driveway & Binney Street

2016 Build
5:00 PM - 6:00 PM








						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	910	75	45	390	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	989	82	49	424	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			1071		1340	535
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			885		1180	299
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			93		100	100
cM capacity (veh/h)			694		155	636
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	659	411	49	212	212	
Volume Left	0	0	49	0	0	
Volume Right	0	82	0	0	0	
cSH	1700	1700	694	1700	1700	
Volume to Capacity	0.39	0.24	0.07	0.12	0.12	
Queue Length 95th (ft)	0	0	6	0	0	
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		1.1			
Approach LOS						
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			40.6%	ICU Level of Service		A
Analysis Period (min)			15			

Queues

2016 Build

11: Third Street & Binney Street

5:00 PM - 6:00 PM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	329	715	85	301	407	160	339
v/c Ratio	0.88	0.68	0.53	0.47	0.96	0.50	0.90
Control Delay	57.1	37.7	48.9	33.9	64.4	30.3	71.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.1	37.7	48.9	33.9	64.4	30.3	71.8
Queue Length 50th (ft)	197	209	46	81	247	93	208
Queue Length 95th (ft)	m#317	m#276	91	123	m#363	m134	m#315
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	398	1054	206	644	439	333	390
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.68	0.41	0.47	0.93	0.48	0.87

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: Third Street & Binney Street

2016 Build

5:00 PM - 6:00 PM

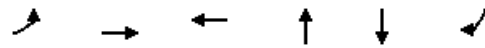
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	296	507	137	78	240	37	73	277	138	42	203	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.97			1.00	0.70		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.97		1.00	0.98			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)	1496	2732		1430	2827			1589	968		1494	
Flt Permitted	0.95	1.00		0.95	1.00			0.79	1.00		0.75	
Satd. Flow (perm)	1496	2732		1430	2827			1276	968		1133	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.86	0.86	0.86	0.98	0.98	0.98
Adj. Flow (vph)	329	563	152	85	261	40	85	322	160	43	207	89
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	329	715	0	85	301	0	0	407	160	0	339	0
Confl. Peds. (#/hr)	55		32	32		55	150		216	216		150
Confl. Bikes (#/hr)			11			20			19			11
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	22.4	33.9		9.0	20.5			30.1	30.1		30.1	
Effective Green, g (s)	22.4	33.9		9.0	20.5			30.1	30.1		30.1	
Actuated g/C Ratio	0.25	0.38		0.10	0.23			0.33	0.33		0.33	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	372	1029		143	643			426	323		378	
v/s Ratio Prot	c0.22	c0.26		0.06	0.11							
v/s Ratio Perm								c0.32	0.17		0.30	
v/c Ratio	0.88	0.69		0.59	0.47			0.96	0.50		0.90	
Uniform Delay, d1	32.6	23.7		38.8	30.0			29.3	23.9		28.5	
Progression Factor	0.98	1.36		1.00	1.00			1.06	1.04		1.82	
Incremental Delay, d2	20.6	3.7		6.5	2.4			29.9	1.1		17.4	
Delay (s)	52.6	35.8		45.2	32.5			61.1	25.9		69.1	
Level of Service	D	D		D	C			E	C		E	
Approach Delay (s)		41.1			35.3			51.2			69.1	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			46.7			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			92.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

12: First Street & Binney Street

5:00 PM - 6:00 PM



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	318	351	559	28	294	93
v/c Ratio	0.75	0.17	0.36	0.08	0.83	0.41
Control Delay	27.2	7.0	7.2	35.5	63.8	44.6
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	27.2	7.0	7.8	35.5	63.8	44.6
Queue Length 50th (ft)	143	44	44	17	217	62
Queue Length 95th (ft)	#378	73	67	27	304	109
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	422	2043	1550	416	437	280
Starvation Cap Reductn	0	0	589	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	0.75	0.17	0.58	0.07	0.67	0.33



















Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2016 Build
5:00 PM - 6:00 PM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	293	265	58	31	261	222	0	11	6	4	264	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.98			0.87			0.96			1.00	0.75
Flpb, ped/bikes	0.88	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.97			0.94			0.95			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1349	2920			2409			1560			1641	1052
Flt Permitted	0.43	1.00			0.91			1.00			1.00	1.00
Satd. Flow (perm)	610	2920			2202			1560			1638	1052
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.91	0.91	0.91
Adj. Flow (vph)	318	288	63	34	284	241	0	18	10	4	290	93
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	318	351	0	0	559	0	0	28	0	0	294	93
Confl. Peds. (#/hr)	75		26	26		75	106		45	45		106
Confl. Bikes (#/hr)			1			3			5			3
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	84.0	84.0			84.5			26.0			26.0	26.0
Effective Green, g (s)	84.0	84.0			84.5			26.0			26.0	26.0
Actuated g/C Ratio	0.70	0.70			0.70			0.22			0.22	0.22
Clearance Time (s)	5.0	5.0			4.5			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)	427	2044			1550			338			354	227
v/s Ratio Prot		0.12						0.02				
v/s Ratio Perm	c0.52				0.25						c0.18	0.09
v/c Ratio	0.74	0.17			0.36			0.08			0.83	0.41
Uniform Delay, d1	11.3	6.1			7.0			37.5			44.9	40.4
Progression Factor	1.00	1.00			0.85			1.00			1.00	1.00
Incremental Delay, d2	11.2	0.2			0.1			0.1			15.1	1.2
Delay (s)	22.5	6.3			6.1			37.6			60.0	41.6
Level of Service	C	A			A			D			E	D
Approach Delay (s)		14.0			6.1			37.6			55.6	
Approach LOS		B			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			21.5				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.80									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			68.3%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

13: Land Boulevard & Binney Street













5:00 PM - 6:00 PM

					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	276	436	1192	901	174
v/c Ratio	0.33	0.66	0.41	0.80	0.35
Control Delay	28.8	47.2	11.8	44.3	33.0
Queue Delay	1.1	0.0	0.0	0.0	0.0
Total Delay	29.8	47.2	11.8	44.3	33.0
Queue Length 50th (ft)	57	158	158	375	114
Queue Length 95th (ft)	78	209	183	m376	m148
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	847	661	2917	1125	503
Starvation Cap Reductn	354	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	0.66	0.41	0.80	0.35
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2016 Build
5:00 PM - 6:00 PM











							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	273	3	21	363	1049	775	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2905			2836	4668	3217	1439
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2905			2836	4668	3217	1439
Peak-hour factor, PHF	1.00	0.91	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	273	3	24	412	1192	901	174
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	276	0	0	436	1192	901	174
Confl. Peds. (#/hr)	1			74			74
Confl. Bikes (#/hr)							5
Heavy Vehicles (%)	5%	5%	0%	0%	0%	1%	1%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	35.0			28.0	75.0	42.0	42.0
Effective Green, g (s)	35.0			28.0	75.0	42.0	42.0
Actuated g/C Ratio	0.29			0.23	0.62	0.35	0.35
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	847			661	2917	1125	503
v/s Ratio Prot	c0.09			c0.15	0.26	c0.28	0.12
v/s Ratio Perm							
v/c Ratio	0.33			0.66	0.41	0.80	0.35
Uniform Delay, d1	33.3			41.7	11.3	35.2	28.8
Progression Factor	0.83			1.00	1.00	1.11	1.07
Incremental Delay, d2	1.0			5.1	0.4	4.7	1.5
Delay (s)	28.5			46.8	11.8	43.8	32.4
Level of Service	C			D	B	D	C
Approach Delay (s)	28.5				21.1	41.9	
Approach LOS	C				C	D	
Intersection Summary							
HCM 2000 Control Delay			29.3		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.60				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			57.2%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

Queues

2016 Build

14: Galileo Galilei Way & Broadway

5:00 PM - 6:00 PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	161	451	62	301	607	134	678	80	352	176
v/c Ratio	0.91	1.00	0.25	2.66	0.90	0.82	0.78	0.67	0.79	1.36
Control Delay	70.2	51.0	20.1	790.1	57.2	78.4	32.3	58.2	45.5	237.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.2	51.0	20.1	790.1	57.2	78.4	32.3	58.2	45.5	237.2
Queue Length 50th (ft)	85	199	21	~300	191	82	198	49	213	~139
Queue Length 95th (ft)	m#95	m#315	m25	#424	#255	m#127	#260	m#100	m#331	m#254
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	176	452	249	113	677	166	867	121	444	129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	1.00	0.25	2.66	0.90	0.81	0.78	0.66	0.79	1.36

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Galileo Galilei Way & Broadway

2016 Build
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	151	424	58	256	491	25	114	470	106	74	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.98		1.00	0.96		1.00	1.00	0.78
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1444	1629	895	1458	2904		1496	2791		1562	1589	1056
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1444	1629	895	1458	2904		1496	2791		1562	1589	1056
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	161	451	62	301	578	29	134	553	125	80	352	176
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	161	451	62	301	607	0	134	678	0	80	352	176
Confl. Peds. (#/hr)			207			165			76			76
Confl. Bikes (#/hr)			54			180			13			19
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	11.0	23.4	23.4	7.0	19.4		9.8	28.0		5.6	26.8	11.0
Effective Green, g (s)	11.0	23.4	23.4	7.0	19.4		9.8	28.0		5.6	26.8	11.0
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.11	0.31		0.06	0.30	0.12
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	423	232	113	625		162	868		97	473	129
v/s Ratio Prot	0.11	c0.28		c0.21	0.21		c0.09	c0.24		0.05	0.22	
v/s Ratio Perm			0.07									0.17
v/c Ratio	0.91	1.07	0.27	2.66	0.97		0.83	0.78		0.82	0.74	1.36
Uniform Delay, d1	39.0	33.3	26.5	41.5	35.0		39.3	28.2		41.7	28.5	39.5
Progression Factor	1.06	0.64	0.73	0.75	1.21		1.21	0.87		0.81	1.08	1.16
Incremental Delay, d2	23.7	47.4	1.2	771.7	28.3		23.2	5.6		36.2	8.7	200.3
Delay (s)	65.0	68.8	20.5	802.6	70.7		70.7	30.1		69.9	39.5	246.1
Level of Service	E	E	C	F	E		E	C		E	D	F
Approach Delay (s)		63.4			313.3			36.8			103.3	
Approach LOS		E			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			139.9			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			26.0			
Intersection Capacity Utilization			84.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2016 Build
5:00 PM - 6:00 PM

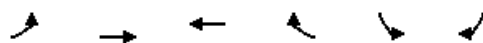


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	604	734	44	0	38
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	657	798	48	0	41
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.75	
vC, conflicting volume	846				1478	290
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	846				1471	290
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	94
cM capacity (veh/h)	774				88	707
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	657	319	319	207		
Volume Left	0	0	0	0		
Volume Right	0	0	0	48		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.39	0.19	0.19	0.12		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			Err%	ICU Level of Service		H
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2016 Build
5:00 PM - 6:00 PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Volume (veh/h)	0	604	519	0	0	259
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	657	564	0	0	282
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	764				1421	482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	764				1395	482
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	35
cM capacity (veh/h)	698				81	435
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	657	376	188	282		
Volume Left	0	0	0	0		
Volume Right	0	0	0	282		
cSH	1700	1700	1700	435		
Volume to Capacity	0.39	0.22	0.11	0.65		
Queue Length 95th (ft)	0	0	0	111		
Control Delay (s)	0.0	0.0	0.0	27.2		
Lane LOS				D		
Approach Delay (s)	0.0	0.0		27.2		
Approach LOS				D		
Intersection Summary						
Average Delay			5.1			
Intersection Capacity Utilization			40.4%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2016 Build
5:00 PM - 6:00 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	612	66	92	391	188	173
v/c Ratio	1.15	0.22	0.24	0.73	0.64	0.51
Control Delay	107.0	11.8	38.5	24.5	35.1	38.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.0	11.8	38.5	24.5	35.1	38.8
Queue Length 50th (ft)	~422	5	51	242	103	64
Queue Length 95th (ft)	m#491	m7	m74	m309	167	120
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	530	305	376	539	296	341
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	1.15	0.22	0.24	0.73	0.64	0.51













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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

17: Ames Street & Broadway

2016 Build
5:00 PM - 6:00 PM

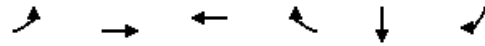
						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	545	59	89	379	162	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	3.0	6.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1492	1268	1540	1565	1404	1151
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1492	1268	1540	1565	1404	1151
Peak-hour factor, PHF	0.89	0.89	0.97	0.97	0.86	0.86
Adj. Flow (vph)	612	66	92	391	188	173
RTOR Reduction (vph)	0	23	0	0	0	60
Lane Group Flow (vph)	612	43	92	391	188	113
Confl. Peds. (#/hr)		444	444		221	403
Confl. Bikes (#/hr)		51				
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	32.0	20.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.36	0.22	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	530	281	376	539	296	281
v/s Ratio Prot	c0.41	0.03	0.06	0.25	c0.13	c0.10
v/s Ratio Perm						
v/c Ratio	1.15	0.15	0.24	0.73	0.64	0.40
Uniform Delay, d1	29.0	28.2	27.3	25.8	32.3	28.5
Progression Factor	0.91	0.60	1.34	0.70	0.76	2.02
Incremental Delay, d2	79.4	0.5	1.0	5.5	9.8	4.2
Delay (s)	105.9	17.4	37.7	23.7	34.3	61.7
Level of Service	F	B	D	C	C	E
Approach Delay (s)	97.3			26.3	47.5	
Approach LOS	F			C	D	
Intersection Summary						
HCM 2000 Control Delay			62.9		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			66.5%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

Queues

2016 Build

18: Third Street & Broadway

5:00 PM - 6:00 PM



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	237	689	453	171	518	122
v/c Ratio	0.84	0.71	0.81	0.41	1.15	0.47
Control Delay	41.6	28.3	40.3	28.9	117.3	35.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.6	28.3	40.3	28.9	117.3	35.4
Queue Length 50th (ft)	103	216	231	77	~346	60
Queue Length 95th (ft)	m117	m208	#392	137	m#512	m98
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	282	970	558	413	452	262
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	0.84	0.71	0.81	0.41	1.15	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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2016 Build
5:00 PM - 6:00 PM


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	211	540	73	0	439	166	0	0	0	445	31	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1496	2819			1621	1378					1510	1391
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1496	2819			1621	1378					1510	1391
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	237	607	82	0	453	171	0	0	0	484	34	122
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	237	689	0	0	453	171	0	0	0	0	518	122
Confl. Peds. (#/hr)	72					72						320
Confl. Bikes (#/hr)			29			173						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	17.0	31.0			31.0	27.0					27.0	17.0
Effective Green, g (s)	17.0	31.0			31.0	27.0					27.0	17.0
Actuated g/C Ratio	0.19	0.34			0.34	0.30					0.30	0.19
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	970			558	413					453	262
v/s Ratio Prot	c0.16	0.24			c0.28	0.12					c0.34	0.09
v/s Ratio Perm												
v/c Ratio	0.84	0.71			0.81	0.41					1.14	0.47
Uniform Delay, d1	35.2	25.6			26.8	25.2					31.5	32.5
Progression Factor	0.72	1.00			1.00	1.00					0.96	0.91
Incremental Delay, d2	13.7	2.2			12.2	3.0					85.6	5.2
Delay (s)	39.1	27.8			39.0	28.2					116.0	34.6
Level of Service	D	C			D	C					F	C
Approach Delay (s)		30.7			36.1			0.0			100.5	
Approach LOS		C			D			A			F	
Intersection Summary												
HCM 2000 Control Delay			52.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			80.5%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2016 Build
5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	0	1199	227	0	514	136	0	0	0	0	0	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.92	0.92	0.61	0.61	0.61
Hourly flow rate (vph)	0	1262	239	0	541	143	0	0	0	0	0	113
Pedestrians		187						314			187	
Lane Width (ft)		12.0						0.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		16						0			16	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1279										
pX, platoon unblocked				0.93			0.93	0.93	0.93	0.93	0.93	
vC, conflicting volume	871			1815			2266	2567	1065	1431	2615	716
vC1, stage 1 conf vol							1696	1696		800	800	
vC2, stage 2 conf vol							571	871		631	1815	
vCu, unblocked vol	871			1725			2210	2534	917	1311	2585	716
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	56
cM capacity (veh/h)	650			341			68	102	255	197	89	258
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	841	660	361	324	113							
Volume Left	0	0	0	0	0							
Volume Right	0	239	0	143	113							
cSH	1700	1700	1700	1700	258							
Volume to Capacity	0.49	0.39	0.21	0.19	0.44							
Queue Length 95th (ft)	0	0	0	0	53							
Control Delay (s)	0.0	0.0	0.0	0.0	29.5							
Lane LOS					D							
Approach Delay (s)	0.0		0.0		29.5							
Approach LOS					D							
Intersection Summary												
Average Delay			1.5									
Intersection Capacity Utilization			49.6%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues

2016 Build

20: Vassar Street/Galileo Galilei Way & Main Street

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	294	362	61	182	569	51	396	219
v/c Ratio	0.76	0.53	0.22	0.26	0.75	0.27	0.69	0.70
Control Delay	35.3	20.5	19.8	17.5	33.1	32.0	38.3	39.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	20.5	19.8	17.5	33.1	32.0	38.3	39.5
Queue Length 50th (ft)	133	140	16	47	147	31	246	136
Queue Length 95th (ft)	#277	224	48	108	182	m30	m221	m124
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	386	686	280	689	755	191	570	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.53	0.22	0.26	0.75	0.27	0.69	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.





















Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Galileo Galilei Way & Main Street

2016 Build
5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	282	273	75	51	128	25	38	283	140	48	376	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.91		1.00	0.94			0.91		1.00	1.00	0.67
Flpb, ped/bikes	0.75	1.00		0.79	1.00			0.99		0.89	1.00	1.00
Frt	1.00	0.97		1.00	0.98			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	1.00
Satd. Flow (prot)	1224	1470		1160	1479			2597		1315	1605	888
Flt Permitted	0.64	1.00		0.49	1.00			0.82		0.39	1.00	1.00
Satd. Flow (perm)	828	1470		601	1479			2126		539	1605	888
Peak-hour factor, PHF	0.96	0.96	0.96	0.84	0.84	0.84	0.81	0.81	0.81	0.95	0.95	0.95
Adj. Flow (vph)	294	284	78	61	152	30	47	349	173	51	396	219
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	362	0	61	182	0	0	569	0	51	396	219
Confl. Peds. (#/hr)	629		344	344		629	201		177	177		201
Confl. Bikes (#/hr)			29			36			39			39
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	7%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Effective Green, g (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.36		0.36	0.36	0.36
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	386	686		280	690			755		191	570	315
v/s Ratio Prot		0.25			0.12						0.25	
v/s Ratio Perm	c0.36			0.10			c0.27			0.09		0.25
v/c Ratio	0.76	0.53		0.22	0.26		0.75			0.27	0.69	0.70
Uniform Delay, d1	19.9	17.0		14.2	14.6		25.5			20.6	24.8	24.8
Progression Factor	1.00	1.00		1.20	1.11		1.00			1.44	1.47	1.46
Incremental Delay, d2	13.3	2.9		1.7	0.9		6.9			0.3	0.6	1.2
Delay (s)	33.1	19.9		18.8	17.1		32.4			30.1	37.1	37.4
Level of Service	C	B		B	B		C			C	D	D
Approach Delay (s)		25.8			17.5		32.4				36.7	
Approach LOS		C			B		C				D	
Intersection Summary												
HCM 2000 Control Delay			30.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			122.3%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

2016 Build

21: Ames Street & Main Street

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	40	461	17	111	84	208	136	99
v/c Ratio	0.14	0.70	0.08	0.22	0.29	0.42	0.38	0.35
Control Delay	16.6	25.8	7.8	7.5	26.3	26.6	23.0	23.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.6	25.8	7.8	7.5	26.3	26.6	23.0	23.6
Queue Length 50th (ft)	11	226	2	13	35	91	39	28
Queue Length 95th (ft)	m21	m344	m3	m17	68	140	61	48
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	655	212	509	289	491	362	285
Starvation Cap Reductn	0	3	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.71	0.08	0.22	0.29	0.42	0.38	0.35

Intersection Summary





















m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street

2016 Build

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	347	77	15	58	38	70	161	12	43	63	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.90		1.00	0.77		1.00	0.97			1.00	0.72
Flpb, ped/bikes	0.52	1.00		0.75	1.00		0.79	1.00			0.89	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	805	1282		989	996		1272	1474			1333	855
Flt Permitted	0.69	1.00		0.41	1.00		0.67	1.00			0.80	1.00
Satd. Flow (perm)	581	1282		424	996		897	1474			1088	855
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.83	0.83	0.83	0.78	0.78	0.78
Adj. Flow (vph)	40	377	84	17	67	44	84	194	14	55	81	99
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	40	461	0	17	111	0	84	208	0	0	136	99
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	1%	1%	1%	4%	4%	4%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	45.0	45.0		45.0	45.0		29.0	29.0			29.0	29.0
Effective Green, g (s)	45.0	46.0		45.0	46.0		29.0	30.0			30.0	30.0
Actuated g/C Ratio	0.50	0.51		0.50	0.51		0.32	0.33			0.33	0.33
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	655		212	509		289	491			362	285
v/s Ratio Prot		c0.36			0.11			c0.14				
v/s Ratio Perm	0.07			0.04			0.09				0.13	0.12
v/c Ratio	0.14	0.70		0.08	0.22		0.29	0.42			0.38	0.35
Uniform Delay, d1	12.1	16.8		11.7	12.1		22.8	23.3			22.9	22.6
Progression Factor	1.24	1.16		0.59	0.55		1.00	1.00			0.85	0.86
Incremental Delay, d2	0.8	5.2		0.5	0.6		2.5	2.7			2.9	3.3
Delay (s)	15.8	24.6		7.5	7.3		25.3	26.0			22.3	22.7
Level of Service	B	C		A	A		C	C			C	C
Approach Delay (s)		23.9			7.3			25.8			22.5	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.3			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			79.8%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway















2016 Build
5:00 PM - 6:00 PM

	→	↗	↖	←	↘	↙
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	985	0	0	605	0	369
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1071	0	0	658	0	401
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.81		0.81	0.81
vC, conflicting volume			1301		1629	765
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			900		1306	238
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	20
cM capacity (veh/h)			491		99	499
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	535	535	329	329	401	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	401	
cSH	1700	1700	1700	1700	499	
Volume to Capacity	0.31	0.31	0.19	0.19	0.80	
Queue Length 95th (ft)	0	0	0	0	190	
Control Delay (s)	0.0	0.0	0.0	0.0	35.6	
Lane LOS					E	
Approach Delay (s)	0.0		0.0		35.6	
Approach LOS					E	
Intersection Summary						
Average Delay			6.7			
Intersection Capacity Utilization			62.3%		ICU Level of Service	B
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Ames Street & Memorial Drive WB

2016 Build
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	65	1266	188	0	0	0	0	33	124
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	73	1422	211	0	0	0	0	37	138
Pedestrians		81			32			42			74	
Lane Width (ft)		0.0			10.0			0.0			14.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		0			2			0			7	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					974							
pX, platoon unblocked												
vC, conflicting volume	1708			42			1136	1896	74	1780	1790	972
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1708			42			1136	1896	74	1780	1790	972
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			95			100	100	100	100	46	39
cM capacity (veh/h)	342			1580			33	61	951	41	68	227
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	784	922	174									
Volume Left	73	0	0									
Volume Right	0	211	138									
cSH	1580	1700	152									
Volume to Capacity	0.05	0.54	1.15									
Queue Length 95th (ft)	4	0	240									
Control Delay (s)	1.2	0.0	176.6									
Lane LOS	A		F									
Approach Delay (s)	0.6		176.6									
Approach LOS			F									
Intersection Summary												
Average Delay			16.9									
Intersection Capacity Utilization		115.8%		ICU Level of Service						H		
Analysis Period (min)			15									

2016 Updated Build Conditions



Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	226	2394	437
v/c Ratio	0.20	1.42	0.38
Control Delay	23.6	218.2	8.2
Queue Delay	0.0	0.1	0.0
Total Delay	23.6	218.3	8.2
Queue Length 50th (ft)	33	~668	36
Queue Length 95th (ft)	m74	#765	9
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1144	1685	1164
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	36	32
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.20	1.45	0.39

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.

m Volume for 95th percentile queue is metered by upstream signal.


















							
Movement	NBL	NBR	SET	SER	NWU	NWL	NWT
Lane Configurations							
Traffic Volume (vph)	158	25	1588	638	22	51	325
Future Volume (vph)	158	25	1588	638	22	51	325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	12	12	12	12	11
Total Lost time (s)	4.0		4.0				4.0
Lane Util. Factor	0.97		0.91				0.91
Frpb, ped/bikes	1.00		0.99				1.00
Flpb, ped/bikes	1.00		1.00				1.00
Frt	0.98		0.96				1.00
Flt Protected	0.96		1.00				0.99
Satd. Flow (prot)	2743		4247				4082
Flt Permitted	0.96		1.00				0.66
Satd. Flow (perm)	2743		4247				2721
Peak-hour factor, PHF	0.81	0.81	0.93	0.93	0.92	0.91	0.91
Adj. Flow (vph)	195	31	1708	686	24	56	357
RTOR Reduction (vph)	11	0	85	0	0	0	0
Lane Group Flow (vph)	215	0	2309	0	0	0	437
Confl. Bikes (#/hr)				6			
Heavy Vehicles (%)	6%	6%	3%	3%	2%	10%	10%
Bus Blockages (#/hr)	0	0	10	0	0	0	0
Turn Type	Prot		NA		custom	D.P+P	NA
Protected Phases	3		2			4	2 4
Permitted Phases					4	2	
Actuated Green, G (s)	37.2		30.8				35.8
Effective Green, g (s)	37.2		30.8				35.8
Actuated g/C Ratio	0.41		0.34				0.40
Clearance Time (s)	4.0		4.0				
Vehicle Extension (s)	3.0		3.0				
Lane Grp Cap (vph)	1133		1453				1157
v/s Ratio Prot	c0.08		c0.54				c0.02
v/s Ratio Perm							0.13
v/c Ratio	0.19		1.59				0.38
Uniform Delay, d1	16.8		29.6				19.2
Progression Factor	1.33		1.00				0.44
Incremental Delay, d2	0.3		268.5				0.9
Delay (s)	22.6		298.1				9.3
Level of Service	C		F				A
Approach Delay (s)	22.6		298.1				9.3
Approach LOS	C		F				A
Intersection Summary							
HCM 2000 Control Delay		236.4		HCM 2000 Level of Service		F	
HCM 2000 Volume to Capacity ratio		0.76					
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		14.0	
Intersection Capacity Utilization		80.0%		ICU Level of Service		D	
Analysis Period (min)		15					

c Critical Lane Group

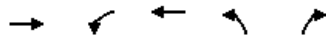
	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	369	323	225	60	639
v/c Ratio	0.80	0.84	0.48	0.13	0.91
Control Delay	41.5	50.5	21.5	35.3	50.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	41.5	50.5	21.5	35.3	50.7
Queue Length 50th (ft)	186	172	83	35	387
Queue Length 95th (ft)	#337	m152	m119	m29	m289
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	460	383	471	449	699
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.84	0.48	0.13	0.91
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					
m Volume for 95th percentile queue is metered by upstream signal.					

KSURP
2: Third Street & Cambridge Street

2016 Updated Build
Timing Plan: AM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	36	253	54	51	206	37	19	133	21	58	564	49
Future Volume (vph)	36	253	54	51	206	37	19	133	21	58	564	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.97			0.97			0.99		1.00	0.99	
Flpb, ped/bikes		0.99			0.99			1.00		0.97	1.00	
Frt		0.98			0.98			0.98		1.00	0.99	
Flt Protected		0.99			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		1385			1263			1393		1472	1574	
Flt Permitted		0.93			0.85			0.76		0.65	1.00	
Satd. Flow (perm)		1294			1079			1060		1012	1574	
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77	0.96	0.96	0.96
Adj. Flow (vph)	39	272	58	56	226	41	25	173	27	60	588	51
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	369	0	0	323	0	0	225	0	60	639	0
Confl. Peds. (#/hr)	172		66	66		172	60		42	42		60
Confl. Bikes (#/hr)			88			7			2			10
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.0			32.0			40.0		40.0	40.0	
Effective Green, g (s)		32.0			32.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.36			0.36			0.44		0.44	0.44	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		460			383			471		449	699	
v/s Ratio Prot											c0.41	
v/s Ratio Perm		0.29			c0.30			0.21		0.06		
v/c Ratio		0.80			0.84			0.48		0.13	0.91	
Uniform Delay, d1		26.1			26.7			17.6		14.8	23.4	
Progression Factor		1.00			1.76			1.02		2.31	2.06	
Incremental Delay, d2		13.7			2.2			2.7		0.1	2.3	
Delay (s)		39.9			49.3			20.7		34.2	50.6	
Level of Service		D			D			C		C	D	
Approach Delay (s)		39.9			49.3			20.7			49.2	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			43.1			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				18.0		
Intersection Capacity Utilization			80.6%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	302	372	298	39	151
v/c Ratio	1.13	1.41	1.11	0.23	0.39
Control Delay	120.1	231.0	116.7	38.0	25.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	120.1	231.0	116.7	38.0	25.5
Queue Length 50th (ft)	~209	~255	~115	20	63
Queue Length 95th (ft)	m#318	#433	#331	45	105
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	268	264	269	169	387
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.13	1.41	1.11	0.23	0.39

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.
























m Volume for 95th percentile queue is metered by upstream signal.

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↙	↗	↙	↗
Traffic Volume (vph)	217	55	335	268	32	124
Future Volume (vph)	217	55	335	268	32	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		4.0	4.0	3.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.97		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1274		1490	1517	1175	1089
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1274		1490	1517	1175	1089
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.82	0.82
Adj. Flow (vph)	241	61	372	298	39	151
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	302	0	372	298	39	151
Confl. Bikes (#/hr)		76				
Heavy Vehicles (%)	9%	9%	9%	9%	29%	29%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		15.0	15.0	12.0	27.0
Effective Green, g (s)	20.0		16.0	16.0	13.0	29.0
Actuated g/C Ratio	0.22		0.18	0.18	0.14	0.32
Clearance Time (s)			5.0	5.0	4.0	5.0
Lane Grp Cap (vph)	283		264	269	169	350
v/s Ratio Prot	c0.24		c0.25	0.20		c0.08
v/s Ratio Perm					0.03	0.06
v/c Ratio	1.07		1.41	1.11	0.23	0.43
Uniform Delay, d1	35.0		37.0	37.0	34.1	24.0
Progression Factor	0.94		0.88	0.90	1.00	1.00
Incremental Delay, d2	64.9		202.0	82.3	3.2	3.8
Delay (s)	97.7		234.4	115.8	37.2	27.9
Level of Service	F		F	F	D	C
Approach Delay (s)	97.7			181.6	29.8	
Approach LOS	F			F	C	
Intersection Summary						
HCM 2000 Control Delay		135.0		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio		0.74				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		23.0
Intersection Capacity Utilization		57.0%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	90	1462	111	524	375	61	300	110
v/c Ratio	0.37	0.96	0.23	0.66	0.34	0.17	0.26	0.28
Control Delay	23.8	33.5	20.6	33.9	22.3	12.4	1.2	16.6
Queue Delay	0.0	0.0	0.1	1.8	0.0	0.0	0.0	0.3
Total Delay	23.8	33.5	20.7	35.7	22.3	12.4	1.2	16.9
Queue Length 50th (ft)	54	332	66	136	79	6	0	26
Queue Length 95th (ft)	m40	m234	m47	185	114	m13	m0	68
Internal Link Dist (ft)		1079			832	195		257
Turn Bay Length (ft)	250		175	200			100	
Base Capacity (vph)	244	1523	474	800	1087	361	1156	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	58	142	0	0	0	64
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.96	0.27	0.80	0.34	0.17	0.26	0.33
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	84	1360	103	461	301	29	21	37	285	14	40	46
Future Volume (vph)	84	1360	103	461	301	29	21	37	285	14	40	46
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	4.0	3.0			2.0	4.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frbp, ped/bikes	1.00	1.00	1.00	1.00	0.99			1.00	0.99		0.94	
Flpb, ped/bikes	0.97	1.00	1.00	1.00	1.00			0.97	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.94	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		0.99	
Satd. Flow (prot)	1494	4424	1378	3001	3134			1355	2106		1290	
Flt Permitted	0.45	1.00	1.00	0.95	1.00			0.91	1.00		0.97	
Satd. Flow (perm)	710	4424	1378	3001	3134			1251	2106		1260	
Peak-hour factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	90	1462	111	524	342	33	22	39	300	15	44	51
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	35	0	35	0
Lane Group Flow (vph)	90	1462	111	524	367	0	0	61	265	0	75	0
Confl. Peds. (#/hr)	24					24	111		4	4		111
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	16%	16%	16%	16%	16%	16%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	236	1474	459	833	1044			361	1099		364	
v/s Ratio Prot		c0.33	0.08	c0.17	0.12				c0.07			
v/s Ratio Perm	0.13							0.05	0.06		c0.06	
v/c Ratio	0.38	0.99	0.24	0.63	0.35			0.17	0.24		0.21	
Uniform Delay, d1	22.9	29.9	21.8	28.4	22.7			23.9	11.8		24.2	
Progression Factor	1.00	1.05	0.95	1.00	1.00			0.48	0.13		1.00	
Incremental Delay, d2	0.4	5.4	0.1	3.6	0.9			0.5	0.3		1.3	
Delay (s)	23.4	36.9	20.8	32.0	23.6			12.1	1.7		25.5	
Level of Service	C	D	C	C	C			B	A		C	
Approach Delay (s)		35.1			28.5			3.5			25.5	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM 2000 Control Delay			29.0			HCM 2000 Level of Service					C	
HCM 2000 Volume to Capacity ratio			0.71									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)					18.0	
Intersection Capacity Utilization			69.7%			ICU Level of Service					C	
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	143	1036	565	259	588	299	150	414	221	1280
v/c Ratio	0.47	1.19	0.38	0.50	1.11	0.37	0.96	1.27	0.64	1.25
Control Delay	50.7	141.4	0.8	50.2	118.3	2.4	116.7	188.2	15.7	155.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.7	141.4	0.8	50.2	118.3	2.4	116.7	188.2	15.7	155.7
Queue Length 50th (ft)	104	~373	0	98	~287	4	124	~223	0	~684
Queue Length 95th (ft)	172	#467	0	143	#405	28	#243	#309	66	#825
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	302	869	1475	516	532	816	157	326	347	1025
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.47	1.19	0.38	0.50	1.11	0.37	0.96	1.27	0.64	1.25
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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	136	984	537	241	547	278	129	356	190	328	729	146
Future Volume (vph)	136	984	537	241	547	278	129	356	190	328	729	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	1.00	0.95	1.00		0.95	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.99	1.00	1.00	1.00		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2911	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1525	4381	1475	2828	2916	1288	1417	2935	1358		2911	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	143	1036	565	259	588	299	150	414	221	349	776	155
RTOR Reduction (vph)	0	0	0	0	0	132	0	0	196	0	8	0
Lane Group Flow (vph)	143	1036	565	259	588	167	150	414	25	0	1272	0
Confl. Peds. (#/hr)			91	91			119		11	11		119
Confl. Bikes (#/hr)			51			2			1			11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	24.0	24.0	126.0	22.0	22.0	65.0	13.0	13.0	13.0		43.0	
Effective Green, g (s)	25.0	25.0	126.0	23.0	23.0	67.0	14.0	14.0	14.0		44.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.18	0.18	0.53	0.11	0.11	0.11		0.35	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	302	869	1475	516	532	684	157	326	150		1016	
v/s Ratio Prot	0.09	c0.24		0.09	c0.20		0.11	c0.14	0.02		c0.44	
v/s Ratio Perm			0.38			0.13						
v/c Ratio	0.47	1.19	0.38	0.50	1.11	0.24	0.96	1.27	0.16		1.25	
Uniform Delay, d1	44.7	50.5	0.0	46.3	51.5	15.9	55.7	56.0	50.7		41.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Incremental Delay, d2	5.2	97.8	0.8	0.8	71.1	0.2	58.1	143.5	0.5		121.4	
Delay (s)	49.9	148.3	0.8	47.1	122.6	16.1	113.7	199.5	51.2		162.4	
Level of Service	D	F	A	D	F	B	F	F	D		F	
Approach Delay (s)		92.5			77.7			141.3			162.4	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			114.9			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.22									
Actuated Cycle Length (s)			126.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			95.3%			ICU Level of Service			F			
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	643	323	46	364	84	268
v/c Ratio	1.04	0.66	0.17	0.68	0.37	0.51
Control Delay	71.4	41.1	22.0	32.3	27.5	27.1
Queue Delay	26.5	26.2	0.0	49.1	3.8	0.0
Total Delay	97.9	67.2	22.0	81.4	31.3	27.1
Queue Length 50th (ft)	~396	200	18	173	35	118
Queue Length 95th (ft)	#563	269	44	275	78	194
Internal Link Dist (ft)	1159	220		707		16
Turn Bay Length (ft)					30	
Base Capacity (vph)	621	492	272	536	227	523
Starvation Cap Reductn	0	170	0	0	0	0
Spillback Cap Reductn	195	0	0	199	84	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.51	1.00	0.17	1.08	0.59	0.51




















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													
Traffic Volume (vph)	75	438	40	35	232	8	43	250	88	77	188	59	
Future Volume (vph)	75	438	40	35	232	8	43	250	88	77	188	59	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12	
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0		
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00		
Frpb, ped/bikes		0.99			1.00		1.00	0.96		1.00	0.95		
Flpb, ped/bikes		0.99			0.99		0.90	1.00		0.93	1.00		
Frt		0.99			1.00		1.00	0.96		1.00	0.96		
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00		
Satd. Flow (prot)		1463			1198		1313	1510		1413	1473		
Flt Permitted		0.90			0.87		0.55	1.00		0.43	1.00		
Satd. Flow (perm)		1325			1054		766	1510		640	1473		
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92	
Adj. Flow (vph)	87	509	47	41	273	9	46	269	95	84	204	64	
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	640	0	0	322	0	46	364	0	84	268	0	
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106	
Confl. Bikes (#/hr)			56			3			20			41	
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%	
Parking (#/hr)		10			10								
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0		
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0		
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36		
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0		
Lane Grp Cap (vph)		618			491		272	536		227	523		
v/s Ratio Prot								c0.24			0.18		
v/s Ratio Perm		c0.48			0.31		0.06			0.13			
v/c Ratio		1.04			0.66		0.17	0.68		0.37	0.51		
Uniform Delay, d1		24.0			18.4		19.9	24.6		21.5	22.9		
Progression Factor		1.00			1.82		1.00	1.00		1.00	1.00		
Incremental Delay, d2		45.6			5.6		1.3	6.8		4.6	3.6		
Delay (s)		69.6			39.2		21.2	31.4		26.1	26.4		
Level of Service		E			D		C	C		C	C		
Approach Delay (s)		69.6			39.2			30.3			26.3		
Approach LOS		E			D			C			C		
Intersection Summary													
HCM 2000 Control Delay		45.8			HCM 2000 Level of Service			D					
HCM 2000 Volume to Capacity ratio		0.88											
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			16.0					
Intersection Capacity Utilization		96.6%			ICU Level of Service			F					
Analysis Period (min)		15											

c Critical Lane Group

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	552	156	161	307	244	4	30	303	53
v/c Ratio	1.01	0.43	1.61	0.59	0.41	0.06	0.12	1.06	0.21
Control Delay	60.0	25.0	313.2	9.2	2.7	32.0	31.1	106.9	32.5
Queue Delay	33.5	0.0	0.0	1.0	0.0	1.7	0.0	0.0	0.0
Total Delay	93.5	25.0	313.2	10.1	2.7	33.7	31.1	106.9	32.5
Queue Length 50th (ft)	~344	74	~130	61	10	2	14	~191	25
Queue Length 95th (ft)	m#367	m84	m#168	m80	m13	10	34	#350	58
Internal Link Dist (ft)	220			435			247		100
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	548	366	100	520	599	65	249	286	258
Starvation Cap Reductn	131	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	67	0	31	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.43	1.61	0.68	0.41	0.12	0.12	1.06	0.21
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.									
m Volume for 95th percentile queue is metered by upstream signal.									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	465	133	142	270	215	3	9	15	279	46	3
Future Volume (vph)	4	465	133	142	270	215	3	9	15	279	46	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.74	1.00	1.00	0.87	1.00	0.87		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.94	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1550	1030	1310	1464	1079	1402	1245		1430	1293	
Flt Permitted		1.00	1.00	0.21	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1545	1030	283	1464	1079	328	1245		1430	1293	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	547	156	161	307	244	4	11	19	303	50	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	552	156	161	307	244	4	30	0	303	53	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		549	366	100	520	695	65	249		286	258	
v/s Ratio Prot				0.21	0.07		c0.02			c0.21	0.04	
v/s Ratio Perm		0.36	0.15	c0.57		0.16	0.01					
v/c Ratio		1.01	0.43	1.61	0.59	0.35	0.06	0.12		1.06	0.21	
Uniform Delay, d1		29.0	22.0	29.0	23.7	11.0	29.2	29.5		36.0	30.0	
Progression Factor		1.06	1.02	0.37	0.29	0.23	1.00	1.00		1.00	1.00	
Incremental Delay, d2		27.2	1.6	293.4	2.1	0.6	1.8	1.0		69.8	1.8	
Delay (s)		57.8	24.1	304.2	8.9	3.1	31.0	30.5		105.8	31.8	
Level of Service		E	C	F	A	A	C	C		F	C	
Approach Delay (s)		50.3			73.7			30.6			94.8	
Approach LOS		D			E			C			F	
Intersection Summary												
HCM 2000 Control Delay			67.9			HCM 2000 Level of Service		E				
HCM 2000 Volume to Capacity ratio			1.07									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)		22.0				
Intersection Capacity Utilization			97.9%			ICU Level of Service		F				
Analysis Period (min)			15									
c Critical Lane Group												



















Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	622	599	361	214	30
v/c Ratio	0.34	0.68	0.98	0.65	0.11
Control Delay	5.2	21.2	70.2	42.6	29.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	21.2	70.2	42.6	29.1
Queue Length 50th (ft)	63	90	157	111	14
Queue Length 95th (ft)	m20	m130	#326	186	36
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1806	882	367	327	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.34	0.68	0.98	0.65	0.11

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.








Queue shown is maximum after two cycles.




















m Volume for 95th percentile queue is metered by upstream signal.

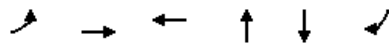
											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	535	446	97	38	0	272	46	134	56	27
Future Volume (vph)	0	535	446	97	38	0	272	46	134	56	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frb, ped/bikes		1.00	0.90				1.00			1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2755	2562				1203			1472	1277
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2755	2562				1203			1472	1277
Peak-hour factor, PHF	0.86	0.86	0.97	0.97	0.97	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	0	622	460	100	39	0	309	52	151	63	30
RTOR Reduction (vph)	0	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	622	599	0	0	0	288	0	0	214	30
Confl. Peds. (#/hr)	101			41	101	4		41	101		6
Confl. Bikes (#/hr)				8	11			24			11
Heavy Vehicles (%)	14%	14%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		59.0	31.0				22.0			20.0	20.0
Effective Green, g (s)		59.0	31.0				22.0			20.0	20.0
Actuated g/C Ratio		0.66	0.34				0.24			0.22	0.22
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1806	882				294			327	283
v/s Ratio Prot		0.23	c0.23				c0.24			c0.15	
v/s Ratio Perm											0.02
v/c Ratio		0.34	0.68				0.98			0.65	0.11
Uniform Delay, d1		6.9	25.2				33.8			31.9	27.9
Progression Factor		0.73	0.72				1.00			1.00	1.00
Incremental Delay, d2		0.0	2.6				47.3			9.8	0.8
Delay (s)		5.1	20.8				81.1			41.7	28.6
Level of Service		A	C				F			D	C
Approach Delay (s)		5.1	20.8			81.1				40.1	
Approach LOS		A	C			F				D	
Intersection Summary											
HCM 2000 Control Delay			29.9			HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.76								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			61.8%			ICU Level of Service			B		
Analysis Period (min)			15								
c Critical Lane Group											

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	592	0	0	580	0	146
Future Volume (Veh/h)	592	0	0	580	0	146
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	643	0	0	630	0	159
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.92		0.92	0.92
vC, conflicting volume			643		958	322
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			445		787	97
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	82
cM capacity (veh/h)			1025		303	868
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	322	322	315	315	159	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	159	
cSH	1700	1700	1700	1700	868	
Volume to Capacity	0.19	0.19	0.19	0.19	0.18	
Queue Length 95th (ft)	0	0	0	0	17	
Control Delay (s)	0.0	0.0	0.0	0.0	10.1	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		10.1	
Approach LOS					B	
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			34.9%		ICU Level of Service	A
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑		
Traffic Volume (veh/h)	394	343	205	580	0	0
Future Volume (Veh/h)	394	343	205	580	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	428	373	223	630	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.94		0.94	0.94
vC, conflicting volume			801		1376	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			664		1274	238
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			74		100	100
cM capacity (veh/h)			867		111	718
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	285	516	223	315	315	
Volume Left	0	0	223	0	0	
Volume Right	0	373	0	0	0	
cSH	1700	1700	867	1700	1700	
Volume to Capacity	0.17	0.30	0.26	0.19	0.19	
Queue Length 95th (ft)	0	0	26	0	0	
Control Delay (s)	0.0	0.0	10.6	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		2.8			
Approach LOS						
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization			43.6%	ICU Level of Service	A	
Analysis Period (min)			15			

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	114	314	199	598	202	74	605
v/c Ratio	0.70	0.56	0.92	0.82	0.55	0.17	1.02
Control Delay	60.9	25.9	82.8	41.5	14.5	7.8	47.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.9	25.9	82.8	41.5	14.5	7.8	47.2
Queue Length 50th (ft)	57	58	112	170	73	22	~386
Queue Length 95th (ft)	m#137	100	#209	208	m89	m24	m#471
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	178	562	217	732	368	442	593
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.56	0.92	0.82	0.55	0.17	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.							
m Volume for 95th percentile queue is metered by upstream signal.							



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	107	214	81	163	442	48	79	115	71	49	353	160
Future Volume (vph)	107	214	81	163	442	48	79	115	71	49	353	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.80		0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.96		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1342	2408		1307	2631			1514	1076		1505	
Flt Permitted	0.95	1.00		0.95	1.00			0.58	1.00		0.96	
Satd. Flow (perm)	1342	2408		1307	2631			897	1076		1443	
Peak-hour factor, PHF	0.94	0.94	0.94	0.82	0.82	0.82	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	114	228	86	199	539	59	82	120	74	53	380	172
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	114	314	0	199	598	0	0	202	74	0	605	0
Confl. Peds. (#/hr)	38		33	33		38	147		163	163		147
Confl. Bikes (#/hr)			14			12			12			17
Heavy Vehicles (%)	17%	17%	17%	16%	16%	16%	5%	5%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	10.9	21.0		15.0	25.1			37.0	37.0		37.0	
Effective Green, g (s)	10.9	21.0		15.0	25.1			37.0	37.0		37.0	
Actuated g/C Ratio	0.12	0.23		0.17	0.28			0.41	0.41		0.41	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	162	561		217	733			368	442		593	
v/s Ratio Prot	0.08	0.13		c0.15	c0.23							
v/s Ratio Perm								0.23	0.07		c0.42	
v/c Ratio	0.70	0.56		0.92	0.82			0.55	0.17		1.02	
Uniform Delay, d1	38.0	30.4		36.9	30.3			20.2	16.8		26.5	
Progression Factor	1.00	0.71		1.00	1.00			0.56	0.43		0.53	
Incremental Delay, d2	12.6	3.9		38.6	9.7			0.7	0.1		29.1	
Delay (s)	50.8	25.6		75.5	40.0			12.0	7.3		43.3	
Level of Service	D	C		E	D			B	A		D	
Approach Delay (s)		32.3			48.9			10.8			43.3	
Approach LOS		C			D			B			D	
Intersection Summary												
HCM 2000 Control Delay			38.9			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			88.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	157	264	897	12	143	158
v/c Ratio	0.54	0.14	0.57	0.06	0.54	0.89
Control Delay	16.0	5.3	9.2	39.9	51.9	90.7
Queue Delay	0.0	0.0	9.6	0.0	0.0	0.0
Total Delay	16.0	5.3	18.8	39.9	51.9	90.7
Queue Length 50th (ft)	50	30	155	8	99	118
Queue Length 95th (ft)	100	40	190	16	163	#227
Internal Link Dist (ft)		1070	174	616	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	292	1821	1578	227	288	194
Starvation Cap Reductn	0	0	650	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	0.54	0.14	0.97	0.05	0.50	0.81

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												
Traffic Volume (vph)	130	131	88	130	478	163	0	3	4	9	117	139
Future Volume (vph)	130	131	88	130	478	163	0	3	4	9	117	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96			0.95			0.93			1.00	0.78
Flpb, ped/bikes	0.95	1.00			0.99			1.00			0.99	1.00
Frt	1.00	0.94			0.97			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1312	2486			2591			1137			1459	972
Flt Permitted	0.29	1.00			0.82			1.00			0.98	1.00
Satd. Flow (perm)	405	2486			2140			1137			1441	972
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.58	0.58	0.58	0.88	0.88	0.88
Adj. Flow (vph)	157	158	106	151	556	190	0	5	7	10	133	158
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	157	264	0	0	897	0	0	12	0	0	143	158
Confl. Peds. (#/hr)	55		21	21		55	95		46	46		95
Confl. Bikes (#/hr)			2			10			5			4
Heavy Vehicles (%)	18%	18%	18%	6%	6%	6%	29%	29%	29%	16%	16%	16%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	87.9	87.9			88.4			22.1			22.1	22.1
Effective Green, g (s)	87.9	87.9			88.4			22.1			22.1	22.1
Actuated g/C Ratio	0.73	0.73			0.74			0.18			0.18	0.18
Clearance Time (s)	5.0	5.0			4.5			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)	296	1820			1576			209			265	179
v/s Ratio Prot		0.11						0.01				
v/s Ratio Perm	0.39				c0.42						0.10	c0.16
v/c Ratio	0.53	0.15			0.57			0.06			0.54	0.88
Uniform Delay, d1	7.0	4.8			7.2			40.4			44.3	47.7
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	6.7	0.2			0.5			0.1			2.1	36.2
Delay (s)	13.7	5.0			7.6			40.5			46.5	83.9
Level of Service	B	A			A			D			D	F
Approach Delay (s)		8.2			7.6			40.5			66.1	
Approach LOS		A			A			D			E	
Intersection Summary												
HCM 2000 Control Delay		18.8			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.66										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		65.0%			ICU Level of Service			C				
Analysis Period (min)		15										

c Critical Lane Group



Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	161	460	689	995	418
v/c Ratio	0.13	1.42	0.38	0.78	0.57
Control Delay	7.9	224.3	9.2	16.6	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.9	224.3	9.2	16.6	7.0
Queue Length 50th (ft)	10	~76	37	95	20
Queue Length 95th (ft)	23	#142	57	#165	70
Internal Link Dist (ft)	174		138	1843	
Turn Bay Length (ft)					
Base Capacity (vph)	1239	325	1830	1274	734
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.13	1.42	0.38	0.78	0.57













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	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	147	1	33	390	634	915	385
Future Volume (vph)	147	1	33	390	634	915	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0			4.0	4.0	4.0	4.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Fr't	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	3096			3090	4577	3185	1425
Flt Permitted	0.95			0.25	1.00	1.00	1.00
Satd. Flow (perm)	3096			813	4577	3185	1425
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	160	1	36	424	689	995	418
RTOR Reduction (vph)	1	0	0	0	0	0	164
Lane Group Flow (vph)	160	0	0	460	689	995	254
Turn Type	Prot		Perm	Perm	NA	NA	Perm
Protected Phases	4!				2	8!	
Permitted Phases			2	2			8
Actuated Green, G (s)	16.0			16.0	16.0	16.0	16.0
Effective Green, g (s)	16.0			16.0	16.0	16.0	16.0
Actuated g/C Ratio	0.40			0.40	0.40	0.40	0.40
Clearance Time (s)	4.0			4.0	4.0	4.0	4.0
Lane Grp Cap (vph)	1238			325	1830	1274	570
v/s Ratio Prot	0.05				0.15	c0.31	
v/s Ratio Perm				c0.57			0.18
v/c Ratio	0.13			1.42	0.38	0.78	0.44
Uniform Delay, d1	7.6			12.0	8.5	10.5	8.8
Progression Factor	1.00			1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2			204.2	0.6	4.8	2.5
Delay (s)	7.8			216.2	9.1	15.3	11.3
Level of Service	A			F	A	B	B
Approach Delay (s)	7.8				92.0	14.1	
Approach LOS	A				F	B	
Intersection Summary							
HCM 2000 Control Delay			46.6		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio			1.10				
Actuated Cycle Length (s)			40.0		Sum of lost time (s)		8.0
Intersection Capacity Utilization			56.2%		ICU Level of Service		B
Analysis Period (min)			15				
! Phase conflict between lane groups.							
c Critical Lane Group							

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	194	573	113	134	430	76	512	117	471	197
v/c Ratio	0.87	1.27	0.46	1.26	0.78	0.68	5.75	0.75	0.87	1.16
Control Delay	63.5	161.0	37.3	204.8	55.2	58.8	2166.5	63.8	37.5	137.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.5	161.0	37.3	204.8	55.2	58.8	2166.5	63.8	37.5	137.2
Queue Length 50th (ft)	120	~437	0	~100	135	48	~601	55	274	~136
Queue Length 95th (ft)	m120	m#425	m0	m#159	m163	m62	m#693	m79	m#375	m#206
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	222	452	247	106	550	114	89	161	544	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	1.27	0.46	1.26	0.78	0.67	5.75	0.73	0.87	1.16
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.										
m Volume for 95th percentile queue is metered by upstream signal.										

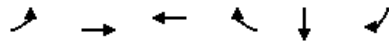
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	167	493	97	125	364	36	76	334	114	111	447	187
Future Volume (vph)	167	493	97	125	364	36	76	334	114	111	447	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	7.0	4.0	4.0	7.0	4.0		4.0	4.0		7.0	4.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		0.95	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.99		1.00	0.96		1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1430	1613	880	1366	2720		1286	1254		1450	1476	1096
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	1430	1613	880	1366	2720		1286	1247		1450	1476	1096
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	194	573	113	134	391	39	85	375	128	117	471	197
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	194	573	113	134	430	0	76	512	0	117	471	197
Confl. Peds. (#/hr)			150			70			60			55
Confl. Bikes (#/hr)			175			6			7			9
Heavy Vehicles (%)	6%	6%	6%	11%	11%	11%	16%	16%	16%	12%	12%	12%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	13.0	23.2	23.2	6.0	16.2		5.6	31.6		8.8	32.2	13.0
Effective Green, g (s)	14.0	24.2	24.2	7.0	17.2		6.6	33.6		9.8	33.2	14.0
Actuated g/C Ratio	0.16	0.27	0.27	0.08	0.19		0.07	0.37		0.11	0.37	0.16
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	222	433	236	106	519		94	466		157	544	170
v/s Ratio Prot	0.14	c0.36		0.10	0.16		0.06	c0.08		0.08	c0.32	
v/s Ratio Perm			0.13					c0.33				c0.18
v/c Ratio	0.87	1.32	0.48	1.26	0.83		0.81	1.10		0.75	0.87	1.16
Uniform Delay, d1	37.1	32.9	27.6	41.5	35.0		41.1	28.2		38.9	26.3	38.0
Progression Factor	1.39	1.28	1.28	1.03	1.34		1.05	1.05		1.15	0.89	0.85
Incremental Delay, d2	9.2	149.5	1.7	166.7	12.0		21.8	60.2		11.1	11.0	103.8
Delay (s)	60.7	191.5	36.9	209.5	58.8		64.8	89.8		56.0	34.3	136.1
Level of Service	E	F	D	F	E		E	F		E	C	F
Approach Delay (s)		142.8			94.6			86.5			63.1	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay			99.2			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.26									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			22.0			
Intersection Capacity Utilization			99.8%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	716	525	302	0	0
Future Volume (Veh/h)	0	716	525	302	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	778	571	328	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.74	
vC, conflicting volume	899				1513	354
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	899				1518	354
tC, single (s)	4.2				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)	739				81	642
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	778	228	228	442		
Volume Left	0	0	0	0		
Volume Right	0	0	0	328		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.46	0.13	0.13	0.26		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			45.2%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	716	587	0	0	240
Future Volume (Veh/h)	0	716	587	0	0	240
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	778	638	0	0	261
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	838				1616	519
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	838				1655	519
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	37
cM capacity (veh/h)	655				54	412
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	778	319	319	261		
Volume Left	0	0	0	0		
Volume Right	0	0	0	261		
cSH	1700	1700	1700	412		
Volume to Capacity	0.46	0.19	0.19	0.63		
Queue Length 95th (ft)	0	0	0	106		
Control Delay (s)	0.0	0.0	0.0	27.7		
Lane LOS				D		
Approach Delay (s)	0.0	0.0		27.7		
Approach LOS				D		
Intersection Summary						
Average Delay			4.3			
Intersection Capacity Utilization			45.2%		ICU Level of Service	A
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	684	118	131	505	116	130
v/c Ratio	1.27	0.36	0.35	0.94	0.37	0.37
Control Delay	144.4	36.9	9.5	42.5	40.5	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	144.4	36.9	9.5	42.5	40.5	15.9
Queue Length 50th (ft)	~494	58	35	251	63	32
Queue Length 95th (ft)	m175	m43	m35	m235	118	72
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	539	324	376	539	313	347
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	1.27	0.36	0.35	0.94	0.37	0.37
Intersection Summary						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	616	106	123	475	108	121
Future Volume (vph)	616	106	123	475	108	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1565	1330	1540	1565	1486	1219
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1565	1330	1540	1565	1486	1219
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.93	0.93
Adj. Flow (vph)	684	118	131	505	116	130
RTOR Reduction (vph)	0	44	0	0	0	50
Lane Group Flow (vph)	684	74	131	505	116	80
Confl. Peds. (#/hr)		395	395		206	132
Confl. Bikes (#/hr)		140				
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	31.0	19.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.34	0.21	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	539	280	376	539	313	297
v/s Ratio Prot	c0.44	0.06	c0.09	0.32	c0.08	0.07
v/s Ratio Perm						
v/c Ratio	1.27	0.26	0.35	0.94	0.37	0.27
Uniform Delay, d1	29.5	29.7	28.1	28.6	30.4	27.5
Progression Factor	0.62	2.10	0.32	1.32	1.20	0.85
Incremental Delay, d2	122.5	0.2	0.2	3.9	3.2	2.1
Delay (s)	140.9	62.4	9.3	41.5	39.6	25.5
Level of Service	F	E	A	D	D	C
Approach Delay (s)	129.3			34.9	32.2	
Approach LOS	F			C	C	
Intersection Summary						
HCM 2000 Control Delay			79.5		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			72.8%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	252	470	673	344	214	149
v/c Ratio	0.82	0.49	1.17	0.94	0.55	0.53
Control Delay	37.4	33.8	122.6	68.0	28.9	28.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.4	33.8	122.6	68.0	28.9	28.5
Queue Length 50th (ft)	157	104	~460	191	93	68
Queue Length 95th (ft)	m140	m92	#670	#358	m103	m77
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	306	952	576	367	386	279
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	0.82	0.49	1.17	0.94	0.55	0.53

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.

m Volume for 95th percentile queue is metered by upstream signal.









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	390	52	0	626	320	0	0	0	153	50	142
Future Volume (vph)	237	390	52	0	626	320	0	0	0	153	50	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.97			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1454	2679			1621	1378					1451	1326
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1454	2679			1621	1378					1451	1326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	252	415	55	0	673	344	0	0	0	161	53	149
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	252	470	0	0	673	344	0	0	0	0	214	149
Confl. Peds. (#/hr)	59					59				911		263
Confl. Bikes (#/hr)			217			18						
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	19.0	32.0			32.0	24.0					24.0	19.0
Effective Green, g (s)	19.0	32.0			32.0	24.0					24.0	19.0
Actuated g/C Ratio	0.21	0.36			0.36	0.27					0.27	0.21
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	306	952			576	367					386	279
v/s Ratio Prot	c0.17	0.18			c0.42	c0.25					0.15	0.11
v/s Ratio Perm												
v/c Ratio	0.82	0.49			1.17	0.94					0.55	0.53
Uniform Delay, d1	33.9	22.7			29.0	32.3					28.4	31.6
Progression Factor	0.98	1.46			1.00	1.00					0.92	0.80
Incremental Delay, d2	2.4	0.2			93.4	33.5					2.1	2.7
Delay (s)	35.7	33.2			122.4	65.8					28.2	27.8
Level of Service	D	C			F	E					C	C
Approach Delay (s)		34.1			103.2			0.0			28.0	
Approach LOS		C			F			A			C	
Intersection Summary												
HCM 2000 Control Delay		66.5			HCM 2000 Level of Service					E		
HCM 2000 Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)					15.0		
Intersection Capacity Utilization		80.4%			ICU Level of Service					D		
Analysis Period (min)		15										
c Critical Lane Group												





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	627	97	0	1007	256	0	0	210	0	0	95
Future Volume (Veh/h)	0	627	97	0	1007	256	0	0	210	0	0	95
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.25	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	674	104	0	1107	281	0	0	228	0	0	106
Pedestrians								159			128	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								13			11	
Right turn flare (veh)												
Median type		None			Raised							
Median storage (veh)					1							
Upstream signal (ft)		1271										
pX, platoon unblocked												
vC, conflicting volume	1516			937			1544	2401	548	1940	2312	822
vC1, stage 1 conf vol							885	885		1376	1376	
vC2, stage 2 conf vol							660	1516		565	937	
vCu, unblocked vol	1516			937			1544	2401	548	1940	2312	822
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	45	100	100	62
cM capacity (veh/h)	381			631			136	107	417	81	116	280
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	449	329	738	650	228	106						
Volume Left	0	0	0	0	0	0						
Volume Right	0	104	0	281	228	106						
cSH	1700	1700	1700	1700	417	280						
Volume to Capacity	0.26	0.19	0.43	0.38	0.55	0.38						
Queue Length 95th (ft)	0	0	0	0	80	42						
Control Delay (s)	0.0	0.0	0.0	0.0	23.6	25.5						
Lane LOS					C	D						
Approach Delay (s)	0.0		0.0		23.6	25.5						
Approach LOS					C	D						
Intersection Summary												
Average Delay			3.2									
Intersection Capacity Utilization			54.6%		ICU Level of Service				A			
Analysis Period (min)			15									

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	310	351	55	209	544	59	384	268
v/c Ratio	1.08	0.58	0.21	0.48	0.75	0.28	0.69	0.70
Control Delay	105.6	24.3	35.0	40.9	31.4	35.4	41.2	43.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.6	24.3	35.0	40.9	31.4	35.4	41.2	43.7
Queue Length 50th (ft)	~199	147	30	116	137	34	241	168
Queue Length 95th (ft)	#336	222	m54	m181	203	m42	m270	m191
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	286	600	257	436	728	208	558	383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.08	0.58	0.21	0.48	0.75	0.28	0.69	0.70
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	267	229	73	53	94	107	68	272	155	55	361	252
Future Volume (vph)	267	229	73	53	94	107	68	272	155	55	361	252
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Flpb, ped/bikes	1.00	0.92		1.00	0.75			0.93		1.00	1.00	0.84
Flpb, ped/bikes	0.66	1.00		0.86	1.00			0.99		0.93	1.00	1.00
Frt	1.00	0.96		1.00	0.92			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1002	1385		1153	1008			2482		1221	1437	985
Flt Permitted	0.63	1.00		0.49	1.00			0.75		0.42	1.00	1.00
Satd. Flow (perm)	661	1385		594	1008			1873		537	1437	985
Peak-hour factor, PHF	0.86	0.86	0.86	0.96	0.96	0.96	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	310	266	85	55	98	111	75	299	170	59	384	268
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	310	351	0	55	209	0	0	544	0	59	384	268
Confl. Peds. (#/hr)	398		210	210		398	76		127	127		76
Confl. Bikes (#/hr)			84			7			36			57
Heavy Vehicles (%)	10%	10%	10%	13%	13%	13%	15%	15%	15%	15%	15%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Effective Green, g (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.39		0.39	0.39	0.39
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	286	600		257	436			728		208	558	383
v/s Ratio Prot		0.25			0.21						0.27	
v/s Ratio Perm	c0.47			0.09				c0.29		0.11		0.27
v/c Ratio	1.08	0.58		0.21	0.48			0.75		0.28	0.69	0.70
Uniform Delay, d1	25.5	19.4		15.9	18.2			23.7		18.9	22.9	23.1
Progression Factor	1.00	1.00		1.98	1.97			1.00		1.67	1.59	1.60
Incremental Delay, d2	77.4	4.1		1.7	3.3			6.9		1.6	3.2	4.8
Delay (s)	102.9	23.5		33.1	39.2			30.6		33.2	39.8	41.7
Level of Service	F	C		C	D			C		C	D	D
Approach Delay (s)		60.7			37.9			30.6			40.0	
Approach LOS		E			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			43.7			HCM 2000 Level of Service					D	
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			133.9%			ICU Level of Service				H		
Analysis Period (min)			15									















c Critical Lane Group

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	107	372	13	118	70	167	98	163
v/c Ratio	0.37	0.59	0.06	0.25	0.32	0.44	0.38	0.70
Control Delay	15.3	16.0	6.5	6.0	30.1	29.7	31.2	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	16.0	6.5	6.0	30.1	29.7	31.2	48.1
Queue Length 50th (ft)	32	130	1	9	31	76	60	100
Queue Length 95th (ft)	m67	m229	m4	22	70	136	108	#176
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	632	230	481	219	383	255	232
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.59	0.06	0.25	0.32	0.44	0.38	0.70
Intersection Summary								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	98	272	70	10	54	37	64	142	10	52	33	142
Future Volume (vph)	98	272	70	10	54	37	64	142	10	52	33	142
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.88		1.00	0.77		1.00	0.97			1.00	0.68
Flpb, ped/bikes	0.53	1.00		0.70	1.00		0.74	1.00			0.78	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	760	1162		822	884		1040	1279			1122	776
Flt Permitted	0.68	1.00		0.50	1.00		0.69	1.00			0.73	1.00
Satd. Flow (perm)	545	1162		432	884		759	1279			850	776
Peak-hour factor, PHF	0.92	0.92	0.92	0.77	0.77	0.77	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	107	296	76	13	70	48	70	156	11	60	38	163
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	107	372	0	13	118	0	70	167	0	0	98	163
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	14%	14%	14%	39%	39%	39%	16%	16%	16%	8%	8%	8%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	48.0	48.0		48.0	48.0		26.0	26.0			26.0	26.0
Effective Green, g (s)	48.0	49.0		48.0	49.0		26.0	27.0			27.0	27.0
Actuated g/C Ratio	0.53	0.54		0.53	0.54		0.29	0.30			0.30	0.30
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	632		230	481		219	383			255	232
v/s Ratio Prot		c0.32			0.13			0.13				
v/s Ratio Perm	0.20			0.03			0.09				0.12	c0.21
v/c Ratio	0.37	0.59		0.06	0.25		0.32	0.44			0.38	0.70
Uniform Delay, d1	12.2	13.7		10.1	10.8		25.1	25.4			24.9	27.9
Progression Factor	0.94	0.88		0.58	0.44		1.00	1.00			1.04	1.08
Incremental Delay, d2	2.9	3.2		0.4	1.1		3.8	3.6			4.2	15.7
Delay (s)	14.3	15.3		6.3	5.8		28.9	29.0			30.0	45.8
Level of Service	B	B		A	A		C	C			C	D
Approach Delay (s)		15.1			5.9			28.9			39.9	
Approach LOS		B			A			C			D	
Intersection Summary												
HCM 2000 Control Delay		22.8			HCM 2000 Level of Service			C				
HCM 2000 Volume to Capacity ratio		0.63										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			14.0				
Intersection Capacity Utilization		77.1%			ICU Level of Service			D				
Analysis Period (min)		15										

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	543	0	0	946	0	222
Future Volume (Veh/h)	543	0	0	946	0	222
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	590	0	0	1028	0	241
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			820		1334	525
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			543		1122	210
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	58
cM capacity (veh/h)			733		143	570
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	295	295	514	514	241	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	241	
cSH	1700	1700	1700	1700	570	
Volume to Capacity	0.17	0.17	0.30	0.30	0.42	
Queue Length 95th (ft)	0	0	0	0	52	
Control Delay (s)	0.0	0.0	0.0	0.0	15.9	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		15.9	
Approach LOS					C	
Intersection Summary						
Average Delay			2.1			
Intersection Capacity Utilization			38.6%		ICU Level of Service	A
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	14	1077	450	0	0	0	0	14	75
Future Volume (Veh/h)	0	0	0	14	1077	450	0	0	0	0	14	75
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	16	1252	523	0	0	0	0	16	85
Pedestrians	58						9			59		
Lane Width (ft)	0.0						0.0			14.0		
Walking Speed (ft/s)	4.0						4.0			4.0		
Percent Blockage	0						0			6		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1834			9			818	1875	9	1604	1614	1004
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1834			9			818	1875	9	1604	1614	1004
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.8	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			99			100	100	100	100	81	59
cM capacity (veh/h)	310			1624			129	66	1070	56	86	208
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	642	1149	101									
Volume Left	16	0	0									
Volume Right	0	523	85									
cSH	1624	1700	170									
Volume to Capacity	0.01	0.68	0.59									
Queue Length 95th (ft)	1	0	80									
Control Delay (s)	0.3	0.0	53.0									
Lane LOS	A		F									
Approach Delay (s)	0.1		53.0									
Approach LOS			F									
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			106.2%	ICU Level of Service		G						
Analysis Period (min)			15									



Lane Group	NBL	SET	NWT
Lane Group Flow (vph)	927	1526	1089
v/c Ratio	0.57	5.67	1.56
Control Delay	15.0	2120.7	283.8
Queue Delay	0.0	0.0	0.0
Total Delay	15.0	2120.7	283.8
Queue Length 50th (ft)	119	~609	~334
Queue Length 95th (ft)	m225	#676	m#413
Internal Link Dist (ft)	450	741	1079
Turn Bay Length (ft)	85		
Base Capacity (vph)	1630	269	697
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.57	5.67	1.56

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.

m Volume for 95th percentile queue is metered by upstream signal.

KSURP
1: Third Street & O'Brien Highway & Driveway


















2016 Updated Build Condition
Timing Plan: PM Peak Hour

Movement	NBL	NBR	SEL	SET	SER	NWU	NWL	NWT	NWR	SWL	SWR
Lane Configurations											
Traffic Volume (vph)	870	19	12	929	387	12	46	987	0	0	0
Future Volume (vph)	870	19	12	929	387	12	46	987	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	12	12	12	12	12	11	12	12	12
Total Lost time (s)	4.0			4.0				4.0			
Lane Util. Factor	0.97			0.91				0.91			
Frt	1.00			0.96				1.00			
Flt Protected	0.95			1.00				1.00			
Satd. Flow (prot)	2912			4359				4369			
Flt Permitted	0.95			0.74				0.67			
Satd. Flow (perm)	2912			3227				2922			
Peak-hour factor, PHF	0.96	0.92	0.92	0.87	0.87	0.96	0.96	0.96	0.92	0.92	0.92
Adj. Flow (vph)	906	21	13	1068	445	12	48	1028	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	927	0	0	1526	0	0	0	1089	0	0	0
Heavy Vehicles (%)	1%	2%	2%	1%	1%	3%	3%	3%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	10	0	0	0	0	0	0	0
Turn Type	Prot			NA			D.P+P	NA			
Protected Phases	3			2			4	2 4			
Permitted Phases							2				
Actuated Green, G (s)	50.4			14.6				19.6			
Effective Green, g (s)	50.4			14.6				19.6			
Actuated g/C Ratio	0.56			0.16				0.22			
Clearance Time (s)	4.0			4.0							
Vehicle Extension (s)	3.0			3.0							
Lane Grp Cap (vph)	1630			523				716			
v/s Ratio Prot	c0.32							c0.08			
v/s Ratio Perm				c0.47				0.25			
v/c Ratio	0.57			2.92				1.52			
Uniform Delay, d1	12.8			37.7				35.2			
Progression Factor	0.97			1.00				0.89			
Incremental Delay, d2	0.1			868.2				239.2			
Delay (s)	12.6			905.9				270.4			
Level of Service	B			F				F			
Approach Delay (s)	12.6			905.9				270.4		0.0	
Approach LOS	B			F				F		A	
Intersection Summary											
HCM 2000 Control Delay			476.7					HCM 2000 Level of Service		F	
HCM 2000 Volume to Capacity ratio			1.03								
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		14.0	
Intersection Capacity Utilization			90.6%					ICU Level of Service		E	
Analysis Period (min)			15								
c Critical Lane Group											






	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	454	499	642	48	442
v/c Ratio	1.30	1.36	0.96	0.18	0.60
Control Delay	185.3	213.3	29.3	0.1	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	185.3	213.3	29.3	0.1	6.8
Queue Length 50th (ft)	~335	~393	227	0	87
Queue Length 95th (ft)	#422	m#589	m#439	m0	m0
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	348	366	671	262	732
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.30	1.36	0.96	0.18	0.60
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.					
m Volume for 95th percentile queue is metered by upstream signal.					

KSURP
2: Third Street & Cambridge Street









2016 Updated Build Condition
Timing Plan: PM Peak Hour





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	256	35	12	218	244	18	553	19	43	336	62
Future Volume (vph)	63	256	35	12	218	244	18	553	19	43	336	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.85			1.00		1.00	0.99	
Flpb, ped/bikes		0.98			1.00			1.00		0.98	1.00	
Frt		0.99			0.93			1.00		1.00	0.98	
Flt Protected		0.99			1.00			1.00		0.95	1.00	
Satd. Flow (prot)		1503			1118			1469		1516	1568	
Flt Permitted		0.69			0.98			0.98		0.35	1.00	
Satd. Flow (perm)		1044			1099			1438		561	1568	
Peak-hour factor, PHF	0.78	0.78	0.78	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	81	328	45	13	229	257	20	601	21	48	373	69
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	454	0	0	499	0	0	642	0	48	442	0
Confl. Peds. (#/hr)	152		93	93		152	36		41	41		36
Confl. Bikes (#/hr)			17			56			3			1
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			42.0		42.0	42.0	
Effective Green, g (s)		30.0			30.0			42.0		42.0	42.0	
Actuated g/C Ratio		0.33			0.33			0.47		0.47	0.47	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		348			366			671		261	731	
v/s Ratio Prot											0.28	
v/s Ratio Perm		0.43			0.45			0.45		0.09		
v/c Ratio		1.30			1.36			0.96		0.18	0.60	
Uniform Delay, d1		30.0			30.0			23.1		14.0	17.8	
Progression Factor		1.00			1.48			0.49		0.00	0.35	
Incremental Delay, d2		156.5			177.8			14.9		0.1	0.3	
Delay (s)		186.5			222.1			26.2		0.1	6.6	
Level of Service		F			F			C		A	A	
Approach Delay (s)		186.5			222.1			26.2			6.0	
Approach LOS		F			F			C			A	
Intersection Summary												
HCM 2000 Control Delay		103.2			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.13										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		119.9%			ICU Level of Service			H				
Analysis Period (min)		15										











c Critical Lane Group

					
Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	347	195	204	159	531
v/c Ratio	1.20	0.74	0.76	0.76	1.14
Control Delay	141.4	43.4	44.8	61.0	116.8
Queue Delay	0.3	0.0	0.0	0.0	0.5
Total Delay	141.7	43.4	44.8	61.0	117.3
Queue Length 50th (ft)	~248	61	64	88	~357
Queue Length 95th (ft)	m#187	#97	#104	#186	#551
Internal Link Dist (ft)	719		195	1971	
Turn Bay Length (ft)					175
Base Capacity (vph)	289	262	267	210	465
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	8	0	0	0	24
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.23	0.74	0.76	0.76	1.20
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.					
m Volume for 95th percentile queue is metered by upstream signal.					

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↘	↗	↘	↗
Traffic Volume (vph)	252	54	158	165	149	499
Future Volume (vph)	252	54	158	165	149	499
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	12	12	11	10	11
Total Lost time (s)	4.0		5.0	5.0	3.0	5.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frpb, ped/bikes	0.99		1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1370		1577	1605	1458	1351
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	1370		1577	1605	1458	1351
Peak-hour factor, PHF	0.88	0.88	0.81	0.81	0.94	0.94
Adj. Flow (vph)	286	61	195	204	159	531
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	347	0	195	204	159	531
Confl. Bikes (#/hr)		16				
Heavy Vehicles (%)	4%	4%	3%	3%	4%	4%
Parking (#/hr)	2	2				
Turn Type	NA		Split	NA	Perm	pm+ov
Protected Phases	4 5		1	1		1
Permitted Phases					6	6
Actuated Green, G (s)	19.0		14.0	14.0	12.0	26.0
Effective Green, g (s)	20.0		15.0	15.0	13.0	28.0
Actuated g/C Ratio	0.22		0.17	0.17	0.14	0.31
Clearance Time (s)			6.0	6.0	4.0	6.0
Lane Grp Cap (vph)	304		262	267	210	420
v/s Ratio Prot	c0.25		0.12	0.13		c0.21
v/s Ratio Perm					0.11	0.18
v/c Ratio	1.14		0.74	0.76	0.76	1.26
Uniform Delay, d1	35.0		35.7	35.8	37.0	31.0
Progression Factor	1.62		0.68	0.68	1.00	1.00
Incremental Delay, d2	67.7		17.1	18.3	22.2	136.8
Delay (s)	124.4		41.4	42.7	59.2	167.8
Level of Service	F		D	D	E	F
Approach Delay (s)	124.4			42.1	142.7	
Approach LOS	F			D	F	
Intersection Summary						
HCM 2000 Control Delay		110.3		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio		0.88				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)	24.0	
Intersection Capacity Utilization		60.2%		ICU Level of Service		B
Analysis Period (min)		15				
c Critical Lane Group						

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	82	826	86	222	840	236	576	183
v/c Ratio	0.99	0.54	0.18	0.28	0.73	0.94	0.46	0.40
Control Delay	47.4	2.2	0.3	28.0	30.5	42.9	1.0	14.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Total Delay	47.4	2.2	0.3	28.0	30.5	42.9	1.1	14.2
Queue Length 50th (ft)	26	0	0	52	217	124	0	33
Queue Length 95th (ft)	m0	m0	m0	82	288	m96	m0	47
Internal Link Dist (ft)		1079			832	195		257
Turn Bay Length (ft)	250		175	200			100	
Base Capacity (vph)	83	1538	479	797	1144	252	1252	455
Starvation Cap Reductn	0	0	0	0	0	0	105	0
Spillback Cap Reductn	0	0	0	26	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.99	0.54	0.18	0.29	0.73	0.94	0.50	0.40
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	75	752	78	209	788	2	164	53	530	5	36	79
Future Volume (vph)	75	752	78	209	788	2	164	53	530	5	36	79
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)	3.0	3.0	3.0	5.0	3.0			2.0	5.0		2.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95			1.00	0.88		1.00	
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			1.00	0.97		0.92	
Flpb, ped/bikes	0.98	1.00	1.00	1.00	1.00			0.95	1.00		1.00	
Frt	1.00	1.00	0.85	1.00	1.00			1.00	0.85		0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.96	1.00		1.00	
Satd. Flow (prot)	1526	4468	1391	3120	3322			1499	2382		1330	
Flt Permitted	0.15	1.00	1.00	0.95	1.00			0.56	1.00		0.99	
Satd. Flow (perm)	242	4468	1391	3120	3322			874	2382		1316	
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.66	0.66	0.66
Adj. Flow (vph)	82	826	86	222	838	2	178	58	576	8	55	120
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	36	0	76	0
Lane Group Flow (vph)	82	826	86	222	840	0	0	236	540	0	107	0
Confl. Peds. (#/hr)	45					45	98		21	21		98
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	8%	8%	8%
Turn Type	Perm	NA	Prot	Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		3 4	3 4	1 2	3 4			5 6	1 2		5 6	
Permitted Phases	3 4						5 6		5 6	5 6		
Actuated Green, G (s)	29.0	29.0	29.0	24.0	29.0			24.0	48.0		24.0	
Effective Green, g (s)	30.0	30.0	30.0	25.0	30.0			26.0	47.0		26.0	
Actuated g/C Ratio	0.33	0.33	0.33	0.28	0.33			0.29	0.52		0.29	
Clearance Time (s)												
Lane Grp Cap (vph)	80	1489	463	866	1107			252	1243		380	
v/s Ratio Prot		0.18	0.06	0.07	0.25				c0.12			
v/s Ratio Perm	c0.34							c0.27	0.11		0.08	
v/c Ratio	1.02	0.55	0.19	0.26	0.76			0.94	0.43		0.28	
Uniform Delay, d1	30.0	24.5	21.3	25.3	26.8			31.2	13.3		24.8	
Progression Factor	0.27	0.09	0.01	1.00	1.00			1.05	0.09		1.00	
Incremental Delay, d2	36.7	0.1	0.1	0.7	4.9			7.5	0.1		1.8	
Delay (s)	44.7	2.3	0.3	26.0	31.7			40.1	1.2		26.6	
Level of Service	D	A	A	C	C			D	A		C	
Approach Delay (s)		5.6			30.5			12.5			26.6	
Approach LOS		A			C			B			C	
Intersection Summary												
HCM 2000 Control Delay			17.4			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				19.0		
Intersection Capacity Utilization			62.5%			ICU Level of Service				B		
Analysis Period (min)			15									
c Critical Lane Group												

										
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWT
Lane Group Flow (vph)	420	612	296	226	612	398	422	1071	360	749
v/c Ratio	1.36	0.69	0.20	0.41	1.08	0.70	1.21	1.48	0.66	1.19
Control Delay	220.8	49.3	0.3	45.2	105.6	19.3	154.3	254.9	16.2	141.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	220.8	49.3	0.3	45.2	105.6	19.3	154.3	254.9	16.2	141.1
Queue Length 50th (ft)	~429	162	0	79	~277	97	~403	~608	83	~364
Queue Length 95th (ft)	#619	204	0	110	#353	139	#566	#698	157	#491
Internal Link Dist (ft)		832			440			1843		515
Turn Bay Length (ft)	200		400	150			600			
Base Capacity (vph)	308	884	1503	552	569	566	350	725	546	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.36	0.69	0.20	0.41	1.08	0.70	1.21	1.48	0.66	1.19

























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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	374	545	263	190	514	334	363	921	310	177	397	100
Future Volume (vph)	374	545	263	190	514	334	363	921	310	177	397	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	5.0	5.0	3.0	5.0	5.0	5.0	5.0	5.0	5.0		5.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.95	1.00	0.95	1.00	0.95	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.97	1.00	1.00	1.00		0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	
Flt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2971	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1540	4424	1503	2884	2973	1294	1501	3110	1439		2971	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	420	612	296	226	612	398	422	1071	360	197	441	111
RTOR Reduction (vph)	0	0	0	0	0	49	0	0	211	0	12	0
Lane Group Flow (vph)	420	612	296	226	612	349	422	1071	149	0	737	0
Confl. Peds. (#/hr)			91	91			156		33	33		156
Confl. Bikes (#/hr)			10			27						6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Split	NA	Free	Split	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	1	1		2	2		3	3	3	4	4	
Permitted Phases			Free			2 4						
Actuated Green, G (s)	23.0	23.0	120.0	22.0	22.0	46.0	27.0	27.0	27.0		24.0	
Effective Green, g (s)	24.0	24.0	120.0	23.0	23.0	48.0	28.0	28.0	28.0		25.0	
Actuated g/C Ratio	0.20	0.20	1.00	0.19	0.19	0.40	0.23	0.23	0.23		0.21	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0		6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	308	884	1503	552	569	517	350	725	335		618	
v/s Ratio Prot	c0.27	0.14		0.08	c0.21		0.28	c0.34	0.10		c0.25	
v/s Ratio Perm			0.20			0.27						
v/c Ratio	1.36	0.69	0.20	0.41	1.08	0.67	1.21	1.48	0.45		1.19	
Uniform Delay, d1	48.0	44.6	0.0	42.5	48.5	29.6	46.0	46.0	39.4		47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.94	0.94	0.95		1.00	
Incremental Delay, d2	183.2	4.4	0.3	2.2	59.7	6.9	115.8	221.9	4.1		102.1	
Delay (s)	231.2	49.0	0.3	44.8	108.2	36.5	159.1	265.3	41.5		149.6	
Level of Service	F	D	A	D	F	D	F	F	D		F	
Approach Delay (s)		95.8			73.5			197.7			149.6	
Approach LOS		F			E			F			F	
Intersection Summary												
HCM 2000 Control Delay			134.8									HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio			1.30									
Actuated Cycle Length (s)			120.0									Sum of lost time (s) 21.0
Intersection Capacity Utilization			106.3%									ICU Level of Service G
Analysis Period (min)			15									

c Critical Lane Group

	→	←	↶	↑	↷	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	547	543	80	450	16	287
v/c Ratio	1.11	1.04	0.25	0.68	0.07	0.46
Control Delay	103.4	76.1	20.1	28.0	17.2	22.4
Queue Delay	4.0	24.4	0.0	29.8	0.2	0.0
Total Delay	107.4	100.5	20.1	57.8	17.4	22.4
Queue Length 50th (ft)	~360	~322	29	204	5	116
Queue Length 95th (ft)	#464	m#408	64	315	19	185
Internal Link Dist (ft)	1159	220		707		16
Turn Bay Length (ft)					30	
Base Capacity (vph)	491	520	320	662	236	618
Starvation Cap Reductn	0	185	0	0	0	0
Spillback Cap Reductn	165	0	0	225	80	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.68	1.62	0.25	1.03	0.10	0.46
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.						
m Volume for 95th percentile queue is metered by upstream signal.						






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	359	16	25	445	19	76	377	50	14	184	71
Future Volume (vph)	62	359	16	25	445	19	76	377	50	14	184	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.94	1.00	
Frt		1.00			0.99		1.00	0.98		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1497			1317		1341	1611		1473	1504	
Flt Permitted		0.79			0.96		0.55	1.00		0.37	1.00	
Satd. Flow (perm)		1192			1262		779	1611		576	1504	
Peak-hour factor, PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	78	449	20	28	494	21	80	397	53	16	207	80
RTOR Reduction (vph)	0	2	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	545	0	0	541	0	80	450	0	16	287	0
Confl. Peds. (#/hr)	98		158	158		98	123		110	110		123
Confl. Bikes (#/hr)			15			84			42			19
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio		0.41			0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		490			518		320	662		236	618	
v/s Ratio Prot								c0.28			0.19	
v/s Ratio Perm		c0.46			0.43		0.10			0.03		
v/c Ratio		1.11			1.04		0.25	0.68		0.07	0.46	
Uniform Delay, d1		26.5			26.5		17.4	21.7		16.1	19.3	
Progression Factor		1.00			1.36		1.00	1.00		1.00	1.00	
Incremental Delay, d2		75.2			40.4		1.9	5.6		0.6	2.5	
Delay (s)		101.7			76.4		19.3	27.2		16.6	21.8	
Level of Service		F			E		B	C		B	C	
Approach Delay (s)		101.7			76.4			26.0			21.5	
Approach LOS		F			E			C			C	
Intersection Summary												
HCM 2000 Control Delay		61.1			HCM 2000 Level of Service			E				
HCM 2000 Volume to Capacity ratio		0.90										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		103.0%			ICU Level of Service			G				
Analysis Period (min)		15										

c Critical Lane Group

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	489	14	33	452	378	80	124	259	23
v/c Ratio	0.93	0.03	0.22	0.81	0.62	1.18	0.38	0.91	0.11
Control Delay	36.8	19.7	26.3	29.8	18.2	201.9	35.2	71.1	31.0
Queue Delay	48.2	0.0	0.0	53.5	0.0	11.3	0.0	0.0	0.0
Total Delay	85.0	19.7	26.3	83.3	18.2	213.2	35.2	71.1	31.0
Queue Length 50th (ft)	299	7	10	171	129	~55	62	145	11
Queue Length 95th (ft)	m279	m7	m11	m190	m133	#135	107	#287	32
Internal Link Dist (ft)	220			435			247		100
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	528	455	150	556	611	68	326	286	217
Starvation Cap Reductn	175	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	186	0	20	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.39	0.03	0.22	1.22	0.62	1.67	0.38	0.91	0.11
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.									
m Volume for 95th percentile queue is metered by upstream signal.									

KSURP
7: Technology Square/Hampshire Street & Broadway

2016 Updated Build Condition
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	396	12	30	411	344	68	102	3	236	9	12
Future Volume (vph)	15	396	12	30	411	344	68	102	3	236	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.92	1.00	1.00	0.83	1.00	0.99		1.00	0.90	
Flpb, ped/bikes		1.00	1.00	0.97	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1546	1282	1449	1565	1102	1458	1632		1430	1088	
Flt Permitted		0.96	1.00	0.28	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1486	1282	425	1565	1102	341	1632		1430	1088	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	18	471	14	33	452	378	80	120	4	259	10	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	489	14	33	452	378	80	124	0	259	23	0
Confl. Peds. (#/hr)	81		45	45		81	59		154	154		59
Confl. Bikes (#/hr)			1			94			18			5
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		528	455	151	556	710	68	326		286	217	
v/s Ratio Prot					0.29	0.11		0.08		c0.18	0.02	
v/s Ratio Perm		c0.33	0.01	0.08		0.24	c0.23					
v/c Ratio		0.93	0.03	0.22	0.81	0.53	1.18	0.38		0.91	0.11	
Uniform Delay, d1		27.9	18.9	20.3	26.3	12.6	36.0	31.2		35.2	29.4	
Progression Factor		1.14	1.03	1.20	1.03	1.92	1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.5	0.0	0.3	1.2	0.3	164.6	3.3		33.7	1.0	
Delay (s)		35.3	19.4	24.6	28.4	24.4	200.6	34.5		68.8	30.4	
Level of Service		D	B	C	C	C	F	C		E	C	
Approach Delay (s)		34.8			26.5			99.6			65.7	
Approach LOS		C			C			F			E	
Intersection Summary												
HCM 2000 Control Delay			42.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				22.0		
Intersection Capacity Utilization			89.0%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												



















Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	739	444	261	315	82
v/c Ratio	0.39	0.50	0.72	0.90	0.27
Control Delay	15.8	40.0	32.9	63.9	31.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	40.0	32.9	63.9	31.1
Queue Length 50th (ft)	203	142	86	175	38
Queue Length 95th (ft)	m273	m176	#200	#227	62
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1909	888	360	350	306
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.50	0.72	0.90	0.27

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.







Queue shown is maximum after two cycles.








m Volume for 95th percentile queue is metered by upstream signal.

											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	643	308	59	24	0	192	54	141	89	60
Future Volume (vph)	0	643	308	59	24	0	192	54	141	89	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frb, ped/bikes		1.00	0.92				1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.97				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2963	2580				1227			1501	1314
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2963	2580				1227			1501	1314
Peak-hour factor, PHF	0.87	0.87	0.88	0.88	0.88	0.94	0.94	0.94	0.73	0.73	0.73
Adj. Flow (vph)	0	739	350	67	27	0	204	57	193	122	82
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	739	444	0	0	0	187	0	0	315	82
Confl. Peds. (#/hr)	48			63	48	14		63	48		7
Confl. Bikes (#/hr)				23	31			19			1
Heavy Vehicles (%)	6%	6%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		58.0	31.0				21.0			21.0	21.0
Effective Green, g (s)		58.0	31.0				21.0			21.0	21.0
Actuated g/C Ratio		0.64	0.34				0.23			0.23	0.23
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1909	888				286			350	306
v/s Ratio Prot		0.25	c0.17				c0.15			c0.21	
v/s Ratio Perm											0.06
v/c Ratio		0.39	0.50				0.65			0.90	0.27
Uniform Delay, d1		7.6	23.4				31.2			33.5	28.2
Progression Factor		2.01	1.61				1.00			1.00	1.00
Incremental Delay, d2		0.3	1.6				11.0			28.4	2.1
Delay (s)		15.5	39.4				42.2			61.9	30.4
Level of Service		B	D				D			E	C
Approach Delay (s)		15.5	39.4			42.2				55.4	
Approach LOS		B	D			D				E	
Intersection Summary											
HCM 2000 Control Delay			33.7			HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.66								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			59.7%			ICU Level of Service			B		
Analysis Period (min)			15								

c Critical Lane Group





















	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	733	0	0	390	0	405
Future Volume (Veh/h)	733	0	0	390	0	405
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	797	0	0	424	0	440
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			797		1009	398
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			550		786	107
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	47
cM capacity (veh/h)			913		296	833
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	398	398	212	212	440	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	440	
cSH	1700	1700	1700	1700	833	
Volume to Capacity	0.23	0.23	0.12	0.12	0.53	
Queue Length 95th (ft)	0	0	0	0	79	
Control Delay (s)	0.0	0.0	0.0	0.0	14.0	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		14.0	
Approach LOS					B	
Intersection Summary						
Average Delay			3.7			
Intersection Capacity Utilization			57.0%		ICU Level of Service	B
Analysis Period (min)			15			







						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↱	↑↑		
Traffic Volume (veh/h)	979	156	49	390	0	0
Future Volume (Veh/h)	979	156	49	390	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1064	170	53	424	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.91		0.91	0.91
vC, conflicting volume			1234		1467	617
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1066		1321	391
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		100	100
cM capacity (veh/h)			593		123	555
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	709	525	53	212	212	
Volume Left	0	0	53	0	0	
Volume Right	0	170	0	0	0	
cSH	1700	1700	593	1700	1700	
Volume to Capacity	0.42	0.31	0.09	0.12	0.12	
Queue Length 95th (ft)	0	0	7	0	0	
Control Delay (s)	0.0	0.0	11.7	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		1.3			
Approach LOS						
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			45.6%	ICU Level of Service	A	
Analysis Period (min)			15			

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	346	776	76	303	420	178	342
v/c Ratio	0.91	0.74	0.49	0.49	0.97	0.54	0.91
Control Delay	60.7	38.6	47.7	34.9	64.5	31.0	73.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	38.6	47.7	34.9	64.5	31.0	73.3
Queue Length 50th (ft)	206	226	41	82	257	104	210
Queue Length 95th (ft)	m#343	m#328	83	124	m#346	m140	m#324
Internal Link Dist (ft)		1062		1070	1123		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	398	1044	206	613	443	333	384
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.74	0.37	0.49	0.95	0.53	0.89
Intersection Summary							
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.							
m Volume for 95th percentile queue is metered by upstream signal.							

KSURP
11: Third Street & Binney Street



















2016 Updated Build Condition
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	311	529	169	70	242	37	73	288	153	42	205	88
Future Volume (vph)	311	529	169	70	242	37	73	288	153	42	205	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.97			1.00	0.70		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.96		1.00	0.98			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)	1496	2710		1430	2827			1591	968		1495	
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.74	
Satd. Flow (perm)	1496	2710		1430	2827			1288	968		1117	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.86	0.86	0.86	0.98	0.98	0.98
Adj. Flow (vph)	346	588	188	76	263	40	85	335	178	43	209	90
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	346	776	0	76	303	0	0	420	178	0	342	0
Confl. Peds. (#/hr)	55		32	32		55	150		216	216		150
Confl. Bikes (#/hr)			11			20			19			11
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	23.0	33.9		8.6	19.5			30.5	30.5		30.5	
Effective Green, g (s)	23.0	33.9		8.6	19.5			30.5	30.5		30.5	
Actuated g/C Ratio	0.26	0.38		0.10	0.22			0.34	0.34		0.34	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	382	1020		136	612			436	328		378	
v/s Ratio Prot	c0.23	c0.29		0.05	0.11							
v/s Ratio Perm								c0.33	0.18		0.31	
v/c Ratio	0.91	0.76		0.56	0.50			0.96	0.54		0.90	
Uniform Delay, d1	32.5	24.5		38.9	30.9			29.2	24.1		28.4	
Progression Factor	1.00	1.31		1.00	1.00			1.05	1.02		1.83	
Incremental Delay, d2	23.8	5.2		4.9	2.8			30.4	1.6		18.6	
Delay (s)	56.1	37.2		43.8	33.8			61.0	26.2		70.4	
Level of Service	E	D		D	C			E	C		E	
Approach Delay (s)		43.1			35.8			50.6			70.4	
Approach LOS		D			D			D			E	
Intersection Summary												
HCM 2000 Control Delay			47.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.92									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			94.5%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

						
Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	332	378	564	28	294	96
v/c Ratio	0.79	0.18	0.36	0.08	0.83	0.42
Control Delay	30.5	7.0	7.4	35.5	63.8	45.0
Queue Delay	0.0	0.0	0.6	0.0	0.0	0.0
Total Delay	30.5	7.0	8.0	35.5	63.8	45.0
Queue Length 50th (ft)	159	48	46	17	217	64
Queue Length 95th (ft)	#405	78	70	27	304	112
Internal Link Dist (ft)		1070	174	423	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	420	2051	1551	416	437	280
Starvation Cap Reductn	0	0	588	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	0.79	0.18	0.59	0.07	0.67	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												
Traffic Volume (vph)	305	290	58	31	266	222	0	11	6	4	264	87
Future Volume (vph)	305	290	58	31	266	222	0	11	6	4	264	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.98			0.87			0.96			1.00	0.75
Flpb, ped/bikes	0.88	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.97			0.94			0.95			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1351	2931			2414			1560			1641	1052
Flt Permitted	0.43	1.00			0.91			1.00			1.00	1.00
Satd. Flow (perm)	608	2931			2201			1560			1638	1052
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.91	0.91	0.91
Adj. Flow (vph)	332	315	63	34	289	241	0	18	10	4	290	96
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	332	378	0	0	564	0	0	28	0	0	294	96
Confl. Peds. (#/hr)	75		26	26		75	106		45	45		106
Confl. Bikes (#/hr)			1			3			5			3
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	84.0	84.0			84.5			26.0			26.0	26.0
Effective Green, g (s)	84.0	84.0			84.5			26.0			26.0	26.0
Actuated g/C Ratio	0.70	0.70			0.70			0.22			0.22	0.22
Clearance Time (s)	5.0	5.0			4.5			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)	425	2051			1549			338			354	227
v/s Ratio Prot		0.13						0.02				
v/s Ratio Perm	c0.55				0.26						c0.18	0.09
v/c Ratio	0.78	0.18			0.36			0.08			0.83	0.42
Uniform Delay, d1	11.9	6.2			7.1			37.5			44.9	40.5
Progression Factor	1.00	1.00			0.88			1.00			1.00	1.00
Incremental Delay, d2	13.3	0.2			0.1			0.1			15.1	1.3
Delay (s)	25.2	6.4			6.3			37.6			60.0	41.8
Level of Service	C	A			A			D			E	D
Approach Delay (s)		15.2			6.3			37.6			55.5	
Approach LOS		B			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			21.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			69.1%			ICU Level of Service				C		
Analysis Period (min)			15									













c Critical Lane Group













Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	301	437	1192	901	180
v/c Ratio	0.35	0.66	0.41	0.80	0.36
Control Delay	29.1	47.3	11.8	44.0	33.0
Queue Delay	1.2	0.0	0.0	0.0	0.0
Total Delay	30.3	47.3	11.8	44.0	33.0
Queue Length 50th (ft)	62	158	158	375	119
Queue Length 95th (ft)	84	210	183	m377	m153
Internal Link Dist (ft)	174		138	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	848	661	2917	1125	503
Starvation Cap Reductn	343	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.60	0.66	0.41	0.80	0.36

Intersection Summary























m Volume for 95th percentile queue is metered by upstream signal.

							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Traffic Volume (vph)	298	3	21	363	1049	775	155
Future Volume (vph)	298	3	21	363	1049	775	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2906			2836	4668	3217	1439
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2906			2836	4668	3217	1439
Peak-hour factor, PHF	1.00	0.91	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	298	3	24	412	1192	901	180
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	301	0	0	437	1192	901	180
Confl. Peds. (#/hr)	1			74			74
Confl. Bikes (#/hr)							5
Heavy Vehicles (%)	5%	5%	0%	0%	0%	1%	1%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	35.0			28.0	75.0	42.0	42.0
Effective Green, g (s)	35.0			28.0	75.0	42.0	42.0
Actuated g/C Ratio	0.29			0.23	0.62	0.35	0.35
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	847			661	2917	1125	503
v/s Ratio Prot	c0.10			c0.15	0.26	c0.28	0.13
v/s Ratio Perm							
v/c Ratio	0.36			0.66	0.41	0.80	0.36
Uniform Delay, d1	33.6			41.7	11.3	35.2	29.0
Progression Factor	0.82			1.00	1.00	1.10	1.06
Incremental Delay, d2	1.2			5.1	0.4	4.8	1.5
Delay (s)	28.8			46.8	11.8	43.5	32.4
Level of Service	C			D	B	D	C
Approach Delay (s)	28.8				21.2	41.6	
Approach LOS	C				C	D	
Intersection Summary							
HCM 2000 Control Delay			29.3		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.61				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			58.0%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	161	453	62	331	637	135	677	80	352	176
v/c Ratio	0.91	1.00	0.25	2.93	0.94	0.82	0.78	0.67	0.79	1.36
Control Delay	69.3	51.7	20.2	908.1	62.3	78.5	32.2	58.0	46.0	237.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	51.7	20.2	908.1	62.3	78.5	32.2	58.0	46.0	237.4
Queue Length 50th (ft)	85	~206	22	~334	199	83	196	49	213	~139
Queue Length 95th (ft)	m94	m#311	m25	#464	#274	m#126	#260	m#100	m#331	m#254
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	176	452	249	113	678	166	867	121	443	129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	1.00	0.25	2.93	0.94	0.81	0.78	0.66	0.79	1.36
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.										
m Volume for 95th percentile queue is metered by upstream signal.										











KSURP
14: Galileo Galilei Way & Broadway

2016 Updated Build Condition
Timing Plan: PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	426	58	281	517	25	115	468	107	74	324	162
Future Volume (vph)	151	426	58	281	517	25	115	468	107	74	324	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.98		1.00	0.96		1.00	1.00	0.78
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1444	1629	895	1458	2907		1496	2789		1562	1589	1056
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1444	1629	895	1458	2907		1496	2789		1562	1589	1056
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	161	453	62	331	608	29	135	551	126	80	352	176
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	161	453	62	331	637	0	135	677	0	80	352	176
Confl. Peds. (#/hr)			207			165			76			76
Confl. Bikes (#/hr)			54			180			13			19
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Effective Green, g (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.11	0.31		0.06	0.30	0.12
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	423	232	113	626		164	867		97	471	129
v/s Ratio Prot	0.11	c0.28		c0.23	0.22		c0.09	c0.24		0.05	0.22	
v/s Ratio Perm			0.07									0.17
v/c Ratio	0.91	1.07	0.27	2.93	1.02		0.82	0.78		0.82	0.75	1.36
Uniform Delay, d1	39.0	33.3	26.5	41.5	35.3		39.2	28.2		41.7	28.6	39.5
Progression Factor	1.06	0.65	0.73	0.80	1.16		1.21	0.87		0.80	1.09	1.17
Incremental Delay, d2	22.9	48.4	1.1	890.7	39.7		22.4	5.5		36.2	8.9	200.3
Delay (s)	64.1	70.0	20.5	923.8	80.8		69.7	30.0		69.8	40.2	246.6
Level of Service	E	E	C	F	F		E	C		E	D	F
Approach Delay (s)		64.1			369.0			36.6			103.8	
Approach LOS		E			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			161.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.18									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				26.0		
Intersection Capacity Utilization			85.1%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												










15: Broadway & North Garage West Driveway

Timing Plan: PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations			  			
Traffic Volume (veh/h)	0	607	798	213	0	0
Future Volume (Veh/h)	0	607	798	213	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	660	867	232	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.75	
vC, conflicting volume	1099				1643	405
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1099				1691	405
tC, single (s)	4.2				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)	619				63	595
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	660	347	347	405		
Volume Left	0	0	0	0		
Volume Right	0	0	0	232		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.39	0.20	0.20	0.24		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			38.8%		ICU Level of Service	A
Analysis Period (min)			15			

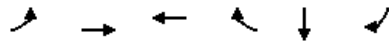
16: Broadway & North Garage East Driveway

Timing Plan: PM Peak Hour

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	607	531	0	0	480
Future Volume (Veh/h)	0	607	531	0	0	480
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	660	577	0	0	522
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	777				1437	488
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	777				1417	488
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	691				78	431
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	660	288	288	522		
Volume Left	0	0	0	0		
Volume Right	0	0	0	522		
cSH	1700	1700	1700	431		
Volume to Capacity	0.39	0.17	0.17	1.21		
Queue Length 95th (ft)	0	0	0	520		
Control Delay (s)	0.0	0.0	0.0	143.3		
Lane LOS				F		
Approach Delay (s)	0.0	0.0		143.3		
Approach LOS				F		
Intersection Summary						
Average Delay			42.5			
Intersection Capacity Utilization			56.0%	ICU Level of Service	B	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	615	67	91	402	190	179
v/c Ratio	1.16	0.22	0.24	0.75	0.64	0.52
Control Delay	109.2	11.8	38.6	25.4	35.6	39.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	109.2	11.8	38.6	25.4	35.6	39.7
Queue Length 50th (ft)	~425	6	51	250	104	67
Queue Length 95th (ft)	m#493	m8	m73	m315	167	125
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160		250	
Base Capacity (vph)	530	305	376	539	296	341
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	1.16	0.22	0.24	0.75	0.64	0.52
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	547	60	88	390	163	154
Future Volume (vph)	547	60	88	390	163	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	11
Total Lost time (s)	3.0	6.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1492	1268	1540	1565	1404	1151
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1492	1268	1540	1565	1404	1151
Peak-hour factor, PHF	0.89	0.89	0.97	0.97	0.86	0.86
Adj. Flow (vph)	615	67	91	402	190	179
RTOR Reduction (vph)	0	23	0	0	0	60
Lane Group Flow (vph)	615	44	91	402	190	119
Confl. Peds. (#/hr)		444	444		221	403
Confl. Bikes (#/hr)		51				
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	2	4	3	2	4	3
Permitted Phases						
Actuated Green, G (s)	31.0	19.0	22.0	31.0	19.0	22.0
Effective Green, g (s)	32.0	20.0	22.0	31.0	19.0	22.0
Actuated g/C Ratio	0.36	0.22	0.24	0.34	0.21	0.24
Clearance Time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Grp Cap (vph)	530	281	376	539	296	281
v/s Ratio Prot	c0.41	0.03	0.06	0.26	c0.14	c0.10
v/s Ratio Perm						
v/c Ratio	1.16	0.16	0.24	0.75	0.64	0.42
Uniform Delay, d1	29.0	28.2	27.3	26.0	32.4	28.7
Progression Factor	0.91	0.60	1.35	0.71	0.76	2.00
Incremental Delay, d2	81.6	0.5	1.0	6.0	10.0	4.5
Delay (s)	108.1	17.5	37.8	24.4	34.7	62.0
Level of Service	F	B	D	C	C	E
Approach Delay (s)	99.2			26.9	47.9	
Approach LOS	F			C	D	
Intersection Summary						
HCM 2000 Control Delay			63.9		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			0.81			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			66.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	266	710	458	171	552	126
v/c Ratio	0.94	0.73	0.82	0.41	1.22	0.48
Control Delay	57.3	28.8	41.1	28.9	145.6	36.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.3	28.8	41.1	28.9	145.6	36.6
Queue Length 50th (ft)	126	222	235	77	~388	63
Queue Length 95th (ft)	m#149	m215	#399	137	m#554	m99
Internal Link Dist (ft)		882	68		1123	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	282	972	558	413	452	262
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	0.94	0.73	0.82	0.41	1.22	0.48

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.









m Volume for 95th percentile queue is metered by upstream signal.





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	237	559	73	0	444	166	0	0	0	477	31	116
Future Volume (vph)	237	559	73	0	444	166	0	0	0	477	31	116
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1496	2821			1621	1378					1509	1391
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1496	2821			1621	1378					1509	1391
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	266	628	82	0	458	171	0	0	0	518	34	126
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	266	710	0	0	458	171	0	0	0	0	552	126
Confl. Peds. (#/hr)	72					72						320
Confl. Bikes (#/hr)			29			173						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	17.0	31.0			31.0	27.0					27.0	17.0
Effective Green, g (s)	17.0	31.0			31.0	27.0					27.0	17.0
Actuated g/C Ratio	0.19	0.34			0.34	0.30					0.30	0.19
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	971			558	413					452	262
v/s Ratio Prot	c0.18	0.25			c0.28	0.12					c0.37	0.09
v/s Ratio Perm												
v/c Ratio	0.94	0.73			0.82	0.41					1.22	0.48
Uniform Delay, d1	36.0	25.8			27.0	25.2					31.5	32.6
Progression Factor	0.74	1.00			1.00	1.00					0.96	0.94
Incremental Delay, d2	27.3	2.6			12.8	3.0					115.9	5.4
Delay (s)	53.8	28.4			39.7	28.2					146.2	35.8
Level of Service	D	C			D	C					F	D
Approach Delay (s)		35.3			36.6		0.0				125.7	
Approach LOS		D			D		A				F	
Intersection Summary												
HCM 2000 Control Delay		62.5			HCM 2000 Level of Service		E					
HCM 2000 Volume to Capacity ratio		0.99										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)		15.0					
Intersection Capacity Utilization		84.2%			ICU Level of Service		E					
Analysis Period (min)		15										
c Critical Lane Group												

KSURP
19: Broadway & Memorial Drive Ramp









2016 Updated Build Condition
Timing Plan: PM Peak Hour





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1250	227	0	519	136	0	0	378	0	0	69
Future Volume (Veh/h)	0	1250	227	0	519	136	0	0	378	0	0	69
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.92	0.92	0.61	0.61	0.61
Hourly flow rate (vph)	0	1316	239	0	546	143	0	0	411	0	0	113
Pedestrians		187						314			187	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		16						26			16	
Right turn flare (veh)												
Median type		None			Raised							
Median storage (veh)					1							
Upstream signal (ft)		1271										
pX, platoon unblocked				0.91			0.91	0.91	0.91	0.91	0.91	
vC, conflicting volume	876			1869			2322	2626	1092	1874	2674	718
vC1, stage 1 conf vol							1750	1750		804	804	
vC2, stage 2 conf vol							573	876		1069	1869	
vCu, unblocked vol	876			1764			2259	2591	914	1769	2643	718
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			100			100	100	0	0	100	56
cM capacity (veh/h)	647			239			51	77	186	0	66	257
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	877	678	364	325	411	113						
Volume Left	0	0	0	0	0	0						
Volume Right	0	239	0	143	411	113						
cSH	1700	1700	1700	1700	186	257						
Volume to Capacity	0.52	0.40	0.21	0.19	2.21	0.44						
Queue Length 95th (ft)	0	0	0	0	820	53						
Control Delay (s)	0.0	0.0	0.0	0.0	601.2	29.6						
Lane LOS					F	D						
Approach Delay (s)	0.0		0.0		601.2	29.6						
Approach LOS					F	D						
Intersection Summary												
Average Delay			90.5									
Intersection Capacity Utilization			80.5%		ICU Level of Service				D			
Analysis Period (min)			15									

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	294	366	65	199	568	51	415	243
v/c Ratio	0.77	0.53	0.23	0.29	0.77	0.27	0.73	0.77
Control Delay	35.9	20.6	22.0	19.4	34.0	31.6	38.6	40.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.9	20.6	22.0	19.4	34.0	31.6	38.6	40.9
Queue Length 50th (ft)	134	142	19	58	148	31	259	152
Queue Length 95th (ft)	#279	227	53	122	184	m28	m222	m132
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	383	686	278	694	740	192	570	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.53	0.23	0.29	0.77	0.27	0.73	0.77
Intersection Summary								
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	282	276	75	55	142	25	38	281	141	48	394	231
Future Volume (vph)	282	276	75	55	142	25	38	281	141	48	394	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.92		1.00	0.95			0.91		1.00	1.00	0.67
Flpb, ped/bikes	0.76	1.00		0.79	1.00			0.99		0.89	1.00	1.00
Frt	1.00	0.97		1.00	0.98			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	1.00
Satd. Flow (prot)	1233	1472		1162	1489			2595		1315	1605	888
Flt Permitted	0.63	1.00		0.49	1.00			0.80		0.39	1.00	1.00
Satd. Flow (perm)	821	1472		597	1489			2082		540	1605	888
Peak-hour factor, PHF	0.96	0.96	0.96	0.84	0.84	0.84	0.81	0.81	0.81	0.95	0.95	0.95
Adj. Flow (vph)	294	288	78	65	169	30	47	347	174	51	415	243
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	294	366	0	65	199	0	0	568	0	51	415	243
Confl. Peds. (#/hr)	629		344	344		629	201		177	177		201
Confl. Bikes (#/hr)			29			36			39			39
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	7%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Effective Green, g (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.36		0.36	0.36	0.36
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	383	686		278	694			740		192	570	315
v/s Ratio Prot		0.25			0.13						0.26	
v/s Ratio Perm	c0.36			0.11				0.27		0.09		c0.27
v/c Ratio	0.77	0.53		0.23	0.29			0.77		0.27	0.73	0.77
Uniform Delay, d1	19.9	17.0		14.4	14.8			25.7		20.6	25.2	25.8
Progression Factor	1.00	1.00		1.31	1.21			1.00		1.43	1.45	1.45
Incremental Delay, d2	13.7	3.0		1.9	1.0			7.5		0.3	0.8	1.7
Delay (s)	33.7	20.0		20.8	18.9			33.2		29.7	37.3	39.0
Level of Service	C	C		C	B			C		C	D	D
Approach Delay (s)		26.1			19.4			33.2			37.4	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			30.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			122.3%			ICU Level of Service				H		
Analysis Period (min)			15									















c Critical Lane Group

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	43	461	17	111	84	212	145	122
v/c Ratio	0.15	0.70	0.08	0.22	0.29	0.43	0.39	0.43
Control Delay	16.9	25.8	7.8	7.5	26.3	26.8	24.0	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.9	25.9	7.8	7.5	26.3	26.8	24.0	26.4
Queue Length 50th (ft)	12	225	2	13	35	93	44	37
Queue Length 95th (ft)	m22	m343	m3	m17	68	142	69	72
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			
Base Capacity (vph)	290	655	212	509	287	491	369	285
Starvation Cap Reductn	0	3	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.71	0.08	0.22	0.29	0.43	0.39	0.43
Intersection Summary								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	347	77	15	58	38	70	164	12	43	70	95
Future Volume (vph)	40	347	77	15	58	38	70	164	12	43	70	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	10	11
Total Lost time (s)	8.0	7.0		8.0	7.0		8.0	7.0			7.0	7.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.90		1.00	0.77		1.00	0.97			1.00	0.72
Flpb, ped/bikes	0.52	1.00		0.75	1.00		0.79	1.00			0.89	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	805	1282		989	996		1276	1475			1347	855
Flt Permitted	0.69	1.00		0.41	1.00		0.66	1.00			0.81	1.00
Satd. Flow (perm)	581	1282		424	996		893	1475			1109	855
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.83	0.83	0.83	0.78	0.78	0.78
Adj. Flow (vph)	43	377	84	17	67	44	84	198	14	55	90	122
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	43	461	0	17	111	0	84	212	0	0	145	122
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	1%	1%	1%	4%	4%	4%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	45.0	45.0		45.0	45.0		29.0	29.0			29.0	29.0
Effective Green, g (s)	45.0	46.0		45.0	46.0		29.0	30.0			30.0	30.0
Actuated g/C Ratio	0.50	0.51		0.50	0.51		0.32	0.33			0.33	0.33
Clearance Time (s)	8.0	8.0		8.0	8.0		8.0	8.0			8.0	8.0
Lane Grp Cap (vph)	290	655		212	509		287	491			369	285
v/s Ratio Prot		c0.36			0.11			c0.14				
v/s Ratio Perm	0.07			0.04			0.09				0.13	0.14
v/c Ratio	0.15	0.70		0.08	0.22		0.29	0.43			0.39	0.43
Uniform Delay, d1	12.2	16.8		11.7	12.1		22.8	23.4			23.0	23.3
Progression Factor	1.25	1.16		0.59	0.55		1.00	1.00			0.88	0.89
Incremental Delay, d2	0.9	5.1		0.5	0.6		2.6	2.8			3.1	4.6
Delay (s)	16.0	24.7		7.4	7.3		25.4	26.1			23.3	25.4
Level of Service	B	C		A	A		C	C			C	C
Approach Delay (s)		23.9			7.3			25.9			24.2	
Approach LOS		C			A			C			C	
Intersection Summary												
HCM 2000 Control Delay			22.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			79.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	1036	0	0	610	0	369
Future Volume (Veh/h)	1036	0	0	610	0	369
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1126	0	0	663	0	401
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.80		0.80	0.80
vC, conflicting volume			1356		1688	793
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			946		1360	242
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	18
cM capacity (veh/h)			467		90	491
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	563	563	332	332	401	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	401	
cSH	1700	1700	1700	1700	491	
Volume to Capacity	0.33	0.33	0.20	0.20	0.82	
Queue Length 95th (ft)	0	0	0	0	197	
Control Delay (s)	0.0	0.0	0.0	0.0	37.4	
Lane LOS					E	
Approach Delay (s)	0.0		0.0		37.4	
Approach LOS					E	
Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utilization			63.9%	ICU Level of Service	B	
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	65	1266	192	0	0	0	0	33	131
Future Volume (Veh/h)	0	0	0	65	1266	192	0	0	0	0	33	131
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	73	1422	216	0	0	0	0	37	146
Pedestrians	81			32			42			74		
Lane Width (ft)	0.0			10.0			0.0			14.0		
Walking Speed (ft/s)	4.0			4.0			4.0			4.0		
Percent Blockage	0			2			0			7		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1712			42			1144	1900	74	1782	1792	974
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1712			42			1144	1900	74	1782	1792	974
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			95			100	100	100	100	45	36
cM capacity (veh/h)	340			1580			29	61	951	41	68	227
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	784	927	183									
Volume Left	73	0	0									
Volume Right	0	216	146									
cSH	1580	1700	154									
Volume to Capacity	0.05	0.55	1.19									
Queue Length 95th (ft)	4	0	258									
Control Delay (s)	1.2	0.0	191.2									
Lane LOS	A		F									
Approach Delay (s)	0.6		191.2									
Approach LOS			F									
Intersection Summary												
Average Delay			19.0									
Intersection Capacity Utilization			116.5%	ICU Level of Service		H						
Analysis Period (min)			15									

2021 Future Conditions

Queues

1: Third Street & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM

	→	↘	←	↙	↑	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1962	760	497	119	116	5
v/c Ratio	1.14	0.77	0.30	0.36	0.27	0.01
Control Delay	93.9	14.5	25.0	38.3	7.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.9	14.5	25.0	38.3	7.5	0.0
Queue Length 50th (ft)	~856	230	165	73	0	0
Queue Length 95th (ft)	#995	365	218	116	45	0
Internal Link Dist (ft)	741		817		450	130
Turn Bay Length (ft)				85		
Base Capacity (vph)	1728	991	1673	333	436	410
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	1.14	0.77	0.30	0.36	0.27	0.01

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.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 						 		
Volume (vph)	0	1825	707	0	448	5	160	0	30	0	0	5	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Width	12	12	12	12	11	12	10	12	11	12	12	12	
Total Lost time (s)		6.0	6.0		3.0		6.0	6.0			6.0		
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00		
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00			1.00		
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00			1.00		
Frt		1.00	0.85		1.00		1.00	0.95			0.86		
Flt Protected		1.00	1.00		1.00		0.95	0.97			1.00		
Satd. Flow (prot)		3091	1390		2853		1359	1411			1450		
Flt Permitted		1.00	1.00		1.00		0.95	0.97			1.00		
Satd. Flow (perm)		3091	1390		2853		1359	1411			1450		
Peak-hour factor, PHF	0.92	0.93	0.93	0.91	0.91	0.92	0.81	0.92	0.81	0.92	0.92	0.92	
Adj. Flow (vph)	0	1962	760	0	492	5	198	0	37	0	0	5	
RTOR Reduction (vph)	0	0	0	0	1	0	0	88	0	0	5	0	
Lane Group Flow (vph)	0	1962	760	0	496	0	119	28	0	0	0	0	
Confl. Bikes (#/hr)			6										
Heavy Vehicles (%)	2%	3%	3%	10%	10%	2%	6%	2%	6%	2%	2%	2%	
Bus Blockages (#/hr)	0	10	0	0	0	0	0	0	0	0	0	0	
Turn Type		NA	custom		NA		Split	NA			NA		
Protected Phases		2 3	4		3 6		4	4		7	7		
Permitted Phases	2 3		2										
Actuated Green, G (s)		64.5	78.0		64.5		26.5	26.5			4.0		
Effective Green, g (s)		64.5	78.0		58.5		26.5	26.5			4.0		
Actuated g/C Ratio		0.59	0.71		0.53		0.24	0.24			0.04		
Clearance Time (s)			6.0				6.0	6.0			6.0		
Vehicle Extension (s)			3.0				3.0	3.0			3.0		
Lane Grp Cap (vph)		1812	1061		1517		327	339			52		
v/s Ratio Prot		c0.63	c0.17		0.17		0.09	0.02			c0.00		
v/s Ratio Perm			0.37										
v/c Ratio		1.08	0.72		0.33		0.36	0.08			0.00		
Uniform Delay, d1		22.8	9.5		14.6		34.7	32.3			51.1		
Progression Factor		1.00	1.00		2.12		1.00	1.00			1.00		
Incremental Delay, d2		47.5	2.3		0.1		0.7	0.1			0.0		
Delay (s)		70.2	11.8		31.1		35.4	32.4			51.1		
Level of Service		E	B		C		D	C			D		
Approach Delay (s)		53.9			31.1			34.0			51.1		
Approach LOS		D			C			C			D		
Intersection Summary													
HCM 2000 Control Delay			49.3									HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			1.03										
Actuated Cycle Length (s)			110.0							21.0			Sum of lost time (s)
Intersection Capacity Utilization			78.7%							D			ICU Level of Service
Analysis Period (min)			15										
c Critical Lane Group													

Queues

2: Third Street & Cambridge Street

2021 Future

8:00 AM - 9:00 AM

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	627	517	308	61	741
v/c Ratio	1.58	2.09	1.04	0.15	1.05
Control Delay	298.1	527.1	79.7	16.3	75.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	298.1	527.1	79.7	16.3	75.8
Queue Length 50th (ft)	~512	~470	~190	20	~465
Queue Length 95th (ft)	#718	#664	m#259	46	#682
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	397	247	296	402	703
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.58	2.09	1.04	0.15	1.05


















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	375	119	161	270	39	31	167	39	59	671	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.98			0.99		1.00	0.99	
Flpb, ped/bikes		0.99			0.99			1.00		0.98	1.00	
Frt		0.97			0.99			0.98		1.00	0.99	
Flt Protected		0.99			0.98			0.99		0.95	1.00	
Satd. Flow (prot)		1360			1273			1385		1498	1583	
Flt Permitted		0.81			0.54			0.48		0.57	1.00	
Satd. Flow (perm)		1116			695			668		906	1583	
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77	0.96	0.96	0.96
Adj. Flow (vph)	96	403	128	177	297	43	40	217	51	61	699	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	627	0	0	517	0	0	308	0	61	741	0
Confl. Peds. (#/hr)	172		66	66		172	60		42	42		60
Confl. Bikes (#/hr)			88			7			2			10
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.0			32.0			40.0		40.0	40.0	
Effective Green, g (s)		32.0			32.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.36			0.36			0.44		0.44	0.44	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		396			247			296		402	703	
v/s Ratio Prot											c0.47	
v/s Ratio Perm		0.56			c0.74			0.46		0.07		
v/c Ratio		1.58			2.09			1.04		0.15	1.05	
Uniform Delay, d1		29.0			29.0			25.0		14.9	25.0	
Progression Factor		1.00			1.00			1.15		1.00	1.00	
Incremental Delay, d2		274.3			505.5			48.9		0.8	49.1	
Delay (s)		303.3			534.5			77.5		15.7	74.1	
Level of Service		F			F			E		B	E	
Approach Delay (s)		303.3			534.5			77.5			69.6	
Approach LOS		F			F			E			E	
Intersection Summary												
HCM 2000 Control Delay		242.3										
HCM 2000 Volume to Capacity ratio		1.51										
Actuated Cycle Length (s)		90.0								18.0		
Intersection Capacity Utilization		113.3%								H		
Analysis Period (min)		15										
c Critical Lane Group												

Queues

3: First Street & Cambridge Street

2021 Future

8:00 AM - 9:00 AM

	→	↑	↗	↓
Lane Group	EBT	NBT	NBR	SBT
Lane Group Flow (vph)	343	96	206	1115
v/c Ratio	0.51	0.16	0.51	0.59
Control Delay	37.7	24.6	32.1	6.1
Queue Delay	0.2	0.0	0.0	11.0
Total Delay	37.9	24.6	32.1	17.0
Queue Length 50th (ft)	108	45	111	68
Queue Length 95th (ft)	156	84	165	m61
Internal Link Dist (ft)	719	1971		106
Turn Bay Length (ft)			175	
Base Capacity (vph)	668	609	405	1881
Starvation Cap Reductn	0	0	0	748
Spillback Cap Reductn	43	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.55	0.16	0.51	0.98



















Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 									 	
Volume (vph)	0	230	78	0	0	0	0	88	169	0	605	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		4.0						5.0	4.0		5.0	
Lane Util. Factor		0.95						1.00	1.00		0.95	
Frpb, ped/bikes		0.97						1.00	1.00		1.00	
Flpb, ped/bikes		1.00						1.00	1.00		1.00	
Frt		0.96						1.00	0.85		0.94	
Flt Protected		1.00						1.00	1.00		1.00	
Satd. Flow (prot)		2535						1676	1089		2989	
Flt Permitted		1.00						1.00	1.00		1.00	
Satd. Flow (perm)		2535						1676	1089		2989	
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.82	0.92	0.82	0.92	0.92	0.92
Adj. Flow (vph)	0	256	87	0	0	0	0	96	206	0	658	457
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	114	0
Lane Group Flow (vph)	0	343	0	0	0	0	0	96	206	0	1001	0
Confl. Bikes (#/hr)			76									
Heavy Vehicles (%)	2%	9%	9%	9%	9%	2%	29%	2%	29%	2%	2%	2%
Parking (#/hr)		2	2									
Turn Type		NA						NA	Perm		NA	
Protected Phases		1						3			2 3	
Permitted Phases									3			
Actuated Green, G (s)		28.0						40.0	40.0		65.0	
Effective Green, g (s)		29.0						40.0	41.0		65.0	
Actuated g/C Ratio		0.26						0.36	0.37		0.59	
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		668						609	405		1766	
v/s Ratio Prot		c0.14						0.06			c0.33	
v/s Ratio Perm									0.19			
v/c Ratio		0.51						0.16	0.51		0.57	
Uniform Delay, d1		34.5						23.6	26.7		13.8	
Progression Factor		1.00						1.00	1.00		0.55	
Incremental Delay, d2		2.8						0.6	4.5		0.4	
Delay (s)		37.3						24.2	31.2		8.0	
Level of Service		D						C	C		A	
Approach Delay (s)		37.3			0.0			29.0			8.0	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			17.3									HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			110.0								16.0	Sum of lost time (s)
Intersection Capacity Utilization			50.9%								A	ICU Level of Service
Analysis Period (min)			15									

c Critical Lane Group

Queues

4: Cambridge Street & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM



Lane Group	EBT	WBT	NBT	NBR	SBR
Lane Group Flow (vph)	1537	1172	64	356	81
v/c Ratio	0.68	0.67	0.12	0.67	0.07
Control Delay	2.9	19.6	30.1	37.5	0.1
Queue Delay	1.4	2.7	0.0	3.5	0.0
Total Delay	4.3	22.3	30.1	41.0	0.1
Queue Length 50th (ft)	28	291	28	152	0
Queue Length 95th (ft)	m31	352	m55	208	0
Internal Link Dist (ft)	178	832	195		
Turn Bay Length (ft)				100	
Base Capacity (vph)	2252	1745	534	528	1217
Starvation Cap Reductn	474	0	0	98	0
Spillback Cap Reductn	0	436	0	0	168
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.90	0.12	0.83	0.08

Intersection Summary













m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑	↑			↑
Volume (vph)	0	1429	0	0	957	74	23	38	338	0	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)		4.0			4.0			3.0	3.0			4.0
Lane Util. Factor		0.91			0.95			1.00	1.00			1.00
Frpb, ped/bikes		1.00			0.99			1.00	1.00			0.95
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		1.00			0.99			1.00	0.85			0.86
Flt Protected		1.00			1.00			0.98	1.00			1.00
Satd. Flow (prot)		4424			3139			1399	1211			1217
Flt Permitted		1.00			1.00			0.98	1.00			1.00
Satd. Flow (perm)		4424			3139			1399	1211			1217
Peak-hour factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	1537	0	0	1088	84	24	40	356	0	0	81
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	1537	0	0	1167	0	0	64	344	0	0	81
Confl. Peds. (#/hr)	24						24	111		4	4	111
Confl. Bikes (#/hr)			17				2		15			6
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	16%	16%	16%	16%	16%	16%
Turn Type		NA			NA		Split	NA	custom			Free
Protected Phases		1			1 2		3	3	2 3			
Permitted Phases												Free
Actuated Green, G (s)		55.0			61.0			40.0	45.0			110.0
Effective Green, g (s)		56.0			62.0			42.0	46.0			110.0
Actuated g/C Ratio		0.51			0.56			0.38	0.42			1.00
Clearance Time (s)		5.0						5.0				
Lane Grp Cap (vph)		2252			1769			534	506			1217
v/s Ratio Prot		c0.35			c0.37			0.05	c0.28			
v/s Ratio Perm												0.07
v/c Ratio		0.68			0.66			0.12	0.68			0.07
Uniform Delay, d1		20.3			16.7			22.0	26.0			0.0
Progression Factor		0.11			1.00			1.32	1.28			1.00
Incremental Delay, d2		0.7			1.9			0.4	6.3			0.1
Delay (s)		2.9			18.6			29.5	39.5			0.1
Level of Service		A			B			C	D			A
Approach Delay (s)		2.9			18.6			38.0			0.1	
Approach LOS		A			B			D			A	

Intersection Summary

HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		












c Critical Lane Group

Queues

5: Land Boulevard & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM

											
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	180	1085	595	325	651	319	184	478	267	325	1346
v/c Ratio	0.89	1.03	0.40	1.68	0.92	0.40	0.87	1.09	0.49	0.69	1.41
Control Delay	91.9	79.2	0.8	358.3	64.2	6.2	91.7	121.2	24.4	43.8	220.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	91.9	79.2	0.8	358.3	64.2	6.2	91.7	121.2	24.4	43.8	220.1
Queue Length 50th (ft)	139	~328	0	~367	260	38	152	~225	73	238	~763
Queue Length 95th (ft)	#273	#421	0	#549	#373	65	#260	#315	140	359	#909
Internal Link Dist (ft)		832			440			1843			515
Turn Bay Length (ft)	200		400	135		135	600			100	
Base Capacity (vph)	203	1058	1475	194	706	800	212	440	546	469	958
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	1.03	0.40	1.68	0.92	0.40	0.87	1.09	0.49	0.69	1.41

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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard & O'Brien Highway

2021 Future
8:00 AM - 9:00 AM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	171	1031	565	302	605	297	158	411	230	339	931	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1525	4381	1475	1458	2916	1304	1417	2935	1358	1408	2737	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1525	4381	1475	1458	2916	1304	1417	2935	1358	1408	2737	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	180	1085	595	325	651	319	184	478	267	361	990	320
RTOR Reduction (vph)	0	0	0	0	0	39	0	0	116	0	23	0
Lane Group Flow (vph)	180	1085	595	325	651	280	184	478	151	325	1323	0
Confl. Peds. (#/hr)			91	91			119		11	11		119
Confl. Bikes (#/hr)			51			2			1			11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA	Free	Prot	NA	pt+ov	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6	4 6	3	3	1 3	4	4	
Permitted Phases			Free									
Actuated Green, G (s)	14.9	28.0	120.0	15.0	28.1	68.1	17.0	17.0	37.0	40.0	40.0	
Effective Green, g (s)	15.9	29.0	120.0	16.0	29.1	70.1	18.0	18.0	38.0	40.0	41.0	
Actuated g/C Ratio	0.13	0.24	1.00	0.13	0.24	0.58	0.15	0.15	0.32	0.33	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	202	1058	1475	194	707	761	212	440	430	469	935	
v/s Ratio Prot	0.12	c0.25		c0.22	0.22	0.21	0.13	c0.16	0.11	0.23	c0.48	
v/s Ratio Perm			0.40									
v/c Ratio	0.89	1.03	0.40	1.68	0.92	0.37	0.87	1.09	0.35	0.69	1.41	
Uniform Delay, d1	51.2	45.5	0.0	52.0	44.3	13.2	49.8	51.0	31.5	34.7	39.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.14	1.14	1.76	1.00	1.00	
Incremental Delay, d2	35.0	34.3	0.8	325.4	17.4	0.3	28.5	67.7	0.5	4.4	193.1	
Delay (s)	86.2	79.8	0.8	377.4	61.7	13.5	85.6	126.0	55.8	39.1	232.6	
Level of Service	F	E	A	F	E	B	F	F	E	D	F	
Approach Delay (s)		55.2			129.0			97.9			194.9	
Approach LOS		E			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			119.3		HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio			1.30									
Actuated Cycle Length (s)			120.0	Sum of lost time (s)				17.0				
Intersection Capacity Utilization			101.4%	ICU Level of Service				G				
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Portland Street & Broadway

2021 Future

8:00 AM - 9:00 AM

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	726	377	47	372	86	275
v/c Ratio	1.17	0.77	0.18	0.69	0.39	0.52
Control Delay	120.2	30.1	22.2	32.9	13.3	12.6
Queue Delay	4.8	49.7	0.0	56.3	4.4	2.6
Total Delay	125.0	79.8	22.2	89.2	17.7	15.2
Queue Length 50th (ft)	~499	175	18	178	15	49
Queue Length 95th (ft)	#669	m155	45	283	m24	m76
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	618	491	268	536	222	524
Starvation Cap Reductn	0	144	0	0	33	147
Spillback Cap Reductn	260	53	0	199	82	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.03	1.09	0.18	1.10	0.61	0.73



















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2021 Future
8:00 AM - 9:00 AM










												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	77	506	41	36	277	8	44	256	90	79	193	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			1.00		1.00	0.96		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.93	1.00	
Frt		0.99			1.00		1.00	0.96		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1469			1202		1315	1510		1415	1474	
Flt Permitted		0.89			0.87		0.55	1.00		0.42	1.00	
Satd. Flow (perm)		1321			1051		755	1510		626	1474	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	90	588	48	42	326	9	47	275	97	86	210	65
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	723	0	0	376	0	47	372	0	86	275	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		616			490		268	536		222	524	
v/s Ratio Prot								c0.25			0.19	
v/s Ratio Perm		c0.55			0.36		0.06			0.14		
v/c Ratio		1.17			0.77		0.18	0.69		0.39	0.52	
Uniform Delay, d1		24.0			19.9		19.9	24.8		21.7	23.0	
Progression Factor		1.00			1.37		1.00	1.00		0.43	0.43	
Incremental Delay, d2		94.7			1.1		1.4	7.2		3.3	2.5	
Delay (s)		118.7			28.4		21.4	32.0		12.7	12.3	
Level of Service		F			C		C	C		B	B	
Approach Delay (s)		118.7			28.4			30.8			12.4	
Approach LOS		F			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			60.7			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			102.6%			ICU Level of Service			G			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

7: Technology Square/Hampshire Street & Broadway

2021 Future

8:00 AM - 9:00 AM

									
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	632	160	166	359	293	4	30	376	54
v/c Ratio	1.15	0.44	2.68	0.69	0.49	0.06	0.12	1.31	0.21
Control Delay	104.9	25.0	783.3	10.3	3.0	31.7	31.1	183.3	24.1
Queue Delay	2.3	0.0	0.0	50.8	0.0	674.7	0.0	0.0	0.0
Total Delay	107.2	25.0	783.3	61.1	3.0	706.3	31.1	183.3	24.1
Queue Length 50th (ft)	~443	78	~161	75	15	2	14	~274	19
Queue Length 95th (ft)	m#393	m82	m#173	m85	m16	10	34	m#328	m27
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	548	366	62	520	599	68	249	286	258
Starvation Cap Reductn	128	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	189	0	68	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.50	0.44	2.68	1.08	0.49	4.00	0.12	1.31	0.21

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	533	136	146	316	258	3	9	15	346	47	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.74	1.00	1.00	0.87	1.00	0.87		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.95	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1550	1030	1328	1464	1079	1402	1245		1430	1293	
Flt Permitted		1.00	1.00	0.12	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1545	1030	175	1464	1079	328	1245		1430	1293	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	627	160	166	359	293	4	11	19	376	51	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	632	160	166	359	293	4	30	0	376	54	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		549	366	62	520	695	65	249		286	258	
v/s Ratio Prot					0.25	0.08		c0.02		c0.26	0.04	
v/s Ratio Perm		0.41	0.16	c0.95		0.19	0.01					
v/c Ratio		1.15	0.44	2.68	0.69	0.42	0.06	0.12		1.31	0.21	
Uniform Delay, d1		29.0	22.1	29.0	24.8	11.6	29.2	29.5		36.0	30.1	
Progression Factor		1.06	1.05	0.39	0.32	0.26	1.00	1.00		0.72	0.74	
Incremental Delay, d2		73.3	0.9	767.7	2.1	0.5	1.8	1.0		156.6	1.2	
Delay (s)		104.2	24.0	778.9	10.0	3.5	31.0	30.5		182.5	23.5	
Level of Service		F	C	F	B	A	C	C		F	C	
Approach Delay (s)		88.0			163.7			30.6			162.5	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			132.4				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.64									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			106.0%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

8: Galileo Galilei Way & Binney Street & Fulkerson Street

2021 Future

8:00 AM - 9:00 AM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	794	822	424	230	35
v/c Ratio	0.44	0.94	1.16	0.70	0.12
Control Delay	15.1	25.3	123.0	45.5	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	25.3	123.0	45.5	29.5
Queue Length 50th (ft)	168	234	~243	121	16
Queue Length 95th (ft)	m197	m201	#410	#217	41
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1806	874	367	327	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.94	1.16	0.70	0.12

















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street







2021 Future
8:00 AM - 9:00 AM

											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	683	601	132	64	0	310	63	151	53	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.90				1.00			1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.96				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2755	2540				1203			1472	1277
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2755	2540				1203			1472	1277
Peak-hour factor, PHF	0.86	0.86	0.97	0.97	0.97	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	0	794	620	136	66	0	352	72	170	60	35
RTOR Reduction (vph)	0	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	794	822	0	0	0	351	0	0	230	35
Confl. Peds. (#/hr)	101			41	101	4		41	101		6
Confl. Bikes (#/hr)				8	11			24			11
Heavy Vehicles (%)	14%	14%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		59.0	31.0				22.0			20.0	20.0
Effective Green, g (s)		59.0	31.0				22.0			20.0	20.0
Actuated g/C Ratio		0.66	0.34				0.24			0.22	0.22
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1806	874				294			327	283
v/s Ratio Prot		0.29	c0.32				c0.29			c0.16	
v/s Ratio Perm											0.03
v/c Ratio		0.44	0.94				1.19			0.70	0.12
Uniform Delay, d1		7.5	28.6				34.0			32.3	28.0
Progression Factor		1.94	0.73				1.00			1.00	1.00
Incremental Delay, d2		0.3	2.7				115.3			12.0	0.9
Delay (s)		14.8	23.5				149.3			44.2	28.9
Level of Service		B	C				F			D	C
Approach Delay (s)		14.8	23.5			149.3				42.2	
Approach LOS		B	C			F				D	
Intersection Summary											
HCM 2000 Control Delay			45.8			HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.95								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			72.6%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street










2021 Future
8:00 AM - 9:00 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↗
Volume (veh/h)	736	0	0	797	0	51
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	800	0	0	866	0	55
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			800		1233	400
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			508		999	55
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	94
cM capacity (veh/h)			930		212	883
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	400	400	433	433	55	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	55	
cSH	1700	1700	1700	1700	883	
Volume to Capacity	0.24	0.24	0.25	0.25	0.06	
Queue Length 95th (ft)	0	0	0	0	5	
Control Delay (s)	0.0	0.0	0.0	0.0	9.3	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		9.3	
Approach LOS					A	
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			32.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis








10: North Garage East Driveway & Binney Street

2021 Future
8:00 AM - 9:00 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	565	224	175	797	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	614	243	190	866	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.90		0.90	0.90
vC, conflicting volume			858		1549	429
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			618		1387	142
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			78		100	100
cM capacity (veh/h)			862		94	792
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	409	448	190	433	433	
Volume Left	0	0	190	0	0	
Volume Right	0	243	0	0	0	
cSH	1700	1700	862	1700	1700	
Volume to Capacity	0.24	0.26	0.22	0.25	0.25	
Queue Length 95th (ft)	0	0	21	0	0	
Control Delay (s)	0.0	0.0	10.4	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		1.9			
Approach LOS						
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			42.8%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
11: Third Street & Binney Street

2021 Future
8:00 AM - 9:00 AM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	134	476	251	738	237	112	759
v/c Ratio	0.79	0.84	1.16	1.02	0.83	0.25	1.27
Control Delay	60.7	49.0	146.3	73.6	49.5	19.4	144.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.7	49.0	146.3	73.6	49.5	19.4	144.1
Queue Length 50th (ft)	47	155	~170	~242	117	41	~574
Queue Length 95th (ft)	m#156	#230	#277	#304	#255	80	m#407
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	178	565	217	722	287	442	599
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.84	1.16	1.02	0.83	0.25	1.27

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: Third Street & Binney Street

2021 Future

8:00 AM - 9:00 AM

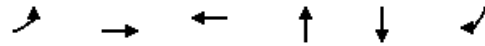
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	336	112	206	554	51	95	132	108	40	445	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.80		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	
Frt	1.00	0.96		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1342	2424		1307	2642			1522	1076		1500	
Flt Permitted	0.95	1.00		0.95	1.00			0.45	1.00		0.97	
Satd. Flow (perm)	1342	2424		1307	2642			698	1076		1458	
Peak-hour factor, PHF	0.94	0.94	0.94	0.82	0.82	0.82	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	134	357	119	251	676	62	99	138	112	43	478	238
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	134	476	0	251	738	0	0	237	112	0	759	0
Confl. Peds. (#/hr)	38		33	33		38	147		163	163		147
Confl. Bikes (#/hr)			14			12			12			17
Heavy Vehicles (%)	17%	17%	17%	16%	16%	16%	5%	5%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	11.4	21.0		15.0	24.6			37.0	37.0		37.0	
Effective Green, g (s)	11.4	21.0		15.0	24.6			37.0	37.0		37.0	
Actuated g/C Ratio	0.13	0.23		0.17	0.27			0.41	0.41		0.41	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	169	565		217	722			286	442		599	
v/s Ratio Prot	0.10	0.20		c0.19	c0.28							
v/s Ratio Perm								0.34	0.10		c0.52	
v/c Ratio	0.79	0.84		1.16	1.02			0.83	0.25		1.27	
Uniform Delay, d1	38.2	32.9		37.5	32.7			23.7	17.4		26.5	
Progression Factor	0.78	1.06		1.00	1.00			1.00	1.00		0.74	
Incremental Delay, d2	20.5	13.2		109.8	39.2			17.6	0.3		121.5	
Delay (s)	50.4	48.0		147.3	71.9			41.3	17.7		141.2	
Level of Service	D	D		F	E			D	B		F	
Approach Delay (s)		48.5			91.1			33.7			141.2	
Approach LOS		D			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			88.1			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.19									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			113.3%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												

Queues

12: First Street & Binney Street

2021 Future

8:00 AM - 9:00 AM



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	247	301	1291	60	321	247
v/c Ratio	1.39	0.17	0.87	0.26	1.10	1.27
Control Delay	226.6	5.7	40.1	44.2	128.0	196.7
Queue Delay	0.0	0.0	49.4	0.0	0.0	0.0
Total Delay	226.6	5.7	89.6	44.2	128.0	196.7
Queue Length 50th (ft)	~254	35	548	40	~282	~241
Queue Length 95th (ft)	#239	45	m570	50	#448	#395
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	178	1775	1479	228	291	194
Starvation Cap Reductn	0	0	723	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	1.39	0.17	1.71	0.26	1.10	1.27



















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2021 Future
8:00 AM - 9:00 AM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	147	103	267	629	215	0	15	20	9	274	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96			0.97			0.93			1.00	0.78
Flpb, ped/bikes	0.99	1.00			0.99			1.00			1.00	1.00
Frt	1.00	0.94			0.97			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1362	2479			2639			1142			1467	972
Flt Permitted	0.17	1.00			0.77			1.00			0.99	1.00
Satd. Flow (perm)	251	2479			2048			1142			1458	972
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.58	0.58	0.58	0.88	0.88	0.88
Adj. Flow (vph)	247	177	124	310	731	250	0	26	34	10	311	247
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	247	301	0	0	1291	0	0	60	0	0	321	247
Confl. Peds. (#/hr)	55		21	21		55	95		46	46		95
Confl. Bikes (#/hr)			2			10			5			4
Heavy Vehicles (%)	18%	18%	18%	6%	6%	6%	29%	29%	29%	16%	16%	16%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	86.0	86.0			86.5			24.0			24.0	24.0
Effective Green, g (s)	86.0	86.0			86.5			24.0			24.0	24.0
Actuated g/C Ratio	0.72	0.72			0.72			0.20			0.20	0.20
Clearance Time (s)	5.0	5.0			4.5			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)	179	1776			1476			228			291	194
v/s Ratio Prot		0.12						0.05				
v/s Ratio Perm	c0.99				0.63						0.22	c0.25
v/c Ratio	1.38	0.17			0.87			0.26			1.10	1.27
Uniform Delay, d1	17.0	5.5			12.7			40.5			48.0	48.0
Progression Factor	1.00	1.00			2.77			1.00			1.00	1.00
Incremental Delay, d2	201.9	0.2			2.8			0.6			83.3	156.8
Delay (s)	218.9	5.7			37.8			41.2			131.3	204.8
Level of Service	F	A			D			D			F	F
Approach Delay (s)		101.8			37.8			41.2			163.3	
Approach LOS		F			D			D			F	
Intersection Summary												
HCM 2000 Control Delay			81.0				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.42									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			85.0%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

13: Land Boulevard & Binney Street

2021 Future

8:00 AM - 9:00 AM

					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	221	791	778	1105	468
v/c Ratio	0.41	0.99	0.24	0.92	0.87
Control Delay	45.6	73.9	6.3	51.2	51.0
Queue Delay	1.0	40.8	0.0	0.0	52.3
Total Delay	46.7	114.8	6.3	51.2	103.3
Queue Length 50th (ft)	81	315	68	462	369
Queue Length 95th (ft)	m107	#450	85	m373	m315
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	534	795	3273	1197	535
Starvation Cap Reductn	141	0	0	0	0
Spillback Cap Reductn	0	411	0	0	200
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.56	2.06	0.24	0.92	1.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.













Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2021 Future
8:00 AM - 9:00 AM

							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	180	1	40	672	700	1039	440
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2565			2808	4622	3124	1398
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2565			2808	4622	3124	1398
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.90	0.94	0.94
Adj. Flow (vph)	220	1	44	747	778	1105	468
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	221	0	0	791	778	1105	468
Confl. Bikes (#/hr)							3
Heavy Vehicles (%)	19%	19%	1%	1%	1%	4%	4%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	25.0			34.0	85.0	46.0	46.0
Effective Green, g (s)	25.0			34.0	85.0	46.0	46.0
Actuated g/C Ratio	0.21			0.28	0.71	0.38	0.38
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534			795	3273	1197	535
v/s Ratio Prot	c0.09			c0.28	0.17	c0.35	0.33
v/s Ratio Perm							
v/c Ratio	0.41			0.99	0.24	0.92	0.87
Uniform Delay, d1	41.2			42.9	6.1	35.3	34.3
Progression Factor	1.04			1.00	1.00	1.40	1.41
Incremental Delay, d2	2.3			30.7	0.2	1.6	2.0
Delay (s)	45.2			73.6	6.3	51.2	50.5
Level of Service	D			E	A	D	D
Approach Delay (s)	45.2				40.3	51.0	
Approach LOS	D				D	D	
Intersection Summary							
HCM 2000 Control Delay			45.6		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio			0.82				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			73.6%		ICU Level of Service		D
Analysis Period (min)			15				











c Critical Lane Group

Queues

14: Binney Street/Galileo Galilei Way & Broadway

2021 Future

8:00 AM - 9:00 AM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	253	637	150	133	491	88	611	120	635	237
v/c Ratio	1.14	1.41	0.61	1.25	0.89	0.73	0.83	0.76	1.17	1.39
Control Delay	133.5	230.3	50.7	196.4	39.7	56.3	34.7	57.4	106.1	215.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.5	230.3	50.7	196.4	39.7	56.3	34.7	57.4	106.1	215.4
Queue Length 50th (ft)	~176	~513	88	~92	159	54	167	61	~458	~184
Queue Length 95th (ft)	m#202	m#517	m101	m#128	m176	m60	m173	m63	m#458	m#186
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	222	451	247	106	549	120	732	161	545	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.14	1.41	0.61	1.25	0.89	0.73	0.83	0.75	1.17	1.39

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Binney Street/Galileo Galilei Way & Broadway

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	218	548	129	124	416	41	78	425	118	114	603	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	7.0	4.0	4.0	7.0	4.0		4.0	4.0		7.0	4.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.99		1.00	0.97		1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1430	1613	880	1366	2721		1354	2535		1450	1476	1096
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1430	1613	880	1366	2721		1354	2535		1450	1476	1096
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	253	637	150	133	447	44	88	478	133	120	635	237
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	253	637	150	133	491	0	88	611	0	120	635	237
Confl. Peds. (#/hr)			150			70			60			55
Confl. Bikes (#/hr)			175			6			7			9
Heavy Vehicles (%)	6%	6%	6%	11%	11%	11%	16%	16%	16%	12%	12%	12%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	13.0	23.2	23.2	6.0	16.2		5.6	26.0		8.8	32.2	13.0
Effective Green, g (s)	14.0	24.2	24.2	7.0	17.2		6.6	27.0		9.8	33.2	14.0
Actuated g/C Ratio	0.16	0.27	0.27	0.08	0.19		0.07	0.30		0.11	0.37	0.16
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	222	433	236	106	520		99	760		157	544	170
v/s Ratio Prot	0.18	c0.39		0.10	0.18		0.07	0.24		c0.08	c0.43	
v/s Ratio Perm			0.17									c0.22
v/c Ratio	1.14	1.47	0.64	1.25	0.94		0.89	0.80		0.76	1.17	1.39
Uniform Delay, d1	38.0	32.9	29.0	41.5	35.9		41.3	29.1		39.0	28.4	38.0
Progression Factor	1.17	1.45	1.48	1.20	0.68		1.04	1.00		1.23	0.80	0.82
Incremental Delay, d2	91.9	220.1	8.2	154.3	20.6		25.7	3.1		5.5	80.7	186.3
Delay (s)	136.4	267.9	51.0	204.0	45.1		68.9	32.0		53.5	103.4	217.4
Level of Service	F	F	D	F	D		E	C		D	F	F
Approach Delay (s)		204.6			78.9			36.7			124.6	
Approach LOS		F			E			D			F	

Intersection Summary

HCM 2000 Control Delay	122.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2021 Future
8:00 AM - 9:00 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	778	582	129	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	846	633	140	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.74	
vC, conflicting volume	773				1548	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	773				1565	281
tC, single (s)	4.2				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)	825				76	716
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	846	253	253	267		
Volume Left	0	0	0	0		
Volume Right	0	0	0	140		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.50	0.15	0.15	0.16		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			48.8%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2021 Future
8:00 AM - 9:00 AM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Volume (veh/h)	0	778	612	0	0	99
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	846	665	0	0	108
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	865				1711	533
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	865				1782	533
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	73
cM capacity (veh/h)	639				44	403
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	846	443	222	108		
Volume Left	0	0	0	0		
Volume Right	0	0	0	108		
cSH	1700	1700	1700	403		
Volume to Capacity	0.50	0.26	0.13	0.27		
Queue Length 95th (ft)	0	0	0	27		
Control Delay (s)	0.0	0.0	0.0	17.1		
Lane LOS				C		
Approach Delay (s)	0.0	0.0		17.1		
Approach LOS				C		
Intersection Summary						
Average Delay			1.1			
Intersection Capacity Utilization			48.8%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2021 Future
8:00 AM - 9:00 AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	714	157	281	517	133	158
v/c Ratio	1.39	0.51	0.72	1.01	0.45	0.45
Control Delay	211.6	11.1	46.0	45.8	46.0	21.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	211.6	11.1	46.0	45.8	46.0	21.4
Queue Length 50th (ft)	~571	50	163	~326	73	57
Queue Length 95th (ft)	m#452	m41	m127	m262	m108	m92
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160			100
Base Capacity (vph)	512	310	393	512	297	349
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	1.39	0.51	0.72	1.01	0.45	0.45













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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis







17: Ames Street & Broadway

2021 Future
8:00 AM - 9:00 AM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	643	141	264	486	124	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	10
Total Lost time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1565	1330	1540	1565	1486	1177
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1565	1330	1540	1565	1486	1177
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.93	0.93
Adj. Flow (vph)	714	157	281	517	133	158
RTOR Reduction (vph)	0	45	0	0	0	49
Lane Group Flow (vph)	714	112	281	517	133	109
Confl. Peds. (#/hr)		395	395		206	132
Confl. Bikes (#/hr)		140				
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	3	2	1	3	2
Permitted Phases						
Actuated Green, G (s)	29.5	18.0	23.0	29.5	18.0	23.0
Effective Green, g (s)	29.5	18.0	23.0	29.5	18.0	23.0
Actuated g/C Ratio	0.33	0.20	0.26	0.33	0.20	0.26
Clearance Time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Grp Cap (vph)	512	266	393	512	297	300
v/s Ratio Prot	c0.46	0.08	c0.18	0.33	c0.09	0.09
v/s Ratio Perm						
v/c Ratio	1.39	0.42	0.72	1.01	0.45	0.36
Uniform Delay, d1	30.2	31.5	30.5	30.2	31.6	27.5
Progression Factor	1.34	0.50	1.43	0.97	1.32	1.08
Incremental Delay, d2	178.7	0.4	1.0	14.4	3.4	2.4
Delay (s)	219.0	16.2	44.8	43.8	45.0	32.1
Level of Service	F	B	D	D	D	C
Approach Delay (s)	182.5			44.1	38.0	
Approach LOS	F			D	D	
Intersection Summary						
HCM 2000 Control Delay			104.7		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			0.93			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	19.5
Intersection Capacity Utilization			84.3%		ICU Level of Service	E
Analysis Period (min)			15			
c Critical Lane Group						

Queues
18: Third Street & Broadway

2021 Future
8:00 AM - 9:00 AM

						
Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	343	497	802	424	350	147
v/c Ratio	1.12	0.52	1.39	1.16	0.90	0.53
Control Delay	96.8	12.4	214.1	129.0	59.6	39.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.8	12.4	214.1	129.0	59.6	39.4
Queue Length 50th (ft)	~213	139	~614	~287	192	75
Queue Length 95th (ft)	m109	m96	#835	#466	#353	136
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	306	954	576	367	390	279
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	1.12	0.52	1.39	1.16	0.90	0.53

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2021 Future

8:00 AM - 9:00 AM


















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	322	415	53	0	746	394	0	0	0	181	151	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.97			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1454	2684			1621	1378					1466	1326
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1454	2684			1621	1378					1466	1326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	343	441	56	0	802	424	0	0	0	191	159	147
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	343	497	0	0	802	424	0	0	0	0	350	147
Confl. Peds. (#/hr)	59					59				911		263
Confl. Bikes (#/hr)			217			18						
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	19.0	32.0			32.0	24.0					24.0	19.0
Effective Green, g (s)	19.0	32.0			32.0	24.0					24.0	19.0
Actuated g/C Ratio	0.21	0.36			0.36	0.27					0.27	0.21
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	306	954			576	367					390	279
v/s Ratio Prot	c0.24	0.19			c0.49	c0.31					0.24	0.11
v/s Ratio Perm												
v/c Ratio	1.12	0.52			1.39	1.16					0.90	0.53
Uniform Delay, d1	35.5	22.9			29.0	33.0					31.8	31.5
Progression Factor	1.10	0.53			1.00	1.00					1.00	1.00
Incremental Delay, d2	58.9	0.2			187.0	96.4					25.9	7.0
Delay (s)	98.1	12.2			216.0	129.4					57.7	38.5
Level of Service	F	B			F	F					E	D
Approach Delay (s)		47.3			186.1			0.0			52.0	
Approach LOS		D			F			A			D	
Intersection Summary												
HCM 2000 Control Delay			114.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.25									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			93.4%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2021 Future
8:00 AM - 9:00 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 							
Volume (veh/h)	0	689	100	0	1132	331	0	0	0	0	0	144
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.25	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	741	108	0	1244	364	0	0	0	0	0	160
Pedestrians								159			128	
Lane Width (ft)								0.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								0			11	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1276										
pX, platoon unblocked												
vC, conflicting volume	1736			1007			1736	2689	583	1924	2561	932
vC1, stage 1 conf vol							954	954		1554	1554	
vC2, stage 2 conf vol							782	1736		370	1007	
vCu, unblocked vol	1736			1007			1736	2689	583	1924	2561	932
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	100	100	32
cM capacity (veh/h)	313			684			80	90	455	87	102	236
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	494	354	829	778	160							
Volume Left	0	0	0	0	0							
Volume Right	0	108	0	364	160							
cSH	1700	1700	1700	1700	236							
Volume to Capacity	0.29	0.21	0.49	0.46	0.68							
Queue Length 95th (ft)	0	0	0	0	108							
Control Delay (s)	0.0	0.0	0.0	0.0	47.2							
Lane LOS					E							
Approach Delay (s)	0.0		0.0		47.2							
Approach LOS					E							
Intersection Summary												
Average Delay			2.9									
Intersection Capacity Utilization			64.6%		ICU Level of Service				C			
Analysis Period (min)			15									

Queues

20: Vassar Street/Binney Street & Main Street

2021 Future

8:00 AM - 9:00 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	357	484	70	274	646	91	439	381
v/c Ratio	1.10	0.78	0.36	0.53	0.93	0.51	0.79	0.99
Control Delay	106.8	32.8	14.4	15.1	49.6	39.2	41.2	56.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	106.8	32.8	14.4	15.1	49.6	39.2	41.2	56.1
Queue Length 50th (ft)	~232	229	32	142	182	57	275	239
Queue Length 95th (ft)	#375	336	m56	m197	#297	m51	m252	m223
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	325	618	192	516	691	177	558	383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.78	0.36	0.53	0.93	0.51	0.79	0.99





















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Binney Street & Main Street

2021 Future
8:00 AM - 9:00 AM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	307	341	75	67	146	117	70	325	193	86	413	358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.94		1.00	0.87			0.93		1.00	1.00	0.84
Flpb, ped/bikes	0.81	1.00		0.89	1.00			0.99		0.94	1.00	1.00
Frt	1.00	0.97		1.00	0.93			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1243	1428		1199	1193			2474		1237	1437	985
Flt Permitted	0.57	1.00		0.35	1.00			0.71		0.35	1.00	1.00
Satd. Flow (perm)	750	1428		445	1193			1778		456	1437	985
Peak-hour factor, PHF	0.86	0.86	0.86	0.96	0.96	0.96	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	357	397	87	70	152	122	77	357	212	91	439	381
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	357	484	0	70	274	0	0	646	0	91	439	381
Confl. Peds. (#/hr)	398		210	210		398	76		127	127		76
Confl. Bikes (#/hr)			84			7			36			57
Heavy Vehicles (%)	10%	10%	10%	13%	13%	13%	15%	15%	15%	15%	15%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Effective Green, g (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.39		0.39	0.39	0.39
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	325	618		192	516			691		177	558	383
v/s Ratio Prot		0.34			0.23						0.31	
v/s Ratio Perm	c0.48			0.16				0.36		0.20		c0.39
v/c Ratio	1.10	0.78		0.36	0.53			0.93		0.51	0.79	0.99
Uniform Delay, d1	25.5	21.9		17.2	18.8			26.4		21.0	24.2	27.4
Progression Factor	1.00	1.00		0.55	0.62			1.00		1.64	1.60	1.58
Incremental Delay, d2	79.0	9.6		4.0	3.0			21.5		1.0	1.1	12.6
Delay (s)	104.5	31.5		13.5	14.6			48.0		35.5	39.9	55.9
Level of Service	F	C		B	B			D		D	D	E
Approach Delay (s)		62.4			14.4			48.0			46.1	
Approach LOS		E			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			47.6				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.05									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			136.4%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

21: Ames Street & Main Street

2021 Future

8:00 AM - 9:00 AM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	137	543	143	120	98	177	252	215
v/c Ratio	1.13	1.67	2.65	0.47	0.51	0.42	0.82	0.77
Control Delay	133.4	331.2	809.7	28.3	36.7	27.8	36.8	33.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.4	331.2	809.7	28.3	36.7	27.8	36.8	33.2
Queue Length 50th (ft)	~89	~451	~140	47	45	78	133	99
Queue Length 95th (ft)	m#134	m#600	m#209	m74	100	139	m#250	m#209
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			100
Base Capacity (vph)	121	326	54	255	191	417	307	280
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.13	1.67	2.65	0.47	0.51	0.42	0.82	0.77





















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street







2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	126	355	144	110	55	38	89	151	10	113	106	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	11	10
Total Lost time (s)	5.5	4.5		5.5	4.5		5.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.79		1.00	0.70		1.00	0.98			1.00	0.79
Flpb, ped/bikes	0.39	1.00		1.00	1.00		0.88	1.00			0.89	1.00
Frt	1.00	0.96		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	558	1030		1169	806		1233	1296			1333	869
Flt Permitted	0.68	1.00		0.15	1.00		0.48	1.00			0.70	1.00
Satd. Flow (perm)	399	1030		179	806		617	1296			956	869
Peak-hour factor, PHF	0.92	0.92	0.92	0.77	0.77	0.77	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	137	386	157	143	71	49	98	166	11	130	122	215
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	137	543	0	143	120	0	98	177	0	0	252	215
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	14%	14%	14%	39%	39%	39%	16%	16%	16%	8%	8%	8%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)	27.5	27.5		27.5	27.5		28.0	28.0			28.0	28.0
Effective Green, g (s)	27.5	28.5		27.5	28.5		28.0	29.0			29.0	29.0
Actuated g/C Ratio	0.31	0.32		0.31	0.32		0.31	0.32			0.32	0.32
Clearance Time (s)	5.5	5.5		5.5	5.5		5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	121	326		54	255		191	417			308	280
v/s Ratio Prot		0.53			0.15			0.14				
v/s Ratio Perm	0.34			c0.80			0.16				c0.26	0.25
v/c Ratio	1.13	1.67		2.65	0.47		0.51	0.42			0.82	0.77
Uniform Delay, d1	31.2	30.8		31.2	24.7		25.4	23.9			28.1	27.5
Progression Factor	0.86	0.85		0.88	0.86		1.00	1.00			0.58	0.57
Incremental Delay, d2	102.6	307.4		791.6	6.1		9.5	3.1			17.4	14.9
Delay (s)	129.4	333.4		819.0	27.2		34.9	27.1			33.7	30.6
Level of Service	F	F		F	C		C	C			C	C
Approach Delay (s)		292.3			457.8			29.9			32.3	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay			203.2				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.28									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.5		
Intersection Capacity Utilization			86.5%				ICU Level of Service			E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway















2021 Future
8:00 AM - 9:00 AM

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	596	0	0	1140	0	292
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	648	0	0	1239	0	317
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			878		1497	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			581		1287	211
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	44
cM capacity (veh/h)			702		111	563
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	324	324	620	620	317	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	317	
cSH	1700	1700	1700	1700	563	
Volume to Capacity	0.19	0.19	0.36	0.36	0.56	
Queue Length 95th (ft)	0	0	0	0	87	
Control Delay (s)	0.0	0.0	0.0	0.0	19.3	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		19.3	
Approach LOS					C	
Intersection Summary						
Average Delay			2.8			
Intersection Capacity Utilization			45.1%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

23: Ames Street & Memorial Drive WB

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	14	1172	474	0	0	0	0	24	87
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	16	1363	551	0	0	0	0	27	99
Pedestrians		58						9			59	
Lane Width (ft)		0.0						0.0			14.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		0						0			6	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)					974							
pX, platoon unblocked												
vC, conflicting volume	1973			9			893	2015	9	1730	1739	1074
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1973			9			893	2015	9	1730	1739	1074
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.8	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			99			100	100	100	100	62	47
cM capacity (veh/h)	273			1624			74	54	1070	45	72	187
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	698	1233	126									
Volume Left	16	0	0									
Volume Right	0	551	99									
cSH	1624	1700	139									
Volume to Capacity	0.01	0.73	0.91									
Queue Length 95th (ft)	1	0	154									
Control Delay (s)	0.3	0.0	115.8									
Lane LOS	A		F									
Approach Delay (s)	0.1		115.8									
Approach LOS			F									
Intersection Summary												
Average Delay			7.2									
Intersection Capacity Utilization		121.2%		ICU Level of Service						H		
Analysis Period (min)			15									

Queues

28: First Street Connector & O'Brien Highway

2021 Future

8:00 AM - 9:00 AM

	→	↘	←	↙	↑	↓
Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1735	726	420	58	38	206
v/c Ratio	0.95	1.06	0.23	0.30	0.19	0.41
Control Delay	21.7	78.5	5.2	25.8	23.1	45.5
Queue Delay	0.0	17.4	0.4	1.4	0.0	0.0
Total Delay	21.7	95.9	5.7	27.1	23.1	45.5
Queue Length 50th (ft)	478	~295	20	38	25	70
Queue Length 95th (ft)	m378	#417	26	80	58	108
Internal Link Dist (ft)	817		178		106	169
Turn Bay Length (ft)						
Base Capacity (vph)	1829	686	1830	193	203	503
Starvation Cap Reductn	0	128	936	50	0	0
Spillback Cap Reductn	0	8	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.30	0.47	0.41	0.19	0.41













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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

28: First Street Connector & O'Brien Highway

2021 Future
8:00 AM - 9:00 AM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑↑	↑↑		↑	↑			↑↑	
Volume (vph)	0	1345	251	668	378	8	53	35	0	84	106	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Lane Util. Factor		0.91		0.97	0.95		1.00	1.00			0.95	
Frt		0.98		1.00	1.00		1.00	1.00			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)		4965		3433	3528		1770	1863			3463	
Flt Permitted		1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (perm)		4965		3433	3528		1770	1863			3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1462	273	726	411	9	58	38	0	91	115	0
RTOR Reduction (vph)	0	25	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1710	0	726	419	0	58	38	0	0	206	0
Turn Type		NA		Prot	NA		Split	NA		Split	NA	
Protected Phases		1		2 3	1 2		5	5		4	4	
Permitted Phases												
Actuated Green, G (s)		40.0		22.0	57.0		12.0	12.0			16.0	
Effective Green, g (s)		40.0		22.0	57.0		12.0	12.0			16.0	
Actuated g/C Ratio		0.36		0.20	0.52		0.11	0.11			0.15	
Clearance Time (s)		5.0					5.0	5.0			5.0	
Lane Grp Cap (vph)		1805		686	1828		193	203			503	
v/s Ratio Prot		c0.34		c0.21	0.12		c0.03	0.02			c0.06	
v/s Ratio Perm												
v/c Ratio		0.95		1.06	0.23		0.30	0.19			0.41	
Uniform Delay, d1		34.0		44.0	14.5		45.1	44.6			42.7	
Progression Factor		0.58		0.69	0.35		0.48	0.47			1.00	
Incremental Delay, d2		1.5		47.1	0.2		3.9	2.0			2.5	
Delay (s)		21.2		77.4	5.2		25.4	22.9			45.2	
Level of Service		C		E	A		C	C			D	
Approach Delay (s)		21.2			51.0			24.4			45.2	
Approach LOS		C			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			33.6			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			25.0			
Intersection Capacity Utilization			74.5%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

Queues

1: Third Street & O'Brien Highway

2021 Future

5:00 PM - 6:00 PM

	→	↘	←	↙	↑	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1218	498	1317	502	509	12
v/c Ratio	0.84	0.47	0.82	1.26	0.98	0.06
Control Delay	28.3	6.9	16.1	167.9	62.1	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.3	6.9	16.1	167.9	62.1	0.6
Queue Length 50th (ft)	337	106	134	~424	265	0
Queue Length 95th (ft)	412	154	167	#633	#494	0
Internal Link Dist (ft)	741		787		450	163
Turn Bay Length (ft)				85		
Base Capacity (vph)	1448	1064	1614	399	521	185
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	0.84	0.47	0.82	1.26	0.98	0.06

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.

HCM Signalized Intersection Capacity Analysis

1: Third Street & O'Brien Highway

2021 Future

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	12	1048	433	0	1254	10	946	0	25	3	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		6.0	6.0		3.0		6.0	6.0			6.0	
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00	
Frt		1.00	0.85		1.00		1.00	0.99			0.90	
Flt Protected		1.00	1.00		1.00		0.95	0.95			0.99	
Satd. Flow (prot)		3150	1439		3046		1426	1524			1488	
Flt Permitted		0.92	1.00		1.00		0.95	0.95			0.99	
Satd. Flow (perm)		2895	1439		3046		1426	1524			1488	
Peak-hour factor, PHF	0.92	0.87	0.87	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	13	1205	498	0	1306	11	985	0	26	3	0	9
RTOR Reduction (vph)	0	0	0	0	1	0	0	94	0	0	12	0
Lane Group Flow (vph)	0	1218	498	0	1316	0	502	415	0	0	0	0
Heavy Vehicles (%)	2%	1%	1%	3%	3%	2%	1%	2%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	10	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA	custom		NA		Split	NA		Split	NA	
Protected Phases		2 3	4		3 6		4	4		7	7	
Permitted Phases	2 3		2									
Actuated Green, G (s)		53.0	68.0		53.0		28.0	28.0			4.0	
Effective Green, g (s)		53.0	68.0		47.0		28.0	28.0			4.0	
Actuated g/C Ratio		0.53	0.68		0.47		0.28	0.28			0.04	
Clearance Time (s)			6.0				6.0	6.0			6.0	
Vehicle Extension (s)			3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		1534	1064		1431		399	426			59	
v/s Ratio Prot			0.13		c0.43		c0.35	0.27			c0.00	
v/s Ratio Perm		c0.42	0.22									
v/c Ratio		0.79	0.47		0.92		1.26	0.97			0.01	
Uniform Delay, d1		19.1	7.5		24.7		36.0	35.6			46.1	
Progression Factor		1.00	1.00		0.65		1.00	1.00			1.00	
Incremental Delay, d2		2.9	0.3		7.0		135.1	36.4			0.1	
Delay (s)		22.0	7.8		23.0		171.1	72.1			46.2	
Level of Service		C	A		C		F	E			D	
Approach Delay (s)		17.9			23.0			121.2			46.2	
Approach LOS		B			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			45.4								D	
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			100.0						21.0			
Intersection Capacity Utilization			88.2%								E	
Analysis Period (min)			15									

c Critical Lane Group

Queues

2: Third Street & Cambridge Street

2021 Future

5:00 PM - 6:00 PM

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	567	567	840	48	443
v/c Ratio	1.80	1.68	1.59	0.23	0.60
Control Delay	396.5	344.8	286.1	18.0	22.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	396.5	344.8	286.1	18.0	22.2
Queue Length 50th (ft)	~489	~476	~679	16	180
Queue Length 95th (ft)	#572	#676	m#599	41	280
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	315	337	528	210	733
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.80	1.68	1.59	0.23	0.60


















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

2: Third Street & Cambridge Street

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	95	292	55	51	287	200	84	677	12	43	341	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.89			1.00		1.00	0.99	
Flpb, ped/bikes		0.98			1.00			1.00		0.99	1.00	
Frt		0.98			0.95			1.00		1.00	0.98	
Flt Protected		0.99			1.00			0.99		0.95	1.00	
Satd. Flow (prot)		1487			1190			1466		1529	1572	
Flt Permitted		0.63			0.85			0.77		0.28	1.00	
Satd. Flow (perm)		947			1011			1133		451	1572	
Peak-hour factor, PHF	0.78	0.78	0.78	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	122	374	71	54	302	211	91	736	13	48	379	64
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	567	0	0	567	0	0	840	0	48	443	0
Confl. Peds. (#/hr)	152		93	93		152	36		41	41		36
Confl. Bikes (#/hr)			17			56			3			1
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			42.0		42.0	42.0	
Effective Green, g (s)		30.0			30.0			42.0		42.0	42.0	
Actuated g/C Ratio		0.33			0.33			0.47		0.47	0.47	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		315			337			528		210	733	
v/s Ratio Prot											0.28	
v/s Ratio Perm		c0.60			0.56			c0.74		0.11		
v/c Ratio		1.80			1.68			1.59		0.23	0.60	
Uniform Delay, d1		30.0			30.0			24.0		14.3	17.8	
Progression Factor		1.00			1.00			0.56		1.00	1.00	
Incremental Delay, d2		372.4			319.8			266.7		2.5	3.7	
Delay (s)		402.4			349.8			280.2		16.8	21.5	
Level of Service		F			F			F		B	C	
Approach Delay (s)		402.4			349.8			280.2			21.0	
Approach LOS		F			F			F			C	
Intersection Summary												
HCM 2000 Control Delay		272.7										
HCM 2000 Volume to Capacity ratio		1.68										
Actuated Cycle Length (s)		90.0								18.0		
Intersection Capacity Utilization		152.6%								H		
Analysis Period (min)		15										
c Critical Lane Group												

Queues

3: First Street & Cambridge Street

2021 Future

5:00 PM - 6:00 PM

	→	↑	↗	↓
Lane Group	EBT	NBT	NBR	SBT
Lane Group Flow (vph)	371	172	729	621
v/c Ratio	0.52	0.29	1.50	0.33
Control Delay	34.7	25.3	263.2	5.3
Queue Delay	0.2	0.0	0.0	5.1
Total Delay	35.0	25.3	263.2	10.4
Queue Length 50th (ft)	106	79	~648	16
Queue Length 95th (ft)	149	133	#871	36
Internal Link Dist (ft)	719	1971		117
Turn Bay Length (ft)			175	
Base Capacity (vph)	715	586	486	1865
Starvation Cap Reductn	0	0	0	1161
Spillback Cap Reductn	55	14	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.56	0.30	1.50	0.88



















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.

HCM Signalized Intersection Capacity Analysis

3: First Street & Cambridge Street

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 									 	
Volume (vph)	0	266	61	0	0	0	0	158	685	0	286	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		4.0						5.0	4.0		4.0	
Lane Util. Factor		0.95						1.00	1.00		0.95	
Frpb, ped/bikes		0.99						1.00	1.00		1.00	
Flpb, ped/bikes		1.00						1.00	1.00		1.00	
Frt		0.97						1.00	0.85		0.93	
Flt Protected		1.00						1.00	1.00		1.00	
Satd. Flow (prot)		2752						1676	1351		2947	
Flt Permitted		1.00						1.00	1.00		1.00	
Satd. Flow (perm)		2752						1676	1351		2947	
Peak-hour factor, PHF	0.92	0.88	0.88	0.81	0.81	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	302	69	0	0	0	0	172	729	0	311	310
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	130	0
Lane Group Flow (vph)	0	371	0	0	0	0	0	172	729	0	491	0
Confl. Bikes (#/hr)			16									
Heavy Vehicles (%)	2%	4%	4%	3%	3%	2%	4%	2%	4%	2%	2%	2%
Parking (#/hr)		2	2									
Turn Type		NA						NA	Perm		NA	
Protected Phases		1						3			2 3	
Permitted Phases									3			
Actuated Green, G (s)		25.0						35.0	35.0		58.0	
Effective Green, g (s)		26.0						35.0	36.0		58.0	
Actuated g/C Ratio		0.26						0.35	0.36		0.58	
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		715						586	486		1709	
v/s Ratio Prot		c0.13						0.10			c0.17	
v/s Ratio Perm									c0.54			
v/c Ratio		0.52						0.29	1.50		0.29	
Uniform Delay, d1		31.6						23.5	32.0		10.6	
Progression Factor		1.00						1.00	1.00		1.01	
Incremental Delay, d2		2.7						1.3	235.6		0.3	
Delay (s)		34.3						24.8	267.6		11.0	
Level of Service		C						C	F		B	
Approach Delay (s)		34.3			0.0			221.3			11.0	
Approach LOS		C			A			F			B	
Intersection Summary												
HCM 2000 Control Delay		115.6										
HCM 2000 Volume to Capacity ratio		0.87										
Actuated Cycle Length (s)		100.0							16.0			
Intersection Capacity Utilization		64.1%							C			
Analysis Period (min)		15										

c Critical Lane Group

Queues

4: Cambridge Street & O'Brien Highway

2021 Future

5:00 PM - 6:00 PM



Lane Group	EBT	WBT	NBT	NBR	SBR
Lane Group Flow (vph)	847	1200	262	771	194
v/c Ratio	0.53	0.79	0.35	0.96	0.15
Control Delay	18.6	27.6	3.3	10.6	0.2
Queue Delay	6.9	0.5	2.6	41.8	0.1
Total Delay	25.5	28.1	5.9	52.3	0.3
Queue Length 50th (ft)	199	330	23	29	0
Queue Length 95th (ft)	246	420	m23	m21	0
Internal Link Dist (ft)	208	832	195		
Turn Bay Length (ft)				100	
Base Capacity (vph)	1608	1518	740	799	1312
Starvation Cap Reductn	706	0	357	144	0
Spillback Cap Reductn	0	78	285	0	294
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.83	0.68	1.18	0.19













Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

4: Cambridge Street & O'Brien Highway

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑	↑			↑
Volume (vph)	0	771	0	0	1100	28	187	54	709	0	0	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)		4.0			4.0			3.0	4.0			4.0
Lane Util. Factor		0.91			0.95			1.00	1.00			1.00
Frpb, ped/bikes		1.00			1.00			1.00	1.00			0.96
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		1.00			1.00			1.00	0.85			0.86
Flt Protected		1.00			1.00			0.96	1.00			1.00
Satd. Flow (prot)		4468			3298			1576	1391			1312
Flt Permitted		1.00			1.00			0.96	1.00			1.00
Satd. Flow (perm)		4468			3298			1576	1391			1312
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.66	0.66	0.66
Adj. Flow (vph)	0	847	0	0	1170	30	203	59	771	0	0	194
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	847	0	0	1198	0	0	262	751	0	0	194
Confl. Peds. (#/hr)	45					45	98		21	21		98
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	8%	8%	8%
Turn Type		NA			NA		Split	NA	custom			Free
Protected Phases		1			1 2		3	3	2 3			
Permitted Phases												Free
Actuated Green, G (s)		35.0			45.0			45.0	55.0			100.0
Effective Green, g (s)		36.0			46.0			47.0	56.0			100.0
Actuated g/C Ratio		0.36			0.46			0.47	0.56			1.00
Clearance Time (s)		5.0						5.0				
Lane Grp Cap (vph)		1608			1517			740	778			1312
v/s Ratio Prot		0.19			c0.36			0.17	c0.54			
v/s Ratio Perm												0.15
v/c Ratio		0.53			0.79			0.35	0.96			0.15
Uniform Delay, d1		25.3			22.9			16.8	21.1			0.0
Progression Factor		0.69			1.00			0.18	0.13			1.00
Incremental Delay, d2		0.9			4.3			0.1	4.5			0.2
Delay (s)		18.4			27.2			3.2	7.3			0.2
Level of Service		B			C			A	A			A
Approach Delay (s)		18.4			27.2			6.3			0.2	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			16.7			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.96									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				13.0		
Intersection Capacity Utilization			74.0%			ICU Level of Service				D		
Analysis Period (min)			15									












c Critical Lane Group

Queues

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

2021 Future

5:00 PM - 6:00 PM

											
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	555	707	326	263	658	431	462	1337	450	183	690
v/c Ratio	1.97	0.74	0.22	0.89	0.95	0.66	1.42	1.99	0.60	0.56	1.02
Control Delay	475.9	49.2	0.3	77.2	69.5	15.9	243.1	476.6	19.3	48.6	82.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	475.9	49.2	0.3	77.2	69.5	15.9	243.1	476.6	19.3	48.6	82.6
Queue Length 50th (ft)	~667	188	0	200	265	102	~479	~848	180	138	~292
Queue Length 95th (ft)	#873	233	0	#315	#339	141	#649	#937	275	225	#429
Internal Link Dist (ft)		832			440			1843			515
Turn Bay Length (ft)	200		400	150			600			100	
Base Capacity (vph)	282	958	1503	297	693	654	325	673	753	329	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.97	0.74	0.22	0.89	0.95	0.66	1.42	1.99	0.60	0.56	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.

HCM Signalized Intersection Capacity Analysis

5: Land Boulevard/Charlestown Avenue & O'Brien Highway

2021 Future
5:00 PM - 6:00 PM

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	494	629	290	221	553	362	397	1150	387	183	449	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1540	4424	1503	1486	2973	1330	1501	3110	1439	1464	2801	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1540	4424	1503	1486	2973	1330	1501	3110	1439	1464	2801	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	555	707	326	263	658	431	462	1337	450	203	499	171
RTOR Reduction (vph)	0	0	0	0	0	34	0	0	106	0	25	0
Lane Group Flow (vph)	555	707	326	263	658	397	462	1337	344	183	665	0
Confl. Peds. (#/hr)			91	91			156		33	33		156
Confl. Bikes (#/hr)			10			27						6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	Free	Prot	NA	pt+ov	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6	4 6	3	3	1 3	4	4	
Permitted Phases			Free									
Actuated Green, G (s)	21.0	25.0	120.0	23.0	27.0	54.0	25.0	25.0	53.0	27.0	27.0	
Effective Green, g (s)	22.0	26.0	120.0	24.0	28.0	56.0	26.0	26.0	54.0	27.0	28.0	
Actuated g/C Ratio	0.18	0.22	1.00	0.20	0.23	0.47	0.22	0.22	0.45	0.22	0.23	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	958	1503	297	693	620	325	673	647	329	653	
v/s Ratio Prot	c0.36	0.16		0.18	c0.22	0.30	0.31	c0.43	0.24	0.13	c0.24	
v/s Ratio Perm			0.22									
v/c Ratio	1.97	0.74	0.22	0.89	0.95	0.64	1.42	1.99	0.53	0.56	1.02	
Uniform Delay, d1	49.0	43.8	0.0	46.7	45.3	24.3	47.0	47.0	23.9	41.2	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.06	1.06	1.16	1.00	1.00	
Incremental Delay, d2	448.2	5.1	0.3	25.4	22.3	2.3	206.0	449.0	0.8	2.0	40.1	
Delay (s)	497.2	48.9	0.3	72.0	67.6	26.6	255.8	498.7	28.5	43.2	86.1	
Level of Service	F	D	A	E	E	C	F	F	C	D	F	
Approach Delay (s)		195.6			55.4			354.8			77.1	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM 2000 Control Delay			206.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.46									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			17.0		
Intersection Capacity Utilization			118.5%				ICU Level of Service			H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

6: Portland Street & Broadway

2021 Future

5:00 PM - 6:00 PM

	→	←	↖	↑	↘	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	592	673	82	461	16	294
v/c Ratio	1.30	1.29	0.26	0.70	0.07	0.48
Control Delay	177.4	163.0	20.3	28.7	7.2	9.2
Queue Delay	5.4	4.3	0.0	57.2	0.6	1.9
Total Delay	182.8	167.3	20.3	85.9	7.9	11.1
Queue Length 50th (ft)	~439	~457	30	211	3	48
Queue Length 95th (ft)	#541	m#418	65	326	m3	m64
Internal Link Dist (ft)	1159	220		707		114
Turn Bay Length (ft)					30	
Base Capacity (vph)	455	523	315	662	229	618
Starvation Cap Reductn	0	189	0	0	0	189
Spillback Cap Reductn	180	82	0	341	118	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.15	2.01	0.26	1.44	0.14	0.69



















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

6: Portland Street & Broadway

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	394	16	26	561	19	78	387	51	14	189	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		1.00			1.00		0.90	1.00		0.94	1.00	
Frt		1.00			1.00		1.00	0.98		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1501			1322		1343	1612		1475	1504	
Flt Permitted		0.73			0.96		0.54	1.00		0.36	1.00	
Satd. Flow (perm)		1104			1271		768	1612		559	1504	
Peak-hour factor, PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	80	492	20	29	623	21	82	407	54	16	212	82
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	591	0	0	672	0	82	461	0	16	294	0
Confl. Peds. (#/hr)	98		158	158		98	123		110	110		123
Confl. Bikes (#/hr)			15			84			42			19
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio		0.41			0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		453			522		315	662		229	618	
v/s Ratio Prot								c0.29			0.20	
v/s Ratio Perm		c0.53			0.53		0.11			0.03		
v/c Ratio		1.30			1.29		0.26	0.70		0.07	0.48	
Uniform Delay, d1		26.5			26.5		17.5	21.9		16.1	19.4	
Progression Factor		1.00			1.39		1.00	1.00		0.41	0.37	
Incremental Delay, d2		152.2			130.5		2.0	6.0		0.4	1.7	
Delay (s)		178.7			167.4		19.5	27.8		7.0	9.0	
Level of Service		F			F		B	C		A	A	
Approach Delay (s)		178.7			167.4			26.6			8.9	
Approach LOS		F			F			C			A	
Intersection Summary												
HCM 2000 Control Delay			111.3				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.00									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			108.4%				ICU Level of Service			G		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

7: Technology Square/Hampshire Street & Broadway

2021 Future

5:00 PM - 6:00 PM

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	532	14	34	578	513	82	128	299	23
v/c Ratio	1.35	0.03	0.27	1.04	0.84	1.21	0.39	1.05	0.11
Control Delay	187.5	20.0	25.6	54.4	23.6	211.4	35.5	76.8	22.2
Queue Delay	1.7	0.0	0.0	28.5	0.0	78.5	0.0	0.0	0.0
Total Delay	189.2	20.0	25.6	82.9	23.6	289.9	35.5	76.8	22.2
Queue Length 50th (ft)	~417	7	10	~273	181	~57	64	~180	7
Queue Length 95th (ft)	m#297	m6	m8	m164	m124	#139	110	m#211	m9
Internal Link Dist (ft)	220			435			247		299
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	395	455	124	556	611	68	326	286	217
Starvation Cap Reductn	59	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	272	0	55	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.58	0.03	0.27	2.04	0.84	6.31	0.39	1.05	0.11
























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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

7: Technology Square/Hampshire Street & Broadway

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	432	12	31	526	467	70	105	3	272	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.92	1.00	1.00	0.83	1.00	0.99		1.00	0.90	
Flpb, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1547	1282	1453	1565	1102	1458	1632		1430	1088	
Flt Permitted		0.72	1.00	0.23	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1113	1282	349	1565	1102	341	1632		1430	1088	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	18	514	14	34	578	513	82	124	4	299	10	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	532	14	34	578	513	82	128	0	299	23	0
Confl. Peds. (#/hr)	81		45	45		81	59		154	154		59
Confl. Bikes (#/hr)			1			94			18			5
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												5
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		395	455	124	556	710	68	326		286	217	
v/s Ratio Prot					0.37	0.14		0.08		c0.21	0.02	
v/s Ratio Perm		c0.48	0.01	0.10		0.32	c0.24					
v/c Ratio		1.35	0.03	0.27	1.04	0.72	1.21	0.39		1.05	0.11	
Uniform Delay, d1		29.0	18.9	20.7	29.0	14.8	36.0	31.3		36.0	29.4	
Progression Factor		1.14	1.04	1.11	1.01	1.79	1.00	1.00		0.68	0.72	
Incremental Delay, d2		157.7	0.0	0.5	23.6	0.6	174.8	3.5		48.4	0.4	
Delay (s)		190.6	19.7	23.6	52.8	27.2	210.8	34.8		72.9	21.8	
Level of Service		F	B	C	D	C	F	C		E	C	
Approach Delay (s)		186.2			40.2			103.5			69.2	
Approach LOS		F			D			F			E	
Intersection Summary												
HCM 2000 Control Delay			86.7				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.23									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			22.0		
Intersection Capacity Utilization			97.5%				ICU Level of Service			F		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

8: Galileo Galilei Way & Binney Street & Fulkerson Street

2021 Future

5:00 PM - 6:00 PM



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	1016	816	274	356	136
v/c Ratio	0.53	0.96	0.76	1.02	0.44
Control Delay	18.5	51.2	36.0	89.0	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	51.2	36.0	89.0	35.0
Queue Length 50th (ft)	313	266	95	~209	66
Queue Length 95th (ft)	m301	m240	#218	#272	96
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1909	852	360	350	306
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.96	0.76	1.02	0.44

















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

8: Galileo Galilei Way & Binney Street & Fulkerson Street







2021 Future
5:00 PM - 6:00 PM

											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Volume (vph)	0	884	512	176	30	0	200	57	165	95	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frpb, ped/bikes		1.00	0.90				1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.96				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2963	2474				1227			1501	1314
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2963	2474				1227			1501	1314
Peak-hour factor, PHF	0.87	0.87	0.88	0.88	0.88	0.94	0.94	0.94	0.73	0.73	0.73
Adj. Flow (vph)	0	1016	582	200	34	0	213	61	226	130	136
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	1016	816	0	0	0	200	0	0	356	136
Confl. Peds. (#/hr)	48			63	48	14		63	48		7
Confl. Bikes (#/hr)				23	31			19			1
Heavy Vehicles (%)	6%	6%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		58.0	31.0				21.0			21.0	21.0
Effective Green, g (s)		58.0	31.0				21.0			21.0	21.0
Actuated g/C Ratio		0.64	0.34				0.23			0.23	0.23
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1909	852				286			350	306
v/s Ratio Prot		0.34	c0.33				c0.16			c0.24	
v/s Ratio Perm											0.10
v/c Ratio		0.53	0.96				0.70			1.02	0.44
Uniform Delay, d1		8.7	28.9				31.6			34.5	29.5
Progression Factor		2.08	1.65				1.00			1.00	1.00
Incremental Delay, d2		0.1	3.6				13.3			52.5	4.6
Delay (s)		18.1	51.4				44.9			87.0	34.1
Level of Service		B	D				D			F	C
Approach Delay (s)		18.1	51.4			44.9				72.4	
Approach LOS		B	D			D				E	
Intersection Summary											
HCM 2000 Control Delay			41.7				HCM 2000 Level of Service			D	
HCM 2000 Volume to Capacity ratio			0.90								
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		17.0		
Intersection Capacity Utilization			69.0%				ICU Level of Service		C		
Analysis Period (min)			15								
c Critical Lane Group											

HCM Unsignalized Intersection Capacity Analysis

9: North Garage West Driveway & Binney Street










2021 Future
5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	981	1	0	716	0	258
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1066	1	0	778	0	280
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.83		0.83	0.83
vC, conflicting volume			1067		1456	534
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			670		1139	27
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	68
cM capacity (veh/h)			760		162	865
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	711	357	389	389	280	
Volume Left	0	0	0	0	0	
Volume Right	0	1	0	0	280	
cSH	1700	1700	1700	1700	865	
Volume to Capacity	0.42	0.21	0.23	0.23	0.32	
Queue Length 95th (ft)	0	0	0	0	35	
Control Delay (s)	0.0	0.0	0.0	0.0	11.1	
Lane LOS					B	
Approach Delay (s)	0.0		0.0		11.1	
Approach LOS					B	
Intersection Summary						
Average Delay			1.5			
Intersection Capacity Utilization			54.6%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis








10: North Garage East Driveway & Binney Street

2021 Future
5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	1161	77	46	716	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1262	84	50	778	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.84		0.90	0.84
vC, conflicting volume			1346		1793	673
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1032		1055	231
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			91		100	100
cM capacity (veh/h)			562		181	648
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	841	504	50	389	389	
Volume Left	0	0	50	0	0	
Volume Right	0	84	0	0	0	
cSH	1700	1700	562	1700	1700	
Volume to Capacity	0.49	0.30	0.09	0.23	0.23	
Queue Length 95th (ft)	0	0	7	0	0	
Control Delay (s)	0.0	0.0	12.0	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		0.7			
Approach LOS						
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			45.8%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
11: Third Street & Binney Street

2021 Future
5:00 PM - 6:00 PM

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	428	906	168	665	471	200	381
v/c Ratio	1.08	1.01	0.84	1.16	1.09	0.60	1.10
Control Delay	96.6	69.2	72.8	125.6	101.5	33.4	92.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.6	69.2	72.8	125.6	101.5	33.4	92.7
Queue Length 50th (ft)	~283	~296	94	~238	~305	93	~232
Queue Length 95th (ft)	m#455	m#409	#203	#348	#458	159	m#323
Internal Link Dist (ft)		1062		1070	827		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	398	900	206	572	431	333	346
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	1.08	1.01	0.82	1.16	1.09	0.60	1.10

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

11: Third Street & Binney Street

2021 Future

5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	385	666	149	155	552	60	78	327	172	43	233	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98			1.00	0.70		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.97		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)	1496	2752		1430	2862			1595	968		1502	
Flt Permitted	0.95	1.00		0.95	1.00			0.78	1.00		0.67	
Satd. Flow (perm)	1496	2752		1430	2862			1253	968		1006	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.86	0.86	0.86	0.98	0.98	0.98
Adj. Flow (vph)	428	740	166	168	600	65	91	380	200	44	238	99
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	428	906	0	168	665	0	0	471	200	0	381	0
Confl. Peds. (#/hr)	55		32	32		55	150		216	216		150
Confl. Bikes (#/hr)			11			20			19			11
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	24.0	29.4		12.6	18.0			31.0	31.0		31.0	
Effective Green, g (s)	24.0	29.4		12.6	18.0			31.0	31.0		31.0	
Actuated g/C Ratio	0.27	0.33		0.14	0.20			0.34	0.34		0.34	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	398	898		200	572			431	333		346	
v/s Ratio Prot	c0.29	0.33		0.12	c0.23							
v/s Ratio Perm								0.38	0.21		c0.38	
v/c Ratio	1.08	1.01		0.84	1.16			1.09	0.60		1.10	
Uniform Delay, d1	33.0	30.3		37.7	36.0			29.5	24.4		29.5	
Progression Factor	0.92	1.27		1.00	1.00			1.00	1.00		0.93	
Incremental Delay, d2	64.8	30.9		25.4	91.2			70.8	3.0		63.3	
Delay (s)	95.1	69.3		63.1	127.2			100.3	27.4		90.8	
Level of Service	F	E		E	F			F	C		F	
Approach Delay (s)		77.6			114.3			78.6			90.8	
Approach LOS		E			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			88.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.11									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0			
Intersection Capacity Utilization			110.1%			ICU Level of Service			H			
Analysis Period (min)			15									

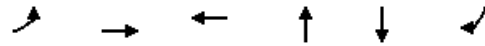
c Critical Lane Group

Queues

12: First Street & Binney Street

2021 Future

5:00 PM - 6:00 PM



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	404	479	669	210	379	263
v/c Ratio	1.11	0.25	0.46	0.54	0.89	0.96
Control Delay	102.2	9.0	7.9	44.0	66.4	89.7
Queue Delay	0.0	0.0	1.1	64.7	0.0	0.0
Total Delay	102.2	9.0	9.0	108.7	66.4	89.7
Queue Length 50th (ft)	~359	75	55	139	281	200
Queue Length 95th (ft)	#558	101	79	138	#452	#367
Internal Link Dist (ft)		1070	174	143	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	365	1894	1444	396	436	280
Starvation Cap Reductn	0	0	511	206	0	0
Spillback Cap Reductn	0	10	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.11	0.25	0.72	1.11	0.87	0.94



















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.

HCM Signalized Intersection Capacity Analysis

12: First Street & Binney Street

2021 Future
5:00 PM - 6:00 PM






												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	372	345	96	59	306	250	0	59	69	4	341	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97			0.93			0.94			1.00	0.75
Flpb, ped/bikes	0.94	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.97			0.94			0.93			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1448	2891			2565			1488			1642	1052
Flt Permitted	0.37	1.00			0.85			1.00			1.00	1.00
Satd. Flow (perm)	564	2891			2187			1488			1639	1052
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.91	0.91	0.91
Adj. Flow (vph)	404	375	104	64	333	272	0	97	113	4	375	263
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	404	479	0	0	669	0	0	210	0	0	379	263
Confl. Peds. (#/hr)	75		26	26		75	106		45	45		106
Confl. Bikes (#/hr)			1			3			5			3
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	78.7	78.7			79.2			31.3			31.3	31.3
Effective Green, g (s)	78.7	78.7			79.2			31.3			31.3	31.3
Actuated g/C Ratio	0.66	0.66			0.66			0.26			0.26	0.26
Clearance Time (s)	5.0	5.0			4.5			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)	369	1896			1443			388			427	274
v/s Ratio Prot		0.17						0.14				
v/s Ratio Perm	c0.72				0.31						0.23	c0.25
v/c Ratio	1.09	0.25			0.46			0.54			0.89	0.96
Uniform Delay, d1	20.6	8.5			10.0			38.2			42.7	43.7
Progression Factor	1.00	1.00			0.69			1.00			1.00	1.00
Incremental Delay, d2	74.8	0.3			0.2			1.5			19.4	42.9
Delay (s)	95.5	8.8			7.1			39.7			62.1	86.6
Level of Service	F	A			A			D			E	F
Approach Delay (s)		48.5			7.1			39.7			72.1	
Approach LOS		D			A			D			E	
Intersection Summary												
HCM 2000 Control Delay			42.5				HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			120.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			80.8%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

13: Land Boulevard & Binney Street

2021 Future

5:00 PM - 6:00 PM

					
Lane Group	EBL	NEL	NET	SWT	SWR
Lane Group Flow (vph)	419	542	1325	993	202
v/c Ratio	0.49	0.82	0.45	0.88	0.40
Control Delay	29.0	55.0	12.4	40.7	32.1
Queue Delay	3.2	0.0	0.0	0.0	0.0
Total Delay	32.2	55.0	12.4	40.7	32.1
Queue Length 50th (ft)	104	206	183	305	95
Queue Length 95th (ft)	136	#265	209	m301	m98
Internal Link Dist (ft)	174		355	1843	
Turn Bay Length (ft)		250			
Base Capacity (vph)	848	661	2917	1125	503
Starvation Cap Reductn	321	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.80	0.82	0.45	0.88	0.40

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.













Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

13: Land Boulevard & Binney Street

2021 Future
5:00 PM - 6:00 PM











							
Movement	EBL	EBR	NEU	NEL	NET	SWT	SWR
Lane Configurations							
Volume (vph)	416	3	38	439	1166	854	174
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2907			2836	4668	3217	1439
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2907			2836	4668	3217	1439
Peak-hour factor, PHF	1.00	0.91	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	416	3	43	499	1325	993	202
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	419	0	0	542	1325	993	202
Confl. Peds. (#/hr)	1			74			74
Confl. Bikes (#/hr)							5
Heavy Vehicles (%)	5%	5%	0%	0%	0%	1%	1%
Turn Type	Prot		Prot	Prot	NA	NA	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	35.0			28.0	75.0	42.0	42.0
Effective Green, g (s)	35.0			28.0	75.0	42.0	42.0
Actuated g/C Ratio	0.29			0.23	0.62	0.35	0.35
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	847			661	2917	1125	503
v/s Ratio Prot	c0.14			c0.19	0.28	c0.31	0.14
v/s Ratio Perm							
v/c Ratio	0.49			0.82	0.45	0.88	0.40
Uniform Delay, d1	35.2			43.6	11.8	36.7	29.5
Progression Factor	0.76			1.00	1.00	0.99	1.04
Incremental Delay, d2	2.0			10.9	0.5	4.1	0.9
Delay (s)	28.7			54.5	12.3	40.3	31.4
Level of Service	C			D	B	D	C
Approach Delay (s)	28.7				24.6	38.8	
Approach LOS	C				C	D	
Intersection Summary							
HCM 2000 Control Delay			29.9		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.74				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			67.1%		ICU Level of Service		C
Analysis Period (min)			15				
c Critical Lane Group							

Queues

14: Galileo Galilei Way & Broadway

2021 Future

5:00 PM - 6:00 PM

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	197	484	71	309	834	138	888	80	515	285
v/c Ratio	1.12	1.07	0.29	2.73	1.25	0.84	1.01	0.67	1.16	2.21
Control Delay	100.9	63.7	20.6	818.8	148.4	65.3	53.1	47.2	119.6	581.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	63.7	20.6	818.8	148.4	65.3	53.1	47.2	119.6	581.1
Queue Length 50th (ft)	~126	~298	26	~306	~310	85	~309	40	~367	~274
Queue Length 95th (ft)	m84	m172	m22	m#354	m#341	m90	m#290	m51	m#457	m#329
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	176	452	249	113	666	166	880	121	443	129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	1.07	0.29	2.73	1.25	0.83	1.01	0.66	1.16	2.21

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

14: Galileo Galilei Way & Broadway

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	185	455	67	263	654	55	117	646	109	74	474	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.97		1.00	0.97		1.00	1.00	0.78
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1444	1629	895	1458	2857		1496	2834		1562	1589	1056
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1444	1629	895	1458	2857		1496	2834		1562	1589	1056
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	197	484	71	309	769	65	138	760	128	80	515	285
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	197	484	71	309	834	0	138	888	0	80	515	285
Confl. Peds. (#/hr)			207			165			76			76
Confl. Bikes (#/hr)			54			180			13			19
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Effective Green, g (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.11	0.31		0.06	0.30	0.12
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	423	232	113	615		164	881		97	471	129
v/s Ratio Prot	0.14	c0.30		0.21	c0.29		c0.09	0.31		0.05	c0.32	
v/s Ratio Perm			0.08									c0.27
v/c Ratio	1.12	1.14	0.31	2.73	1.36		0.84	1.01		0.82	1.09	2.21
Uniform Delay, d1	39.5	33.3	26.8	41.5	35.3		39.3	31.0		41.7	31.6	39.5
Progression Factor	1.02	0.75	0.77	1.04	0.70		1.14	0.90		0.74	1.07	1.13
Incremental Delay, d2	61.3	67.8	0.3	799.1	168.3		14.8	21.4		24.6	58.6	557.1
Delay (s)	101.5	92.9	20.9	842.5	193.0		59.5	49.2		55.3	92.4	601.9
Level of Service	F	F	C	F	F		E	D		E	F	F
Approach Delay (s)		88.3			368.6			50.6			254.0	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			200.8			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.40									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				26.0		
Intersection Capacity Utilization			96.9%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

15: Broadway & North Garage West Driveway

2021 Future
5:00 PM - 6:00 PM

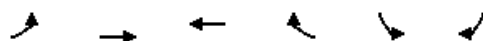


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Volume (veh/h)	0	637	933	45	0	39
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	692	1014	49	0	42
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.75	
vC, conflicting volume	1063				1731	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1063				1809	362
tC, single (s)	4.2				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	93
cM capacity (veh/h)	639				53	634
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	692	406	406	252		
Volume Left	0	0	0	0		
Volume Right	0	0	0	49		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.41	0.24	0.24	0.15		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utilization			Err%	ICU Level of Service		H
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

16: Broadway & North Garage East Driveway

2021 Future
5:00 PM - 6:00 PM



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Volume (veh/h)	0	637	712	0	0	266
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	692	774	0	0	289
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	974				1666	587
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	974				1720	587
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	22
cM capacity (veh/h)	581				49	371
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	692	516	258	289		
Volume Left	0	0	0	0		
Volume Right	0	0	0	289		
cSH	1700	1700	1700	371		
Volume to Capacity	0.41	0.30	0.15	0.78		
Queue Length 95th (ft)	0	0	0	162		
Control Delay (s)	0.0	0.0	0.0	41.6		
Lane LOS				E		
Approach Delay (s)	0.0	0.0		41.6		
Approach LOS				E		
Intersection Summary						
Average Delay			6.8			
Intersection Capacity Utilization			46.8%		ICU Level of Service	A
Analysis Period (min)			15			

Queues
17: Ames Street & Broadway

2021 Future
5:00 PM - 6:00 PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	639	76	145	491	301	271
v/c Ratio	1.27	0.26	0.37	0.96	1.07	0.79
Control Delay	166.1	17.6	27.5	54.8	100.7	40.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	166.1	17.6	27.5	54.8	100.7	40.1
Queue Length 50th (ft)	~484	24	60	254	~197	74
Queue Length 95th (ft)	m#475	m25	m63	m#285	m#339	m#158
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160			100
Base Capacity (vph)	505	291	393	512	280	342
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	1.27	0.26	0.37	0.96	1.07	0.79













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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis







17: Ames Street & Broadway

2021 Future
5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (vph)	569	68	141	476	259	233
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	10
Total Lost time (s)	4.5	7.0	6.0	5.5	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1492	1268	1540	1565	1404	1112
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1492	1268	1540	1565	1404	1112
Peak-hour factor, PHF	0.89	0.89	0.97	0.97	0.86	0.86
Adj. Flow (vph)	639	76	145	491	301	271
RTOR Reduction (vph)	0	24	0	0	0	59
Lane Group Flow (vph)	639	52	145	491	301	212
Confl. Peds. (#/hr)		444	444		221	403
Confl. Bikes (#/hr)		51				
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	3	2	1	3	2
Permitted Phases						
Actuated Green, G (s)	29.5	18.0	23.0	29.5	18.0	23.0
Effective Green, g (s)	30.5	19.0	23.0	29.5	18.0	23.0
Actuated g/C Ratio	0.34	0.21	0.26	0.33	0.20	0.26
Clearance Time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Grp Cap (vph)	505	267	393	512	280	284
v/s Ratio Prot	c0.43	0.04	0.09	0.31	c0.21	c0.19
v/s Ratio Perm						
v/c Ratio	1.27	0.20	0.37	0.96	1.07	0.75
Uniform Delay, d1	29.8	29.2	27.5	29.7	36.0	30.8
Progression Factor	1.76	0.84	0.94	1.29	0.77	1.11
Incremental Delay, d2	123.8	0.4	0.9	15.6	70.2	13.7
Delay (s)	176.0	25.0	26.9	53.8	97.9	47.8
Level of Service	F	C	C	D	F	D
Approach Delay (s)	160.0			47.6	74.1	
Approach LOS	F			D	E	
Intersection Summary						
HCM 2000 Control Delay			97.3		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.06			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	19.5
Intersection Capacity Utilization			73.3%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Queues
18: Third Street & Broadway

2021 Future
5:00 PM - 6:00 PM

						
Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	326	715	533	210	628	235
v/c Ratio	1.16	0.74	0.96	0.51	1.39	0.90
Control Delay	125.7	16.6	59.2	31.2	215.6	72.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.7	16.6	59.2	31.2	215.6	72.3
Queue Length 50th (ft)	~230	98	293	98	~480	132
Queue Length 95th (ft)	m#225	m94	#498	169	#685	#267
Internal Link Dist (ft)		882	68		216	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	282	970	558	413	453	262
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	1.16	0.74	0.96	0.51	1.39	0.90

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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

18: Third Street & Broadway

2021 Future

5:00 PM - 6:00 PM
















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	290	562	75	0	517	204	0	0	0	521	57	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1496	2820			1621	1378					1512	1391
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1496	2820			1621	1378					1512	1391
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	326	631	84	0	533	210	0	0	0	566	62	235
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	326	715	0	0	533	210	0	0	0	0	628	235
Confl. Peds. (#/hr)	72					72						320
Confl. Bikes (#/hr)			29			173						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	17.0	31.0			31.0	27.0					27.0	17.0
Effective Green, g (s)	17.0	31.0			31.0	27.0					27.0	17.0
Actuated g/C Ratio	0.19	0.34			0.34	0.30					0.30	0.19
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	971			558	413					453	262
v/s Ratio Prot	c0.22	0.25			c0.33	0.15					c0.42	0.17
v/s Ratio Perm												
v/c Ratio	1.16	0.74			0.96	0.51					1.39	0.90
Uniform Delay, d1	36.5	25.9			28.8	26.0					31.5	35.6
Progression Factor	1.38	0.58			1.00	1.00					1.00	1.00
Incremental Delay, d2	81.0	1.3			28.5	4.4					187.1	34.4
Delay (s)	131.3	16.3			57.3	30.4					218.6	70.0
Level of Service	F	B			E	C					F	E
Approach Delay (s)		52.3			49.7			0.0			178.1	
Approach LOS		D			D			A			F	
Intersection Summary												
HCM 2000 Control Delay			92.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.0		
Intersection Capacity Utilization			95.5%				ICU Level of Service			F		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

19: Broadway & Memorial Drive Ramp

2021 Future
5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	1448	236	0	583	168	0	0	0	0	0	119
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.92	0.92	0.61	0.61	0.61
Hourly flow rate (vph)	0	1524	248	0	614	177	0	0	0	0	0	195
Pedestrians		187						314			187	
Lane Width (ft)		12.0						0.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		16						0			16	
Right turn flare (veh)												
Median type		None			Raised							
Median storage veh					1							
Upstream signal (ft)		1279										
pX, platoon unblocked												
vC, conflicting volume	978			2087			2651	2940	1200	1651	2976	769
vC1, stage 1 conf vol							1962	1962		889	889	
vC2, stage 2 conf vol							689	978		762	2087	
vCu, unblocked vol	978			2087			2651	2940	1200	1651	2976	769
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			100			100	100	100	100	100	18
cM capacity (veh/h)	592			265			29	75	177	153	65	237
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1							
Volume Total	1016	756	409	381	195							
Volume Left	0	0	0	0	0							
Volume Right	0	248	0	177	195							
cSH	1700	1700	1700	1700	237							
Volume to Capacity	0.60	0.44	0.24	0.22	0.82							
Queue Length 95th (ft)	0	0	0	0	158							
Control Delay (s)	0.0	0.0	0.0	0.0	65.1							
Lane LOS					F							
Approach Delay (s)	0.0		0.0		65.1							
Approach LOS					F							
Intersection Summary												
Average Delay			4.6									
Intersection Capacity Utilization			57.4%		ICU Level of Service					B		
Analysis Period (min)			15									

Queues

20: Vassar Street/Galileo Galilei Way & Main Street

2021 Future

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	399	437	100	346	669	60	504	276
v/c Ratio	1.21	0.63	0.40	0.50	1.00	0.37	0.88	0.88
Control Delay	146.4	23.0	30.9	30.2	64.4	35.9	43.5	45.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	146.4	23.0	30.9	30.2	64.4	35.9	43.5	45.3
Queue Length 50th (ft)	~280	180	61	212	196	37	316	173
Queue Length 95th (ft)	#456	283	m83	m255	#266	m29	m228	m127
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	329	699	247	686	672	161	570	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.21	0.63	0.40	0.50	1.00	0.37	0.88	0.88

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.

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

20: Vassar Street/Galileo Galilei Way & Main Street

2021 Future
5:00 PM - 6:00 PM









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	383	343	77	84	239	51	39	334	169	57	479	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	0.93		1.00	0.94			0.91		1.00	1.00	0.67
Flpb, ped/bikes	0.81	1.00		0.82	1.00			0.99		0.91	1.00	1.00
Frt	1.00	0.97		1.00	0.97			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	1.00
Satd. Flow (prot)	1320	1498		1202	1470			2598		1341	1605	888
Flt Permitted	0.51	1.00		0.42	1.00			0.72		0.32	1.00	1.00
Satd. Flow (perm)	706	1498		531	1470			1890		454	1605	888
Peak-hour factor, PHF	0.96	0.96	0.96	0.84	0.84	0.84	0.81	0.81	0.81	0.95	0.95	0.95
Adj. Flow (vph)	399	357	80	100	285	61	48	412	209	60	504	276
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	399	437	0	100	346	0	0	669	0	60	504	276
Confl. Peds. (#/hr)	629		344	344		629	201		177	177		201
Confl. Bikes (#/hr)			29			36			39			39
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	7%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Effective Green, g (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.36		0.36	0.36	0.36
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	329	699		247	686			672		161	570	315
v/s Ratio Prot		0.29			0.24						0.31	
v/s Ratio Perm	c0.57			0.19				c0.35		0.13		0.31
v/c Ratio	1.21	0.63		0.40	0.50			1.00		0.37	0.88	0.88
Uniform Delay, d1	24.0	18.1		15.8	16.7			28.9		21.5	27.3	27.1
Progression Factor	1.00	1.00		1.60	1.63			1.00		1.50	1.49	1.49
Incremental Delay, d2	120.5	4.2		3.5	1.9			33.7		0.6	2.1	3.4
Delay (s)	144.5	22.3		28.7	29.2			62.6		33.0	42.6	43.8
Level of Service	F	C		C	C			E		C	D	D
Approach Delay (s)		80.6			29.1			62.6			42.3	
Approach LOS		F			C			E			D	
Intersection Summary												
HCM 2000 Control Delay			56.5		HCM 2000 Level of Service					E		
HCM 2000 Volume to Capacity ratio			1.12									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					16.0		
Intersection Capacity Utilization			131.8%		ICU Level of Service					H		
Analysis Period (min)			15									
c Critical Lane Group												

Queues

21: Ames Street & Main Street

2021 Future

5:00 PM - 6:00 PM

								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	74	543	47	114	254	379	195	135
v/c Ratio	0.61	1.50	0.77	0.42	0.91	0.73	0.65	0.43
Control Delay	50.9	263.6	96.4	30.0	66.7	35.8	32.4	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.9	263.6	96.4	30.0	66.7	35.8	32.4	24.9
Queue Length 50th (ft)	39	~423	25	52	137	186	62	42
Queue Length 95th (ft)	m62	m#565	m#65	m84	#250	262	89	64
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			100
Base Capacity (vph)	121	362	61	270	279	518	302	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.61	1.50	0.77	0.42	0.91	0.73	0.65	0.43





















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.
- m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

21: Ames Street & Main Street







2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	68	403	97	40	59	39	211	303	12	59	93	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	11	10
Total Lost time (s)	5.5	4.5		5.5	4.5		5.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.86		1.00	0.71		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.39	1.00		1.00	1.00		0.87	1.00			0.95	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	598	1232		1310	918		1403	1507			1483	916
Flt Permitted	0.68	1.00		0.16	1.00		0.57	1.00			0.58	1.00
Satd. Flow (perm)	430	1232		216	918		839	1507			878	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.83	0.83	0.83	0.78	0.78	0.78
Adj. Flow (vph)	74	438	105	47	69	45	254	365	14	76	119	135
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	74	543	0	47	114	0	254	379	0	0	195	135
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	1%	1%	1%	4%	4%	4%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)	25.5	25.5		25.5	25.5		30.0	30.0			30.0	30.0
Effective Green, g (s)	25.5	26.5		25.5	26.5		30.0	31.0			31.0	31.0
Actuated g/C Ratio	0.28	0.29		0.28	0.29		0.33	0.34			0.34	0.34
Clearance Time (s)	5.5	5.5		5.5	5.5		5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	121	362		61	270		279	519			302	315
v/s Ratio Prot		c0.44			0.12			0.25				
v/s Ratio Perm	0.17			0.22			c0.30				0.22	0.15
v/c Ratio	0.61	1.50		0.77	0.42		0.91	0.73			0.65	0.43
Uniform Delay, d1	28.0	31.8		29.6	25.6		28.7	25.8			24.9	22.7
Progression Factor	1.17	1.11		0.96	0.95		1.00	1.00			0.84	0.87
Incremental Delay, d2	14.5	234.6		60.4	4.6		35.1	8.8			10.1	4.2
Delay (s)	47.3	269.7		88.9	28.9		63.8	34.6			31.0	24.0
Level of Service	D	F		F	C		E	C			C	C
Approach Delay (s)		243.0			46.4			46.3			28.1	
Approach LOS		F			D			D			C	
Intersection Summary												
HCM 2000 Control Delay			112.6				HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			15.5		
Intersection Capacity Utilization			78.7%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis

22: Main Street & Broadway















2021 Future
5:00 PM - 6:00 PM

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Volume (veh/h)	1090	0	0	721	0	498
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1185	0	0	784	0	541
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.80		0.80	0.80
vC, conflicting volume			1415		1807	822
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1012		1504	269
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	0
cM capacity (veh/h)			439		72	470
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	592	592	392	392	541	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	541	
cSH	1700	1700	1700	1700	470	
Volume to Capacity	0.35	0.35	0.23	0.23	1.15	
Queue Length 95th (ft)	0	0	0	0	485	
Control Delay (s)	0.0	0.0	0.0	0.0	118.8	
Lane LOS					F	
Approach Delay (s)	0.0		0.0		118.8	
Approach LOS					F	
Intersection Summary						
Average Delay			25.6			
Intersection Capacity Utilization			74.4%		ICU Level of Service	D
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis







23: Ames Street & Memorial Drive WB

2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	67	1422	193	0	0	0	0	94	138
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	75	1598	217	0	0	0	0	104	153
Pedestrians	81			32			42			74		
Lane Width (ft)	0.0			10.0			0.0			14.0		
Walking Speed (ft/s)	4.0			4.0			4.0			4.0		
Percent Blockage	0			2			0			7		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)	974											
pX, platoon unblocked												
vC, conflicting volume	1889	42			1278			2081	74	1963	1973	1062
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1889	42			1278			2081	74	1963	1973	1062
tC, single (s)	4.1	4.1			7.5			6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2	2.2			3.5			4.0	3.3	3.6	4.1	3.4
p0 queue free %	100	95			0			100	100	100	0	22
cM capacity (veh/h)	290	1580			0			46	951	30	52	197
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	874	1016	258									
Volume Left	75	0	0									
Volume Right	0	217	153									
cSH	1580	1700	93									
Volume to Capacity	0.05	0.60	2.79									
Queue Length 95th (ft)	4	0	615									
Control Delay (s)	1.2	0.0	904.6									
Lane LOS	A		F									
Approach Delay (s)	0.6		904.6									
Approach LOS			F									
Intersection Summary												
Average Delay	109.1											
Intersection Capacity Utilization	127.6%			ICU Level of Service				H				
Analysis Period (min)	15											

Queues
24: O'Brien Highway

2021 Future
5:00 PM - 6:00 PM

						
Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	922	333	1206	110	61	208
v/c Ratio	0.73	0.69	0.78	0.28	0.15	0.31
Control Delay	50.2	52.0	32.8	10.7	8.4	36.4
Queue Delay	0.6	57.4	48.8	1.5	1.0	0.0
Total Delay	50.8	109.4	81.6	12.2	9.4	36.4
Queue Length 50th (ft)	176	85	288	56	18	60
Queue Length 95th (ft)	m220	m127	371	82	30	94
Internal Link Dist (ft)	787		208		117	26
Turn Bay Length (ft)						
Base Capacity (vph)	1267	480	1555	389	409	662
Starvation Cap Reductn	0	0	486	156	212	0
Spillback Cap Reductn	97	181	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	1.11	1.13	0.47	0.31	0.31













Intersection Summary

m Volume for 95th percentile queue is metered by upstream signal.

HCM Signalized Intersection Capacity Analysis

24: O'Brien Highway



















2021 Future
5:00 PM - 6:00 PM

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑		↑↑	↑↑		↑	↑			↑↑	
Volume (vph)	0	714	134	306	1091	18	101	56	0	57	134	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Lane Util. Factor		0.91		0.97	0.95		1.00	1.00			0.95	
Frt		0.98		1.00	1.00		1.00	1.00			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		4965		3433	3530		1770	1863			3487	
Flt Permitted		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (perm)		4965		3433	3530		1770	1863			3487	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	776	146	333	1186	20	110	61	0	62	146	0
RTOR Reduction (vph)	0	27	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	895	0	333	1205	0	110	61	0	0	208	0
Turn Type		NA		Prot	NA		Split	NA		Split	NA	
Protected Phases		1		2	1 2		5	5		4	4	
Permitted Phases												
Actuated Green, G (s)		25.0		14.0	44.0		22.0	22.0			19.0	
Effective Green, g (s)		25.0		14.0	44.0		22.0	22.0			19.0	
Actuated g/C Ratio		0.25		0.14	0.44		0.22	0.22			0.19	
Clearance Time (s)		5.0		5.0			5.0	5.0			5.0	
Lane Grp Cap (vph)		1241		480	1553		389	409			662	
v/s Ratio Prot		0.18		0.10	c0.34		c0.06	0.03			c0.06	
v/s Ratio Perm												
v/c Ratio		0.72		0.69	0.78		0.28	0.15			0.31	
Uniform Delay, d1		34.3		41.0	23.8		32.4	31.5			34.9	
Progression Factor		1.45		1.11	1.24		0.27	0.24			1.00	
Incremental Delay, d2		1.9		6.1	2.9		1.8	0.7			1.2	
Delay (s)		51.8		51.6	32.3		10.5	8.3			36.1	
Level of Service		D		D	C		B	A			D	
Approach Delay (s)		51.8			36.5			9.7			36.1	
Approach LOS		D			D			A			D	
Intersection Summary												
HCM 2000 Control Delay			39.8			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			20.0			
Intersection Capacity Utilization			54.2%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

2021 Updated Future Conditions

	→	↘	←	↙	↑	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1961	777	497	121	118	5
v/c Ratio	1.14	0.79	0.30	0.37	0.27	0.01
Control Delay	94.8	15.4	24.8	38.4	7.8	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	15.4	24.8	38.4	7.8	0.0
Queue Length 50th (ft)	~855	241	164	74	0	0
Queue Length 95th (ft)	#994	386	218	117	47	0
Internal Link Dist (ft)	741		817		450	130
Turn Bay Length (ft)				85		
Base Capacity (vph)	1724	990	1669	333	436	408
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	1.14	0.78	0.30	0.36	0.27	0.01
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												
Traffic Volume (vph)	0	1824	723	0	448	5	164	0	30	0	0	5
Future Volume (vph)	0	1824	723	0	448	5	164	0	30	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		6.0	6.0		3.0		6.0	6.0			6.0	
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00			1.00	
Frt		1.00	0.85		1.00		1.00	0.95			0.86	
Flt Protected		1.00	1.00		1.00		0.95	0.97			1.00	
Satd. Flow (prot)		3091	1390		2853		1359	1412			1450	
Flt Permitted		1.00	1.00		1.00		0.95	0.97			1.00	
Satd. Flow (perm)		3091	1390		2853		1359	1412			1450	
Peak-hour factor, PHF	0.92	0.93	0.93	0.91	0.91	0.92	0.81	0.92	0.81	0.92	0.92	0.92
Adj. Flow (vph)	0	1961	777	0	492	5	202	0	37	0	0	5
RTOR Reduction (vph)	0	0	0	0	1	0	0	89	0	0	5	0
Lane Group Flow (vph)	0	1961	777	0	496	0	121	29	0	0	0	0
Confl. Bikes (#/hr)			6									
Heavy Vehicles (%)	2%	3%	3%	10%	10%	2%	6%	2%	6%	2%	2%	2%
Bus Blockages (#/hr)	0	10	0	0	0	0	0	0	0	0	0	0
Turn Type		NA	custom		NA		Split	NA			NA	
Protected Phases		2 3	4		3 6		4	4			7	
Permitted Phases	2 3		2							7		
Actuated Green, G (s)		64.4	78.0		64.4		26.6	26.6			4.0	
Effective Green, g (s)		64.4	78.0		58.4		26.6	26.6			4.0	
Actuated g/C Ratio		0.59	0.71		0.53		0.24	0.24			0.04	
Clearance Time (s)			6.0				6.0	6.0			6.0	
Vehicle Extension (s)			3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		1809	1061		1514		328	341			52	
v/s Ratio Prot		c0.63	c0.18		0.17		0.09	0.02			c0.00	
v/s Ratio Perm			0.38									
v/c Ratio		1.08	0.73		0.33		0.37	0.08			0.00	
Uniform Delay, d1		22.8	9.7		14.7		34.7	32.3			51.1	
Progression Factor		1.00	1.00		2.09		1.00	1.00			1.00	
Incremental Delay, d2		47.9	2.6		0.1		0.7	0.1			0.0	
Delay (s)		70.7	12.3		30.8		35.4	32.4			51.1	
Level of Service		E	B		C		D	C			D	
Approach Delay (s)		54.2			30.8			33.9			51.1	
Approach LOS		D			C			C			D	
Intersection Summary												
HCM 2000 Control Delay			49.4			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			21.0			
Intersection Capacity Utilization			78.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	627	522	307	61	758
v/c Ratio	1.58	2.13	1.10	0.15	1.08
Control Delay	298.1	543.6	97.8	16.2	83.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	298.1	543.6	97.8	16.2	83.1
Queue Length 50th (ft)	~512	~477	~201	20	~485
Queue Length 95th (ft)	#718	#671	m#259	46	#703
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	397	245	279	403	704
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.58	2.13	1.10	0.15	1.08
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.					
m Volume for 95th percentile queue is metered by upstream signal.					




















KSURP
2: Third Street & Cambridge Street

2021 Updated Future
Timing Plan: Morning Peak Hou













												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	375	119	166	270	39	31	171	35	59	687	40
Future Volume (vph)	89	375	119	166	270	39	31	171	35	59	687	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.96			0.98			0.99		1.00	0.99	
Flpb, ped/bikes		0.99			0.99			1.00		0.98	1.00	
Frt		0.97			0.99			0.98		1.00	0.99	
Flt Protected		0.99			0.98			0.99		0.95	1.00	
Satd. Flow (prot)		1360			1272			1390		1498	1583	
Flt Permitted		0.81			0.53			0.45		0.58	1.00	
Satd. Flow (perm)		1117			690			629		907	1583	
Peak-hour factor, PHF	0.93	0.93	0.93	0.91	0.91	0.91	0.77	0.77	0.77	0.96	0.96	0.96
Adj. Flow (vph)	96	403	128	182	297	43	40	222	45	61	716	42
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	627	0	0	522	0	0	307	0	61	758	0
Confl. Peds. (#/hr)	172		66	66		172	60		42	42		60
Confl. Bikes (#/hr)			88			7			2			10
Heavy Vehicles (%)	11%	11%	11%	7%	7%	7%	4%	4%	4%	3%	3%	3%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		32.0			32.0			40.0		40.0	40.0	
Effective Green, g (s)		32.0			32.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.36			0.36			0.44		0.44	0.44	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		397			245			279		403	703	
v/s Ratio Prot											0.48	
v/s Ratio Perm		0.56			0.76			0.49		0.07		
v/c Ratio		1.58			2.13			1.10		0.15	1.08	
Uniform Delay, d1		29.0			29.0			25.0		14.9	25.0	
Progression Factor		1.00			1.00			1.11		1.00	1.00	
Incremental Delay, d2		272.5			522.3			68.2		0.8	57.0	
Delay (s)		301.5			551.3			95.9		15.7	82.0	
Level of Service		F			F			F		B	F	
Approach Delay (s)		301.5			551.3			95.9			77.1	
Approach LOS		F			F			F			E	
Intersection Summary												
HCM 2000 Control Delay		250.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.56										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		114.9%			ICU Level of Service			H				
Analysis Period (min)		15										












c Critical Lane Group

	→	↑	↗	↓
Lane Group	EBT	NBT	NBR	SBT
Lane Group Flow (vph)	339	96	85	1115
v/c Ratio	0.51	0.16	0.21	0.59
Control Delay	37.6	24.6	25.3	5.6
Queue Delay	0.4	0.0	0.1	12.5
Total Delay	38.0	24.6	25.4	18.1
Queue Length 50th (ft)	107	45	40	63
Queue Length 95th (ft)	154	84	71	m53
Internal Link Dist (ft)	719	1971		106
Turn Bay Length (ft)			175	
Base Capacity (vph)	668	609	405	1881
Starvation Cap Reductn	0	0	0	757
Spillback Cap Reductn	74	0	42	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.16	0.23	0.99
Intersection Summary				
m Volume for 95th percentile queue is metered by upstream signal.				

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 			 	
Traffic Volume (vph)	0	227	78	0	0	0	0	88	70	0	605	420
Future Volume (vph)	0	227	78	0	0	0	0	88	70	0	605	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		4.0						5.0	4.0		5.0	
Lane Util. Factor		0.95						1.00	1.00		0.95	
Frpb, ped/bikes		0.97						1.00	1.00		1.00	
Flpb, ped/bikes		1.00						1.00	1.00		1.00	
Frt		0.96						1.00	0.85		0.94	
Flt Protected		1.00						1.00	1.00		1.00	
Satd. Flow (prot)		2533						1676	1089		2989	
Flt Permitted		1.00						1.00	1.00		1.00	
Satd. Flow (perm)		2533						1676	1089		2989	
Peak-hour factor, PHF	0.92	0.90	0.90	0.90	0.90	0.92	0.82	0.92	0.82	0.92	0.92	0.92
Adj. Flow (vph)	0	252	87	0	0	0	0	96	85	0	658	457
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	114	0
Lane Group Flow (vph)	0	339	0	0	0	0	0	96	85	0	1001	0
Confl. Bikes (#/hr)			76									
Heavy Vehicles (%)	2%	9%	9%	9%	9%	2%	29%	2%	29%	2%	2%	2%
Parking (#/hr)		2	2									
Turn Type		NA						NA	Perm		NA	
Protected Phases		1						3			2 3	
Permitted Phases									3			
Actuated Green, G (s)		28.0						40.0	40.0		65.0	
Effective Green, g (s)		29.0						40.0	41.0		65.0	
Actuated g/C Ratio		0.26						0.36	0.37		0.59	
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		667						609	405		1766	
v/s Ratio Prot		c0.13						0.06			c0.33	
v/s Ratio Perm									0.08			
v/c Ratio		0.51						0.16	0.21		0.57	
Uniform Delay, d1		34.4						23.6	23.5		13.8	
Progression Factor		1.00						1.00	1.00		0.54	
Incremental Delay, d2		2.8						0.6	1.2		0.1	
Delay (s)		37.2						24.2	24.7		7.5	
Level of Service		D						C	C		A	
Approach Delay (s)		37.2			0.0			24.4			7.5	
Approach LOS		D			A			C			A	
Intersection Summary												
HCM 2000 Control Delay		15.5									B	
HCM 2000 Volume to Capacity ratio		0.55										
Actuated Cycle Length (s)		110.0									16.0	
Intersection Capacity Utilization		50.8%									A	
Analysis Period (min)		15										
c Critical Lane Group												

























	→	←	↑	↗	↘
Lane Group	EBT	WBT	NBT	NBR	SBR
Lane Group Flow (vph)	1537	1216	64	356	81
v/c Ratio	0.68	0.70	0.12	0.67	0.07
Control Delay	2.9	20.3	36.5	47.0	0.1
Queue Delay	1.4	4.3	0.0	33.0	0.0
Total Delay	4.3	24.6	36.5	80.0	0.1
Queue Length 50th (ft)	28	308	36	239	0
Queue Length 95th (ft)	m31	373	70	342	0
Internal Link Dist (ft)	178	832	195		
Turn Bay Length (ft)				100	
Base Capacity (vph)	2252	1747	534	528	1217
Starvation Cap Reductn	474	0	0	183	0
Spillback Cap Reductn	0	445	0	0	172
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.93	0.12	1.03	0.08
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑	↑			↑
Traffic Volume (vph)	0	1429	0	0	996	74	23	38	338	0	0	74
Future Volume (vph)	0	1429	0	0	996	74	23	38	338	0	0	74
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)		4.0			4.0			3.0	3.0			4.0
Lane Util. Factor		0.91			0.95			1.00	1.00			1.00
Frpb, ped/bikes		1.00			0.99			1.00	1.00			0.95
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		1.00			0.99			1.00	0.85			0.86
Flt Protected		1.00			1.00			0.98	1.00			1.00
Satd. Flow (prot)		4424			3141			1399	1211			1217
Flt Permitted		1.00			1.00			0.98	1.00			1.00
Satd. Flow (perm)		4424			3141			1399	1211			1217
Peak-hour factor, PHF	0.93	0.93	0.93	0.88	0.88	0.88	0.95	0.95	0.95	0.91	0.91	0.91
Adj. Flow (vph)	0	1537	0	0	1132	84	24	40	356	0	0	81
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	12	0	0	0
Lane Group Flow (vph)	0	1537	0	0	1211	0	0	64	344	0	0	81
Confl. Peds. (#/hr)	24					24	111		4	4		111
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	16%	16%	16%	16%	16%	16%
Turn Type		NA			NA		Split	NA	custom			Free
Protected Phases		1			1 2		3	3	2 3			
Permitted Phases												Free
Actuated Green, G (s)		55.0			61.0			40.0	45.0			110.0
Effective Green, g (s)		56.0			62.0			42.0	46.0			110.0
Actuated g/C Ratio		0.51			0.56			0.38	0.42			1.00
Clearance Time (s)		5.0						5.0				
Lane Grp Cap (vph)		2252			1770			534	506			1217
v/s Ratio Prot		0.35			c0.39			0.05	c0.28			
v/s Ratio Perm												0.07
v/c Ratio		0.68			0.68			0.12	0.68			0.07
Uniform Delay, d1		20.3			17.0			22.0	26.0			0.0
Progression Factor		0.11			1.00			1.61	1.64			1.00
Incremental Delay, d2		0.7			2.2			0.4	6.9			0.1
Delay (s)		2.9			19.2			35.8	49.5			0.1
Level of Service		A			B			D	D			A
Approach Delay (s)		2.9			19.2			47.4			0.1	
Approach LOS		A			B			D			A	
Intersection Summary												
HCM 2000 Control Delay		14.7			HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio		0.73										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)				12.0			
Intersection Capacity Utilization		65.9%			ICU Level of Service				C			
Analysis Period (min)		15										
c Critical Lane Group												



















											
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	184	1085	595	338	659	319	184	483	269	325	1369
v/c Ratio	0.91	1.03	0.40	1.74	0.94	0.40	0.87	1.10	0.49	0.69	1.43
Control Delay	94.6	79.2	0.8	386.3	66.4	6.3	79.7	114.0	12.3	43.8	231.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.6	79.2	0.8	386.3	66.4	6.3	79.7	114.0	12.3	43.8	231.0
Queue Length 50th (ft)	142	~328	0	~388	264	39	144	~225	31	238	~784
Queue Length 95th (ft)	#279	#421	0	#575	#380	66	#257	#316	90	359	#930
Internal Link Dist (ft)		832			440			1843			515
Turn Bay Length (ft)	200		400	135		135	600			100	
Base Capacity (vph)	203	1058	1475	194	704	797	212	440	546	469	957
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	1.03	0.40	1.74	0.94	0.40	0.87	1.10	0.49	0.69	1.43
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.											

KSURP
5: Land Boulevard & O'Brien Highway

2021 Updated Future
Timing Plan: Morning Peak Hou

												
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	175	1031	565	314	613	297	158	415	231	339	944	309
Future Volume (vph)	175	1031	565	314	613	297	158	415	231	339	944	309
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1525	4381	1475	1458	2916	1304	1417	2935	1358	1408	2735	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1525	4381	1475	1458	2916	1304	1417	2935	1358	1408	2735	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.86	0.86	0.86	0.94	0.94	0.94
Adj. Flow (vph)	184	1085	595	338	659	319	184	483	269	361	1004	329
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	116	0	23	0
Lane Group Flow (vph)	184	1085	595	338	659	282	184	483	153	325	1346	0
Confl. Peds. (#/hr)			91	91			119		11	11		119
Confl. Bikes (#/hr)			51			2			1			11
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	7%	7%	7%	5%	5%	5%
Turn Type	Prot	NA	Free	Prot	NA	pt+ov	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6	4 6	3	3	1 3	4	4	
Permitted Phases			Free									
Actuated Green, G (s)	15.0	28.0	120.0	15.0	28.0	68.0	17.0	17.0	37.0	40.0	40.0	
Effective Green, g (s)	16.0	29.0	120.0	16.0	29.0	70.0	18.0	18.0	38.0	40.0	41.0	
Actuated g/C Ratio	0.13	0.24	1.00	0.13	0.24	0.58	0.15	0.15	0.32	0.33	0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	203	1058	1475	194	704	760	212	440	430	469	934	
v/s Ratio Prot	0.12	c0.25		c0.23	0.23	0.22	0.13	c0.16	0.11	0.23	c0.49	
v/s Ratio Perm			0.40									
v/c Ratio	0.91	1.03	0.40	1.74	0.94	0.37	0.87	1.10	0.36	0.69	1.44	
Uniform Delay, d1	51.3	45.5	0.0	52.0	44.6	13.3	49.8	51.0	31.6	34.7	39.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.89	0.89	0.75	1.00	1.00	
Incremental Delay, d2	37.9	34.3	0.8	354.5	19.7	0.3	28.1	71.2	0.5	4.4	204.6	
Delay (s)	89.2	79.8	0.8	406.5	64.3	13.6	72.6	116.5	24.3	39.1	244.1	
Level of Service	F	E	A	F	E	B	E	F	C	D	F	
Approach Delay (s)		55.5			139.9			81.3			204.8	
Approach LOS		E			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			122.3			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.32									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			102.7%			ICU Level of Service				G		
Analysis Period (min)			15									
c Critical Lane Group												

	→	←	↶	↑	↷	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	741	378	47	372	86	275
v/c Ratio	1.20	0.77	0.18	0.69	0.39	0.52
Control Delay	128.3	45.5	22.2	32.9	28.1	27.4
Queue Delay	5.0	55.4	0.0	56.3	4.4	0.0
Total Delay	133.3	100.8	22.2	89.2	32.5	27.4
Queue Length 50th (ft)	~516	235	18	178	36	122
Queue Length 95th (ft)	#688	#309	45	283	80	201
Internal Link Dist (ft)	1159	220		707		176
Turn Bay Length (ft)					30	
Base Capacity (vph)	620	489	268	536	222	524
Starvation Cap Reductn	0	165	0	0	0	0
Spillback Cap Reductn	269	0	0	199	82	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.11	1.17	0.18	1.10	0.61	0.52
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												
Traffic Volume (vph)	77	519	41	36	278	8	44	256	90	79	193	60
Future Volume (vph)	77	519	41	36	278	8	44	256	90	79	193	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Flpb, ped/bikes		0.99			1.00		1.00	0.96		1.00	0.95	
Flpb, ped/bikes		0.99			1.00		0.90	1.00		0.93	1.00	
Frt		0.99			1.00		1.00	0.96		1.00	0.96	
Flt Protected		0.99			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1470			1202		1315	1510		1415	1474	
Flt Permitted		0.89			0.87		0.55	1.00		0.42	1.00	
Satd. Flow (perm)		1324			1047		755	1510		626	1474	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	90	603	48	42	327	9	47	275	97	86	210	65
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	738	0	0	377	0	47	372	0	86	275	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		617			488		268	536		222	524	
v/s Ratio Prot								c0.25			0.19	
v/s Ratio Perm		c0.56			0.36		0.06			0.14		
v/c Ratio		1.20			0.77		0.18	0.69		0.39	0.52	
Uniform Delay, d1		24.0			20.0		19.9	24.8		21.7	23.0	
Progression Factor		1.00			1.75		1.00	1.00		1.00	1.00	
Incremental Delay, d2		103.6			8.6		1.4	7.2		5.0	3.7	
Delay (s)		127.6			43.7		21.4	32.0		26.7	26.7	
Level of Service		F			D		C	C		C	C	
Approach Delay (s)		127.6			43.7			30.8			26.7	
Approach LOS		F			D			C			C	
Intersection Summary												
HCM 2000 Control Delay		70.4			HCM 2000 Level of Service			E				
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		103.4%			ICU Level of Service			G				
Analysis Period (min)		15										

c Critical Lane Group

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	647	160	166	360	294	4	30	385	54
v/c Ratio	1.18	0.44	2.68	0.69	0.49	0.06	0.12	1.35	0.21
Control Delay	113.7	24.3	782.6	10.1	2.9	32.0	31.1	209.0	32.6
Queue Delay	2.3	0.0	0.0	51.9	0.0	674.3	0.0	0.0	0.0
Total Delay	116.0	24.3	782.6	62.0	2.9	706.3	31.1	209.0	32.6
Queue Length 50th (ft)	~463	78	~161	75	15	2	14	~289	26
Queue Length 95th (ft)	m#402	m79	m#171	m84	m16	10	34	#463	59
Internal Link Dist (ft)	220			435			247		175
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	548	366	62	520	599	65	249	286	258
Starvation Cap Reductn	127	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	189	0	65	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.54	0.44	2.68	1.09	0.49	4.00	0.12	1.35	0.21
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.									
m Volume for 95th percentile queue is metered by upstream signal.									

KSURP
7: Technology Square/Hampshire Street & Broadway

2021 Updated Future
Timing Plan: Morning Peak Hou

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	546	136	146	317	259	3	9	15	354	47	3
Future Volume (vph)	4	546	136	146	317	259	3	9	15	354	47	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.74	1.00	1.00	0.87	1.00	0.87		1.00	0.99	
Flpb, ped/bikes		1.00	1.00	0.96	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.99	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1550	1030	1331	1464	1079	1402	1245		1430	1293	
Flt Permitted		1.00	1.00	0.12	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1545	1030	175	1464	1079	328	1245		1430	1293	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	642	160	166	360	294	4	11	19	385	51	3
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	647	160	166	360	294	4	30	0	385	54	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		549	366	62	520	695	65	249		286	258	
v/s Ratio Prot					0.25	0.08		c0.02		c0.27	0.04	
v/s Ratio Perm		0.42	0.16	c0.95		0.19	0.01					
v/c Ratio		1.18	0.44	2.68	0.69	0.42	0.06	0.12		1.35	0.21	
Uniform Delay, d1		29.0	22.1	29.0	24.8	11.6	29.2	29.5		36.0	30.1	
Progression Factor		1.07	1.04	0.38	0.31	0.26	1.00	1.00		1.00	1.00	
Incremental Delay, d2		82.2	0.3	767.0	2.1	0.5	1.8	1.0		177.3	1.8	
Delay (s)		113.4	23.4	778.2	9.9	3.5	31.0	30.5		213.3	31.9	
Level of Service		F	C	F	A	A	C	C		F	C	
Approach Delay (s)		95.5			163.1			30.6			191.0	
Approach LOS		F			F			C			F	
Intersection Summary												
HCM 2000 Control Delay			140.8									HCM 2000 Level of Service F
HCM 2000 Volume to Capacity ratio			1.64									
Actuated Cycle Length (s)			90.0							22.0		
Intersection Capacity Utilization			107.3%							G		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	833	822	424	235	38
v/c Ratio	0.46	0.94	1.16	0.72	0.13
Control Delay	15.8	25.1	123.0	46.5	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.8	25.1	123.0	46.5	29.6
Queue Length 50th (ft)	181	231	~243	124	17
Queue Length 95th (ft)	m202	m176	#410	#224	44
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1806	874	367	327	283
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.46	0.94	1.16	0.72	0.13

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.





















m Volume for 95th percentile queue is metered by upstream signal.

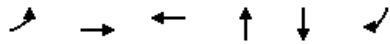
	↖	→	←	↗	↖	↘	↙	↘	↙	↘	↙
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations		↑↑	↑↑				↑			↑	↑
Traffic Volume (vph)	0	716	601	132	64	0	310	63	151	58	34
Future Volume (vph)	0	716	601	132	64	0	310	63	151	58	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frb, ped/bikes		1.00	0.90				1.00			1.00	0.97
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.96				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2755	2540				1203			1472	1277
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2755	2540				1203			1472	1277
Peak-hour factor, PHF	0.86	0.86	0.97	0.97	0.97	0.88	0.88	0.88	0.89	0.89	0.89
Adj. Flow (vph)	0	833	620	136	66	0	352	72	170	65	38
RTOR Reduction (vph)	0	0	0	0	0	0	73	0	0	0	0
Lane Group Flow (vph)	0	833	822	0	0	0	351	0	0	235	38
Confl. Peds. (#/hr)	101			41	101	4		41	101		6
Confl. Bikes (#/hr)				8	11			24			11
Heavy Vehicles (%)	14%	14%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		59.0	31.0				22.0			20.0	20.0
Effective Green, g (s)		59.0	31.0				22.0			20.0	20.0
Actuated g/C Ratio		0.66	0.34				0.24			0.22	0.22
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1806	874				294			327	283
v/s Ratio Prot		0.30	c0.32				c0.29			c0.16	
v/s Ratio Perm											0.03
v/c Ratio		0.46	0.94				1.19			0.72	0.13
Uniform Delay, d1		7.7	28.6				34.0			32.4	28.1
Progression Factor		1.99	0.72				1.00			1.00	1.00
Incremental Delay, d2		0.3	2.7				115.3			12.8	1.0
Delay (s)		15.5	23.3				149.3			45.2	29.0
Level of Service		B	C				F			D	C
Approach Delay (s)		15.5	23.3			149.3				42.9	
Approach LOS		B	C			F				D	
Intersection Summary											
HCM 2000 Control Delay			45.5			HCM 2000 Level of Service			D		
HCM 2000 Volume to Capacity ratio			0.96								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			17.0		
Intersection Capacity Utilization			72.6%			ICU Level of Service			C		
Analysis Period (min)			15								
c Critical Lane Group											

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	775	0	0	797	0	147
Future Volume (Veh/h)	775	0	0	797	0	147
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	842	0	0	866	0	160
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.87		0.87	0.87
vC, conflicting volume			842		1275	421
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			527		1023	45
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	82
cM capacity (veh/h)			904		202	886
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	421	421	433	433	160	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	160	
cSH	1700	1700	1700	1700	886	
Volume to Capacity	0.25	0.25	0.25	0.25	0.18	
Queue Length 95th (ft)	0	0	0	0	16	
Control Delay (s)	0.0	0.0	0.0	0.0	10.0	
Lane LOS					A	
Approach Delay (s)	0.0		0.0		10.0	
Approach LOS					A	
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			40.6%		ICU Level of Service	A
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		
Traffic Volume (veh/h)	573	349	209	797	0	0
Future Volume (Veh/h)	573	349	209	797	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	623	379	227	866	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.89		0.89	0.89
vC, conflicting volume			1002		1700	501
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			753		1537	189
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			70		100	100
cM capacity (veh/h)			758		66	730
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	415	587	227	433	433	
Volume Left	0	0	227	0	0	
Volume Right	0	379	0	0	0	
cSH	1700	1700	758	1700	1700	
Volume to Capacity	0.24	0.35	0.30	0.25	0.25	
Queue Length 95th (ft)	0	0	31	0	0	
Control Delay (s)	0.0	0.0	11.8	0.0	0.0	
Lane LOS			B			
Approach Delay (s)	0.0		2.4			
Approach LOS						
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			49.6%	ICU Level of Service	A	
Analysis Period (min)			15			

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	136	484	273	764	238	116	785
v/c Ratio	0.80	0.86	1.26	1.06	0.85	0.26	1.31
Control Delay	64.0	49.8	182.2	83.9	21.3	7.5	163.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.0	49.8	182.2	83.9	21.3	7.5	163.3
Queue Length 50th (ft)	53	156	~196	~258	149	34	~606
Queue Length 95th (ft)	m#161	#235	#306	#321	m98	m28	m#420
Internal Link Dist (ft)		1062		1070	1123		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	178	565	217	721	279	442	599
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.86	1.26	1.06	0.85	0.26	1.31
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.							
m Volume for 95th percentile queue is metered by upstream signal.							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	128	340	115	224	576	51	95	133	111	40	459	231
Future Volume (vph)	128	340	115	224	576	51	95	133	111	40	459	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.97		1.00	0.99			1.00	0.80		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.99	
Frt	1.00	0.96		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1342	2423		1307	2644			1523	1076		1499	
Flt Permitted	0.95	1.00		0.95	1.00			0.44	1.00		0.97	
Satd. Flow (perm)	1342	2423		1307	2644			680	1076		1459	
Peak-hour factor, PHF	0.94	0.94	0.94	0.82	0.82	0.82	0.96	0.96	0.96	0.93	0.93	0.93
Adj. Flow (vph)	136	362	122	273	702	62	99	139	116	43	494	248
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	136	484	0	273	764	0	0	238	116	0	785	0
Confl. Peds. (#/hr)	38		33	33		38	147		163	163		147
Confl. Bikes (#/hr)			14			12			12			17
Heavy Vehicles (%)	17%	17%	17%	16%	16%	16%	5%	5%	5%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	11.4	21.0		15.0	24.6			37.0	37.0		37.0	
Effective Green, g (s)	11.4	21.0		15.0	24.6			37.0	37.0		37.0	
Actuated g/C Ratio	0.13	0.23		0.17	0.27			0.41	0.41		0.41	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	169	565		217	722			279	442		599	
v/s Ratio Prot	0.10	0.20		c0.21	c0.29							
v/s Ratio Perm								0.35	0.11		c0.54	
v/c Ratio	0.80	0.86		1.26	1.06			0.85	0.26		1.31	
Uniform Delay, d1	38.2	33.1		37.5	32.7			24.0	17.5		26.5	
Progression Factor	0.84	1.03		1.00	1.00			0.60	0.41		0.74	
Incremental Delay, d2	22.2	14.5		147.9	49.9			2.5	0.0		140.9	
Delay (s)	54.3	48.7		185.4	82.6			16.8	7.2		160.4	
Level of Service	D	D		F	F			B	A		F	
Approach Delay (s)		49.9			109.7			13.6			160.4	
Approach LOS		D			F			B			F	
Intersection Summary												
HCM 2000 Control Delay			98.5			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.24									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			115.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	248	308	1322	60	321	260
v/c Ratio	1.45	0.17	0.89	0.26	1.10	1.34
Control Delay	253.5	5.8	40.4	44.2	128.0	221.7
Queue Delay	0.0	0.0	49.0	0.0	0.0	0.0
Total Delay	253.5	5.8	89.4	44.2	128.0	221.7
Queue Length 50th (ft)	~128	36	562	40	~282	~262
Queue Length 95th (ft)	#252	46	m584	50	#448	#417
Internal Link Dist (ft)		1070	174	417	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	171	1781	1482	228	291	194
Starvation Cap Reductn	0	0	723	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	1.45	0.17	1.74	0.26	1.10	1.34

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.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	206	153	103	267	655	215	0	15	20	9	274	229
Future Volume (vph)	206	153	103	267	655	215	0	15	20	9	274	229
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.96			0.97			0.93			1.00	0.78
Flpb, ped/bikes	1.00	1.00			0.99			1.00			1.00	1.00
Frt	1.00	0.94			0.97			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			1.00	1.00
Satd. Flow (prot)	1377	2485			2645			1142			1467	972
Flt Permitted	0.17	1.00			0.77			1.00			0.99	1.00
Satd. Flow (perm)	243	2485			2053			1142			1458	972
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.58	0.58	0.58	0.88	0.88	0.88
Adj. Flow (vph)	248	184	124	310	762	250	0	26	34	10	311	260
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	248	308	0	0	1322	0	0	60	0	0	321	260
Confl. Peds. (#/hr)	55		21	21		55	95		46	46		95
Confl. Bikes (#/hr)			2			10			5			4
Heavy Vehicles (%)	18%	18%	18%	6%	6%	6%	29%	29%	29%	16%	16%	16%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	86.0	86.0			86.5			24.0			24.0	24.0
Effective Green, g (s)	86.0	86.0			86.5			24.0			24.0	24.0
Actuated g/C Ratio	0.72	0.72			0.72			0.20			0.20	0.20
Clearance Time (s)	5.0	5.0			4.5			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)	174	1780			1479			228			291	194
v/s Ratio Prot		0.12						0.05				
v/s Ratio Perm	c1.02				0.64						0.22	c0.27
v/c Ratio	1.43	0.17			0.89			0.26			1.10	1.34
Uniform Delay, d1	17.0	5.5			13.1			40.5			48.0	48.0
Progression Factor	1.00	1.00			2.69			1.00			1.00	1.00
Incremental Delay, d2	221.4	0.2			3.2			0.6			83.3	183.6
Delay (s)	238.4	5.7			38.5			41.2			131.3	231.6
Level of Service	F	A			D			D			F	F
Approach Delay (s)		109.5			38.5			41.2			176.2	
Approach LOS		F			D			D			F	
Intersection Summary												
HCM 2000 Control Delay			86.0			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.47									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				15.0		
Intersection Capacity Utilization			85.8%			ICU Level of Service				E		
Analysis Period (min)			15									

c Critical Lane Group















Lane Group	EBL	NBL	NBR	SWL	SWR
Lane Group Flow (vph)	228	791	778	1105	496
v/c Ratio	0.43	0.99	0.31	0.95	0.93
Control Delay	45.6	73.9	1.6	52.4	53.1
Queue Delay	1.1	40.8	0.0	0.0	48.7
Total Delay	46.7	114.8	1.6	52.4	101.8
Queue Length 50th (ft)	84	315	16	454	394
Queue Length 95th (ft)	m109	#450	32	m361	m330
Internal Link Dist (ft)	174	459		1843	
Turn Bay Length (ft)		250	200		
Base Capacity (vph)	534	795	2499	1161	535
Starvation Cap Reductn	139	0	0	0	0
Spillback Cap Reductn	0	411	0	0	200
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	2.06	0.31	0.95	1.48











Intersection Summary























95th percentile volume exceeds capacity, queue may be longer.







Queue shown is maximum after two cycles.







m Volume for 95th percentile queue is metered by upstream signal.

							
Movement	EBL	EBR	NBU	NBL	NBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	186	1	40	672	700	1039	466
Future Volume (vph)	186	1	40	672	700	1039	466
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.76	0.97	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	0.85	1.00	0.85
Flt Protected	0.95			0.95	1.00	0.95	1.00
Satd. Flow (prot)	2565			2808	3281	3030	1398
Flt Permitted	0.95			0.95	1.00	0.95	1.00
Satd. Flow (perm)	2565			2808	3281	3030	1398
Peak-hour factor, PHF	0.82	0.82	0.90	0.90	0.90	0.94	0.94
Adj. Flow (vph)	227	1	44	747	778	1105	496
RTOR Reduction (vph)	0	0	0	0	175	0	0
Lane Group Flow (vph)	228	0	0	791	603	1105	496
Confl. Bikes (#/hr)							3
Heavy Vehicles (%)	19%	19%	1%	1%	1%	4%	4%
Turn Type	Prot		Prot	Prot	Prot	Prot	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	25.0			34.0	85.0	46.0	46.0
Effective Green, g (s)	25.0			34.0	85.0	46.0	46.0
Actuated g/C Ratio	0.21			0.28	0.71	0.38	0.38
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534			795	2324	1161	535
v/s Ratio Prot	c0.09			c0.28	0.18	c0.36	0.35
v/s Ratio Perm							
v/c Ratio	0.43			0.99	0.26	0.95	0.93
Uniform Delay, d1	41.3			42.9	6.3	35.9	35.4
Progression Factor	1.04			1.00	1.00	1.40	1.40
Incremental Delay, d2	2.5			30.7	0.3	2.5	3.5
Delay (s)	45.2			73.6	6.5	52.7	53.2
Level of Service	D			E	A	D	D
Approach Delay (s)	45.2			40.4		52.9	
Approach LOS	D			D		D	
Intersection Summary							
HCM 2000 Control Delay			46.6		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio			0.84				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			74.7%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	263	649	150	137	495	88	640	123	635	237
v/c Ratio	1.18	1.44	0.61	1.29	0.90	0.73	0.87	0.77	1.16	1.39
Control Delay	133.2	232.3	37.5	213.5	44.1	53.1	35.3	57.9	105.3	215.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.2	232.3	37.5	213.5	44.1	53.1	35.3	57.9	105.3	215.6
Queue Length 50th (ft)	~189	~532	70	~98	158	54	177	62	~458	~184
Queue Length 95th (ft)	m136	m#388	m55	m#141	m#175	m58	m176	m64	m#458	m#186
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	222	450	246	106	547	120	734	161	546	170
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.44	0.61	1.29	0.90	0.73	0.87	0.76	1.16	1.39
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.										
m Volume for 95th percentile queue is metered by upstream signal.										

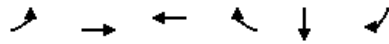
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	226	558	129	127	419	41	78	451	118	117	603	225
Future Volume (vph)	226	558	129	127	419	41	78	451	118	117	603	225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	7.0	4.0	4.0	7.0	4.0		4.0	4.0		7.0	4.0	7.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.99		1.00	0.97		1.00	1.00	0.87
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1430	1613	879	1366	2722		1354	2543		1450	1476	1096
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1430	1613	879	1366	2722		1354	2543		1450	1476	1096
Peak-hour factor, PHF	0.86	0.86	0.86	0.93	0.93	0.93	0.89	0.89	0.89	0.95	0.95	0.95
Adj. Flow (vph)	263	649	150	137	451	44	88	507	133	123	635	237
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	263	649	150	137	495	0	88	640	0	123	635	237
Confl. Peds. (#/hr)			150			70			60			55
Confl. Bikes (#/hr)			175			6			7			9
Heavy Vehicles (%)	6%	6%	6%	11%	11%	11%	16%	16%	16%	12%	12%	12%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	13.0	23.1	23.1	6.0	16.1		5.6	26.0		8.9	32.3	13.0
Effective Green, g (s)	14.0	24.1	24.1	7.0	17.1		6.6	27.0		9.9	33.3	14.0
Actuated g/C Ratio	0.16	0.27	0.27	0.08	0.19		0.07	0.30		0.11	0.37	0.16
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	222	431	235	106	517		99	762		159	546	170
v/s Ratio Prot	0.18	c0.40		0.10	0.18		0.07	0.25		c0.08	c0.43	
v/s Ratio Perm			0.17									c0.22
v/c Ratio	1.18	1.51	0.64	1.29	0.96		0.89	0.84		0.77	1.16	1.39
Uniform Delay, d1	38.0	33.0	29.1	41.5	36.1		41.3	29.5		39.0	28.4	38.0
Progression Factor	1.39	1.23	1.23	1.17	0.73		1.03	1.00		1.22	0.80	0.82
Incremental Delay, d2	87.6	228.7	1.2	173.2	24.9		20.9	3.0		6.0	78.9	186.5
Delay (s)	140.4	269.1	36.9	221.7	51.1		63.6	32.4		53.6	101.6	217.7
Level of Service	F	F	D	F	D		E	C		D	F	F
Approach Delay (s)		204.4			88.1			36.2			123.3	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			123.5			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.43									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				22.0		
Intersection Capacity Utilization			96.5%			ICU Level of Service				F		
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Traffic Volume (veh/h)	0	791	588	305	0	0
Future Volume (Veh/h)	0	791	588	305	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	860	639	332	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.74	
vC, conflicting volume	971				1665	379
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	971				1723	379
tC, single (s)	4.2				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)	693				59	619
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	860	256	256	460		
Volume Left	0	0	0	0		
Volume Right	0	0	0	332		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.51	0.15	0.15	0.27		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			49.6%	ICU Level of Service	A	
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Traffic Volume (veh/h)	0	791	651	0	0	242
Future Volume (Veh/h)	0	791	651	0	0	242
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	860	708	0	0	263
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	908				1768	554
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	908				1858	554
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	33
cM capacity (veh/h)	616				39	390
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	860	354	354	263		
Volume Left	0	0	0	0		
Volume Right	0	0	0	263		
cSH	1700	1700	1700	390		
Volume to Capacity	0.51	0.21	0.21	0.67		
Queue Length 95th (ft)	0	0	0	119		
Control Delay (s)	0.0	0.0	0.0	31.3		
Lane LOS				D		
Approach Delay (s)	0.0	0.0		31.3		
Approach LOS				D		
Intersection Summary						
Average Delay			4.5			
Intersection Capacity Utilization			49.6%		ICU Level of Service	A
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	728	158	280	549	142	194
v/c Ratio	1.42	0.51	0.71	1.07	0.48	0.56
Control Delay	223.3	11.0	45.5	67.5	46.3	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	223.3	11.0	45.5	67.5	46.3	23.5
Queue Length 50th (ft)	~589	51	160	~366	79	79
Queue Length 95th (ft)	m#452	m40	m119	m265	m109	m113
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160			100
Base Capacity (vph)	512	310	393	512	297	349
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	1.42	0.51	0.71	1.07	0.48	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.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	655	142	263	516	132	180
Future Volume (vph)	655	142	263	516	132	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	10
Total Lost time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1565	1330	1540	1565	1486	1177
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1565	1330	1540	1565	1486	1177
Peak-hour factor, PHF	0.90	0.90	0.94	0.94	0.93	0.93
Adj. Flow (vph)	728	158	280	549	142	194
RTOR Reduction (vph)	0	45	0	0	0	49
Lane Group Flow (vph)	728	113	280	549	142	145
Confl. Peds. (#/hr)		395	395		206	132
Confl. Bikes (#/hr)		140				
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	3	2	1	3	2
Permitted Phases						
Actuated Green, G (s)	29.5	18.0	23.0	29.5	18.0	23.0
Effective Green, g (s)	29.5	18.0	23.0	29.5	18.0	23.0
Actuated g/C Ratio	0.33	0.20	0.26	0.33	0.20	0.26
Clearance Time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Grp Cap (vph)	512	266	393	512	297	300
v/s Ratio Prot	c0.47	0.09	c0.18	0.35	c0.10	0.12
v/s Ratio Perm						
v/c Ratio	1.42	0.43	0.71	1.07	0.48	0.48
Uniform Delay, d1	30.2	31.5	30.5	30.2	31.8	28.4
Progression Factor	1.33	0.50	1.42	0.98	1.33	1.02
Incremental Delay, d2	190.9	0.5	1.0	36.7	3.0	3.0
Delay (s)	231.2	16.1	44.3	66.3	45.2	32.2
Level of Service	F	B	D	E	D	C
Approach Delay (s)	192.8			58.9	37.7	
Approach LOS	F			E	D	
Intersection Summary						
HCM 2000 Control Delay		113.3		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio		0.95				
Actuated Cycle Length (s)		90.0		Sum of lost time (s)		19.5
Intersection Capacity Utilization		84.9%		ICU Level of Service		E
Analysis Period (min)		15				
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	348	501	858	424	370	165
v/c Ratio	1.14	0.53	1.49	1.16	0.95	0.59
Control Delay	103.6	12.4	255.7	129.0	38.7	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	103.6	12.4	255.7	129.0	38.7	26.7
Queue Length 50th (ft)	~220	131	~681	~287	198	76
Queue Length 95th (ft)	m118	m99	#907	#466	m151	m59
Internal Link Dist (ft)		882	68		1123	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	306	954	576	367	390	279
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	1.14	0.53	1.49	1.16	0.95	0.59

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.

m Volume for 95th percentile queue is metered by upstream signal.

















KSURP
18: Third Street & Broadway









2021 Updated Future
Timing Plan: Morning Peak Hou





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	327	418	53	0	798	394	0	0	0	200	151	157
Future Volume (vph)	327	418	53	0	798	394	0	0	0	200	151	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.97			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1454	2685			1621	1378					1464	1326
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1454	2685			1621	1378					1464	1326
Peak-hour factor, PHF	0.94	0.94	0.94	0.93	0.93	0.93	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	348	445	56	0	858	424	0	0	0	211	159	165
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	348	501	0	0	858	424	0	0	0	0	370	165
Confl. Peds. (#/hr)	59					59				911		263
Confl. Bikes (#/hr)			217			18						
Heavy Vehicles (%)	8%	8%	8%	2%	2%	2%	2%	2%	2%	6%	6%	6%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	19.0	32.0			32.0	24.0					24.0	19.0
Effective Green, g (s)	19.0	32.0			32.0	24.0					24.0	19.0
Actuated g/C Ratio	0.21	0.36			0.36	0.27					0.27	0.21
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	306	954			576	367					390	279
v/s Ratio Prot	c0.24	0.19			c0.53	c0.31					0.25	0.12
v/s Ratio Perm												
v/c Ratio	1.14	0.53			1.49	1.16					0.95	0.59
Uniform Delay, d1	35.5	23.0			29.0	33.0					32.4	32.0
Progression Factor	1.11	0.52			1.00	1.00					0.93	0.79
Incremental Delay, d2	65.9	0.2			229.4	96.4					6.1	0.8
Delay (s)	105.4	12.2			258.4	129.4					36.3	26.0
Level of Service	F	B			F	F					D	C
Approach Delay (s)		50.4			215.7			0.0			33.1	
Approach LOS		D			F			A			C	
Intersection Summary												
HCM 2000 Control Delay		126.4				HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio		1.29										
Actuated Cycle Length (s)		90.0				Sum of lost time (s)				15.0		
Intersection Capacity Utilization		97.9%				ICU Level of Service				F		
Analysis Period (min)		15										
c Critical Lane Group												

KSURP
19: Broadway & Memorial Drive Ramp









2021 Updated Future
Timing Plan: Morning Peak Hou





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	695	100	0	1184	331	0	0	215	0	0	144
Future Volume (Veh/h)	0	695	100	0	1184	331	0	0	215	0	0	144
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.93	0.93	0.93	0.91	0.91	0.91	0.25	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	747	108	0	1301	364	0	0	234	0	0	160
Pedestrians								159			128	
Lane Width (ft)								12.0			12.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								13			11	
Right turn flare (veh)												
Median type		None			Raised							
Median storage (veh)					1							
Upstream signal (ft)		1271										
pX, platoon unblocked												
vC, conflicting volume	1793			1014			1770	2753	586	2218	2625	960
vC1, stage 1 conf vol							960	960		1611	1611	
vC2, stage 2 conf vol							810	1793		608	1014	
vCu, unblocked vol	1793			1014			1770	2753	586	2218	2625	960
tC, single (s)	4.2			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	40	100	100	29
cM capacity (veh/h)	297			590			68	82	393	60	92	226
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	498	357	867	798	234	160						
Volume Left	0	0	0	0	0	0						
Volume Right	0	108	0	364	234	160						
cSH	1700	1700	1700	1700	393	226						
Volume to Capacity	0.29	0.21	0.51	0.47	0.60	0.71						
Queue Length 95th (ft)	0	0	0	0	93	116						
Control Delay (s)	0.0	0.0	0.0	0.0	26.7	52.2						
Lane LOS					D	F						
Approach Delay (s)	0.0		0.0		26.7	52.2						
Approach LOS					D	F						
Intersection Summary												
Average Delay			5.0									
Intersection Capacity Utilization			66.1%		ICU Level of Service				C			
Analysis Period (min)			15									

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	379	504	64	271	663	91	439	383
v/c Ratio	1.16	0.81	0.35	0.52	0.96	0.53	0.79	1.00
Control Delay	128.9	34.9	14.2	14.8	54.2	39.6	41.1	57.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	128.9	34.9	14.2	14.8	54.2	39.6	41.1	57.3
Queue Length 50th (ft)	~258	243	29	141	189	57	275	~240
Queue Length 95th (ft)	#404	#371	m49	m194	#309	m51	m250	m223
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	326	620	182	518	691	172	558	383
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.81	0.35	0.52	0.96	0.53	0.79	1.00
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	326	359	75	61	146	114	70	332	201	86	413	360
Future Volume (vph)	326	359	75	61	146	114	70	332	201	86	413	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Flpb, ped/bikes	1.00	0.95		1.00	0.88			0.93		1.00	1.00	0.84
Flpb, ped/bikes	0.81	1.00		0.90	1.00			0.99		0.94	1.00	1.00
Frt	1.00	0.97		1.00	0.93			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99		0.95	1.00	1.00
Satd. Flow (prot)	1241	1433		1205	1196			2470		1239	1437	985
Flt Permitted	0.58	1.00		0.33	1.00			0.72		0.34	1.00	1.00
Satd. Flow (perm)	754	1433		423	1196			1779		444	1437	985
Peak-hour factor, PHF	0.86	0.86	0.86	0.96	0.96	0.96	0.91	0.91	0.91	0.94	0.94	0.94
Adj. Flow (vph)	379	417	87	64	152	119	77	365	221	91	439	383
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	379	504	0	64	271	0	0	663	0	91	439	383
Confl. Peds. (#/hr)	398		210	210		398	76		127	127		76
Confl. Bikes (#/hr)			84			7			36			57
Heavy Vehicles (%)	10%	10%	10%	13%	13%	13%	15%	15%	15%	15%	15%	15%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Effective Green, g (s)	39.0	39.0		39.0	39.0			35.0		35.0	35.0	35.0
Actuated g/C Ratio	0.43	0.43		0.43	0.43			0.39		0.39	0.39	0.39
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	326	620		183	518			691		172	558	383
v/s Ratio Prot		0.35			0.23						0.31	
v/s Ratio Perm	c0.50			0.15				0.37		0.21		c0.39
v/c Ratio	1.16	0.81		0.35	0.52			0.96		0.53	0.79	1.00
Uniform Delay, d1	25.5	22.3		17.0	18.7			26.8		21.2	24.2	27.5
Progression Factor	1.00	1.00		0.55	0.61			1.00		1.63	1.60	1.57
Incremental Delay, d2	101.6	11.1		3.9	2.8			25.6		1.1	1.1	13.8
Delay (s)	127.1	33.4		13.2	14.3			52.4		35.6	39.8	57.1
Level of Service	F	C		B	B			D		D	D	E
Approach Delay (s)		73.6			14.1			52.4			46.6	
Approach LOS		E			B			D			D	
Intersection Summary												
HCM 2000 Control Delay			52.6			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			1.08									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			137.6%			ICU Level of Service				H		
Analysis Period (min)			15									















c Critical Lane Group







								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	162	543	143	120	98	196	253	218
v/c Ratio	1.34	1.67	2.65	0.47	0.51	0.47	0.85	0.78
Control Delay	207.5	330.7	809.7	28.3	36.7	28.9	41.4	34.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	207.5	330.7	809.7	28.3	36.7	28.9	41.4	34.3
Queue Length 50th (ft)	~119	~451	~139	47	45	88	150	100
Queue Length 95th (ft)	m#165	m#578	m#208	m74	100	154	m#261	m#215
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			100
Base Capacity (vph)	121	326	54	255	191	418	297	280
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.34	1.67	2.65	0.47	0.51	0.47	0.85	0.78
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	355	144	110	55	38	89	168	10	113	107	190
Future Volume (vph)	149	355	144	110	55	38	89	168	10	113	107	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	11	10
Total Lost time (s)	5.5	4.5		5.5	4.5		5.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.79		1.00	0.70		1.00	0.98			1.00	0.79
Flpb, ped/bikes	0.39	1.00		1.00	1.00		0.88	1.00			0.90	1.00
Frt	1.00	0.96		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.97	1.00
Satd. Flow (prot)	558	1030		1169	806		1233	1299			1340	869
Flt Permitted	0.68	1.00		0.15	1.00		0.47	1.00			0.67	1.00
Satd. Flow (perm)	399	1030		179	806		615	1299			922	869
Peak-hour factor, PHF	0.92	0.92	0.92	0.77	0.77	0.77	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	162	386	157	143	71	49	98	185	11	130	123	218
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	162	543	0	143	120	0	98	196	0	0	253	218
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	14%	14%	14%	39%	39%	39%	16%	16%	16%	8%	8%	8%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)	27.5	27.5		27.5	27.5		28.0	28.0			28.0	28.0
Effective Green, g (s)	27.5	28.5		27.5	28.5		28.0	29.0			29.0	29.0
Actuated g/C Ratio	0.31	0.32		0.31	0.32		0.31	0.32			0.32	0.32
Clearance Time (s)	5.5	5.5		5.5	5.5		5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	121	326		54	255		191	418			297	280
v/s Ratio Prot		0.53			0.15			0.15				
v/s Ratio Perm	0.41			c0.80			0.16				c0.27	0.25
v/c Ratio	1.34	1.67		2.65	0.47		0.51	0.47			0.85	0.78
Uniform Delay, d1	31.2	30.8		31.2	24.7		25.4	24.4			28.5	27.6
Progression Factor	0.86	0.85		0.87	0.85		1.00	1.00			0.59	0.57
Incremental Delay, d2	179.6	306.9		791.6	6.1		9.5	3.7			21.3	15.8
Delay (s)	206.4	333.0		818.8	27.2		34.9	28.1			38.1	31.6
Level of Service	F	F		F	C		C	C			D	C
Approach Delay (s)		303.9			457.6			30.4			35.1	
Approach LOS		F			F			C			D	
Intersection Summary												
HCM 2000 Control Delay		207.8								F		
HCM 2000 Volume to Capacity ratio		1.30										
Actuated Cycle Length (s)		90.0								15.5		
Intersection Capacity Utilization		86.5%								E		
Analysis Period (min)		15										

c Critical Lane Group




















	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	602	0	0	1192	0	292
Future Volume (Veh/h)	602	0	0	1192	0	292
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	654	0	0	1296	0	317
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.88		0.88	0.88
vC, conflicting volume			884		1532	557
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			584		1324	211
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	44
cM capacity (veh/h)			698		104	563
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	327	327	648	648	317	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	317	
cSH	1700	1700	1700	1700	563	
Volume to Capacity	0.19	0.19	0.38	0.38	0.56	
Queue Length 95th (ft)	0	0	0	0	87	
Control Delay (s)	0.0	0.0	0.0	0.0	19.3	
Lane LOS					C	
Approach Delay (s)	0.0		0.0		19.3	
Approach LOS					C	
Intersection Summary						
Average Delay			2.7			
Intersection Capacity Utilization			45.2%		ICU Level of Service	A
Analysis Period (min)			15			

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	14	1172	494	0	0	0	0	24	87
Future Volume (Veh/h)	0	0	0	14	1172	494	0	0	0	0	24	87
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.86	0.86	0.86	0.92	0.92	0.92	0.88	0.88	0.88
Hourly flow rate (vph)	0	0	0	16	1363	574	0	0	0	0	27	99
Pedestrians	58						9			59		
Lane Width (ft)	0.0						0.0			14.0		
Walking Speed (ft/s)	4.0						4.0			4.0		
Percent Blockage	0						0			6		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1996			9			893	2037	9	1741	1750	1086
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1996			9			893	2037	9	1741	1750	1086
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.8	6.8	7.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			99			100	100	100	100	62	46
cM capacity (veh/h)	268			1624			73	52	1070	44	71	183
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	698	1256	126									
Volume Left	16	0	0									
Volume Right	0	574	99									
cSH	1624	1700	137									
Volume to Capacity	0.01	0.74	0.92									
Queue Length 95th (ft)	1	0	156									
Control Delay (s)	0.3	0.0	120.1									
Lane LOS	A		F									
Approach Delay (s)	0.1		120.1									
Approach LOS			F									
Intersection Summary												
Average Delay	7.4											
Intersection Capacity Utilization	122.4%			ICU Level of Service			H					
Analysis Period (min)	15											



















						
Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1735	768	420	58	38	206
v/c Ratio	0.95	1.12	0.23	0.30	0.19	0.41
Control Delay	21.6	98.8	5.3	25.8	23.1	45.5
Queue Delay	0.0	1.4	0.5	1.4	0.0	0.0
Total Delay	21.6	100.3	5.7	27.1	23.1	45.5
Queue Length 50th (ft)	478	~327	20	38	25	70
Queue Length 95th (ft)	m377	#451	26	80	58	108
Internal Link Dist (ft)	817		178		106	169
Turn Bay Length (ft)						
Base Capacity (vph)	1829	686	1830	193	203	503
Starvation Cap Reductn	0	126	949	50	0	0
Spillback Cap Reductn	0	5	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.95	1.37	0.48	0.41	0.19	0.41
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

KSURP
28: First Street Connector & O'Brien Highway

2021 Updated Future
Timing Plan: Morning Peak Hou

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1345	251	707	378	8	53	35	0	84	106	0
Future Volume (vph)	0	1345	251	707	378	8	53	35	0	84	106	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Lane Util. Factor		0.91		0.97	0.95		1.00	1.00			0.95	
Flt		0.98		1.00	1.00		1.00	1.00			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (prot)		4965		3433	3528		1770	1863			3463	
Flt Permitted		1.00		0.95	1.00		0.95	1.00			0.98	
Satd. Flow (perm)		4965		3433	3528		1770	1863			3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1462	273	768	411	9	58	38	0	91	115	0
RTOR Reduction (vph)	0	25	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1710	0	768	419	0	58	38	0	0	206	0
Turn Type		NA		Prot	NA		Split	NA		Split	NA	
Protected Phases		1		2 3	1 2		5	5		4	4	
Permitted Phases												
Actuated Green, G (s)		40.0		22.0	57.0		12.0	12.0			16.0	
Effective Green, g (s)		40.0		22.0	57.0		12.0	12.0			16.0	
Actuated g/C Ratio		0.36		0.20	0.52		0.11	0.11			0.15	
Clearance Time (s)		5.0					5.0	5.0			5.0	
Lane Grp Cap (vph)		1805		686	1828		193	203			503	
v/s Ratio Prot		c0.34		c0.22	0.12		c0.03	0.02			c0.06	
v/s Ratio Perm												
v/c Ratio		0.95		1.12	0.23		0.30	0.19			0.41	
Uniform Delay, d1		34.0		44.0	14.5		45.1	44.6			42.7	
Progression Factor		0.58		0.68	0.35		0.48	0.47			1.00	
Incremental Delay, d2		1.5		68.5	0.2		3.9	2.0			2.5	
Delay (s)		21.1		98.5	5.2		25.4	22.9			45.2	
Level of Service		C		F	A		C	C			D	
Approach Delay (s)		21.1			65.6			24.4			45.2	
Approach LOS		C			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			39.1			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.85									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				25.0		
Intersection Capacity Utilization			75.6%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												


















	→	↘	←	↙	↑	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1215	502	1317	513	519	12
v/c Ratio	0.84	0.47	0.82	1.29	1.00	0.06
Control Delay	28.2	6.9	16.1	178.8	66.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	6.9	16.1	178.8	66.9	0.6
Queue Length 50th (ft)	336	107	133	~440	275	0
Queue Length 95th (ft)	410	155	167	#650	#510	0
Internal Link Dist (ft)	741		787		450	163
Turn Bay Length (ft)				85		
Base Capacity (vph)	1447	1064	1614	399	521	185
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	0.84	0.47	0.82	1.29	1.00	0.06
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												
Traffic Volume (vph)	12	1046	437	0	1254	10	966	0	25	3	0	8
Future Volume (vph)	12	1046	437	0	1254	10	966	0	25	3	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		6.0	6.0		3.0		6.0	6.0			6.0	
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00	
Fr t		1.00	0.85		1.00		1.00	0.99			0.90	
Flt Protected		1.00	1.00		1.00		0.95	0.95			0.99	
Satd. Flow (prot)		3150	1439		3046		1426	1524			1488	
Flt Permitted		0.92	1.00		1.00		0.95	0.95			0.99	
Satd. Flow (perm)		2895	1439		3046		1426	1524			1488	
Peak-hour factor, PHF	0.92	0.87	0.87	0.96	0.96	0.92	0.96	0.92	0.96	0.92	0.92	0.92
Adj. Flow (vph)	13	1202	502	0	1306	11	1006	0	26	3	0	9
RTOR Reduction (vph)	0	0	0	0	1	0	0	94	0	0	12	0
Lane Group Flow (vph)	0	1215	502	0	1316	0	513	425	0	0	0	0
Heavy Vehicles (%)	2%	1%	1%	3%	3%	2%	1%	2%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	10	0	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA	custom		NA		Split	NA		Split	NA	
Protected Phases		2 3	4		3 6		4	4		7	7	
Permitted Phases	2 3		2									
Actuated Green, G (s)		53.0	68.0		53.0		28.0	28.0			4.0	
Effective Green, g (s)		53.0	68.0		47.0		28.0	28.0			4.0	
Actuated g/C Ratio		0.53	0.68		0.47		0.28	0.28			0.04	
Clearance Time (s)			6.0				6.0	6.0			6.0	
Vehicle Extension (s)			3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		1534	1064		1431		399	426			59	
v/s Ratio Prot			0.13		c0.43		c0.36	0.28			c0.00	
v/s Ratio Perm		c0.42	0.22									
v/c Ratio		0.79	0.47		0.92		1.29	1.00			0.01	
Uniform Delay, d1		19.0	7.5		24.7		36.0	36.0			46.1	
Progression Factor		1.00	1.00		0.64		1.00	1.00			1.00	
Incremental Delay, d2		2.9	0.3		7.0		146.4	42.5			0.1	
Delay (s)		21.9	7.9		22.9		182.4	78.5			46.2	
Level of Service		C	A		C		F	E			D	
Approach Delay (s)		17.8			22.9		130.1				46.2	
Approach LOS		B			C		F				D	
Intersection Summary												
HCM 2000 Control Delay			48.0				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			1.02									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				21.0	
Intersection Capacity Utilization			88.8%				ICU Level of Service				E	
Analysis Period (min)			15									
c Critical Lane Group												

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	567	566	871	48	447
v/c Ratio	1.80	1.67	1.66	0.24	0.61
Control Delay	396.5	341.4	315.2	18.4	22.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	396.5	341.4	315.2	18.4	22.3
Queue Length 50th (ft)	~489	~474	~717	16	182
Queue Length 95th (ft)	#572	#674	m#608	42	283
Internal Link Dist (ft)	1468	719	2039		450
Turn Bay Length (ft)				90	
Base Capacity (vph)	315	338	526	201	734
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.80	1.67	1.66	0.24	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.					
m Volume for 95th percentile queue is metered by upstream signal.					

KSURP
2: Third Street & Cambridge Street

2021 Updated Future Condition
Timing Plan: PM Peak Hour



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	292	55	50	287	200	84	697	20	43	345	58
Future Volume (vph)	95	292	55	50	287	200	84	697	20	43	345	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	12	12	12	11	11	12
Total Lost time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.89			1.00		1.00	0.99	
Flpb, ped/bikes		0.98			1.00			1.00		0.99	1.00	
Frt		0.98			0.95			1.00		1.00	0.98	
Flt Protected		0.99			1.00			0.99		0.95	1.00	
Satd. Flow (prot)		1487			1189			1464		1530	1572	
Flt Permitted		0.63			0.85			0.77		0.27	1.00	
Satd. Flow (perm)		946			1015			1129		432	1572	
Peak-hour factor, PHF	0.78	0.78	0.78	0.95	0.95	0.95	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	122	374	71	53	302	211	91	758	22	48	383	64
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	567	0	0	566	0	0	871	0	48	447	0
Confl. Peds. (#/hr)	152		93	93		152	36		41	41		36
Confl. Bikes (#/hr)			17			56			3			1
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	1%	1%	1%	2%	2%	2%
Parking (#/hr)					5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		30.0			30.0			42.0		42.0	42.0	
Effective Green, g (s)		30.0			30.0			42.0		42.0	42.0	
Actuated g/C Ratio		0.33			0.33			0.47		0.47	0.47	
Clearance Time (s)		9.0			9.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		315			338			526		201	733	
v/s Ratio Prot											0.28	
v/s Ratio Perm		c0.60			0.56			c0.77		0.11		
v/c Ratio		1.80			1.67			1.66		0.24	0.61	
Uniform Delay, d1		30.0			30.0			24.0		14.4	17.9	
Progression Factor		1.00			1.00			0.56		1.00	1.00	
Incremental Delay, d2		372.4			316.2			295.9		2.8	3.8	
Delay (s)		402.4			346.2			309.5		17.2	21.6	
Level of Service		F			F			F		B	C	
Approach Delay (s)		402.4			346.2			309.5			21.2	
Approach LOS		F			F			F			C	
Intersection Summary												
HCM 2000 Control Delay		281.8			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.71										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			18.0				
Intersection Capacity Utilization		154.7%			ICU Level of Service			H				
Analysis Period (min)		15										

c Critical Lane Group

	→	↑	↘	↓
Lane Group	EBT	NBT	NBR	SBT
Lane Group Flow (vph)	376	172	738	621
v/c Ratio	0.53	0.29	1.52	0.33
Control Delay	34.9	25.3	271.1	5.2
Queue Delay	0.3	0.0	0.0	5.7
Total Delay	35.1	25.3	271.1	11.0
Queue Length 50th (ft)	108	79	~660	16
Queue Length 95th (ft)	151	133	#883	35
Internal Link Dist (ft)	719	1971		117
Turn Bay Length (ft)			175	
Base Capacity (vph)	715	586	486	1865
Starvation Cap Reductn	0	0	0	1171
Spillback Cap Reductn	60	14	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.30	1.52	0.89
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.				

KSURP
3: First Street & Cambridge Street













2021 Updated Future Condition
Timing Plan: PM Peak Hour












												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	270	61	0	0	0	0	158	694	0	286	285
Future Volume (vph)	0	270	61	0	0	0	0	158	694	0	286	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	12	11	12	10	12	11	12	12	12
Total Lost time (s)		4.0						5.0	4.0		4.0	
Lane Util. Factor		0.95						1.00	1.00		0.95	
Frb, ped/bikes		0.99						1.00	1.00		1.00	
Flpb, ped/bikes		1.00						1.00	1.00		1.00	
Frt		0.97						1.00	0.85		0.93	
Flt Protected		1.00						1.00	1.00		1.00	
Satd. Flow (prot)		2753						1676	1351		2947	
Flt Permitted		1.00						1.00	1.00		1.00	
Satd. Flow (perm)		2753						1676	1351		2947	
Peak-hour factor, PHF	0.92	0.88	0.88	0.81	0.81	0.92	0.94	0.92	0.94	0.92	0.92	0.92
Adj. Flow (vph)	0	307	69	0	0	0	0	172	738	0	311	310
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	130	0
Lane Group Flow (vph)	0	376	0	0	0	0	0	172	738	0	491	0
Confl. Bikes (#/hr)			16									
Heavy Vehicles (%)	2%	4%	4%	3%	3%	2%	4%	2%	4%	2%	2%	2%
Parking (#/hr)		2	2									
Turn Type		NA						NA	Perm		NA	
Protected Phases		1						3			2 3	
Permitted Phases									3			
Actuated Green, G (s)		25.0						35.0	35.0		58.0	
Effective Green, g (s)		26.0						35.0	36.0		58.0	
Actuated g/C Ratio		0.26						0.35	0.36		0.58	
Clearance Time (s)		5.0						5.0	5.0			
Lane Grp Cap (vph)		715						586	486		1709	
v/s Ratio Prot		c0.14						0.10			c0.17	
v/s Ratio Perm									c0.55			
v/c Ratio		0.53						0.29	1.52		0.29	
Uniform Delay, d1		31.7						23.5	32.0		10.6	
Progression Factor		1.00						1.00	1.00		0.99	
Incremental Delay, d2		2.8						1.3	243.7		0.3	
Delay (s)		34.5						24.8	275.7		10.9	
Level of Service		C						C	F		B	
Approach Delay (s)		34.5			0.0			228.3			10.9	
Approach LOS		C			A			F			B	
Intersection Summary												
HCM 2000 Control Delay		119.3									F	
HCM 2000 Volume to Capacity ratio		0.88										
Actuated Cycle Length (s)		100.0							16.0			
Intersection Capacity Utilization		64.9%							C			
Analysis Period (min)		15										
c Critical Lane Group												

4: Cambridge Street & O'Brien Highway

Timing Plan: PM Peak Hour

	→	←	↑	↗	↘
Lane Group	EBT	WBT	NBT	NBR	SBR
Lane Group Flow (vph)	847	1213	262	785	194
v/c Ratio	0.53	0.80	0.35	0.98	0.15
Control Delay	18.5	28.0	3.4	13.0	0.2
Queue Delay	6.9	0.6	2.6	38.9	0.1
Total Delay	25.5	28.6	6.0	51.9	0.3
Queue Length 50th (ft)	199	335	23	35	0
Queue Length 95th (ft)	246	426	m24	m23	0
Internal Link Dist (ft)	208	832	195		
Turn Bay Length (ft)				100	
Base Capacity (vph)	1608	1518	740	799	1312
Starvation Cap Reductn	706	0	358	143	0
Spillback Cap Reductn	0	82	285	0	295
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.84	0.69	1.20	0.19
Intersection Summary					
m Volume for 95th percentile queue is metered by upstream signal.					

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑			↑↑			↑	↑			↑
Traffic Volume (vph)	0	771	0	0	1112	28	187	54	722	0	0	128
Future Volume (vph)	0	771	0	0	1112	28	187	54	722	0	0	128
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	12	13	12	12	11	11	11	12	12
Total Lost time (s)		4.0			4.0			3.0	4.0			4.0
Lane Util. Factor		0.91			0.95			1.00	1.00			1.00
Frpb, ped/bikes		1.00			1.00			1.00	1.00			0.96
Flpb, ped/bikes		1.00			1.00			1.00	1.00			1.00
Frt		1.00			1.00			1.00	0.85			0.86
Flt Protected		1.00			1.00			0.96	1.00			1.00
Satd. Flow (prot)		4468			3298			1576	1391			1312
Flt Permitted		1.00			1.00			0.96	1.00			1.00
Satd. Flow (perm)		4468			3298			1576	1391			1312
Peak-hour factor, PHF	0.91	0.91	0.91	0.94	0.94	0.94	0.92	0.92	0.92	0.66	0.66	0.66
Adj. Flow (vph)	0	847	0	0	1183	30	203	59	785	0	0	194
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	20	0	0	0
Lane Group Flow (vph)	0	847	0	0	1211	0	0	262	765	0	0	194
Confl. Peds. (#/hr)	45					45	98		21	21		98
Confl. Bikes (#/hr)			17			2			15			6
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	8%	8%	8%
Turn Type		NA			NA		Split	NA	custom			Free
Protected Phases		1			1 2		3	3	2 3			
Permitted Phases												Free
Actuated Green, G (s)		35.0			45.0			45.0	55.0			100.0
Effective Green, g (s)		36.0			46.0			47.0	56.0			100.0
Actuated g/C Ratio		0.36			0.46			0.47	0.56			1.00
Clearance Time (s)		5.0						5.0				
Lane Grp Cap (vph)		1608			1517			740	778			1312
v/s Ratio Prot		0.19			c0.37			0.17	c0.55			
v/s Ratio Perm												0.15
v/c Ratio		0.53			0.80			0.35	0.98			0.15
Uniform Delay, d1		25.3			23.0			16.8	21.5			0.0
Progression Factor		0.69			1.00			0.19	0.14			1.00
Incremental Delay, d2		0.9			4.5			0.1	6.5			0.2
Delay (s)		18.4			27.5			3.3	9.5			0.2
Level of Service		B			C			A	A			A
Approach Delay (s)		18.4			27.5			7.9			0.2	
Approach LOS		B			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			17.4			HCM 2000 Level of Service					B	
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)					13.0	
Intersection Capacity Utilization			74.9%			ICU Level of Service					D	
Analysis Period (min)			15									
c Critical Lane Group												

											
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT
Lane Group Flow (vph)	564	715	326	264	661	431	462	1355	465	183	692
v/c Ratio	2.00	0.75	0.22	0.89	0.95	0.66	1.42	2.01	0.62	0.56	1.02
Control Delay	489.7	49.5	0.3	77.7	70.3	15.9	242.8	488.2	20.7	48.6	83.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	489.7	49.5	0.3	77.7	70.3	15.9	242.8	488.2	20.7	48.6	83.4
Queue Length 50th (ft)	~682	191	0	201	267	102	~478	~861	187	138	~301
Queue Length 95th (ft)	#888	235	0	#315	#342	141	#650	#949	285	225	#430
Internal Link Dist (ft)		832			440			1843			515
Turn Bay Length (ft)	200		400	150			600			100	
Base Capacity (vph)	282	958	1503	297	693	654	325	673	753	329	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.00	0.75	0.22	0.89	0.95	0.66	1.42	2.01	0.62	0.56	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	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	502	636	290	222	555	362	397	1165	400	183	450	155
Future Volume (vph)	502	636	290	222	555	362	397	1165	400	183	450	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	15	10	10	10	10	11	12	12	12	12
Total Lost time (s)	4.0	4.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	4.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1540	4424	1503	1486	2973	1330	1501	3110	1439	1464	2801	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1540	4424	1503	1486	2973	1330	1501	3110	1439	1464	2801	
Peak-hour factor, PHF	0.89	0.89	0.89	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	564	715	326	264	661	431	462	1355	465	203	500	172
RTOR Reduction (vph)	0	0	0	0	0	34	0	0	106	0	25	0
Lane Group Flow (vph)	564	715	326	264	661	397	462	1355	359	183	667	0
Confl. Peds. (#/hr)			91	91			156		33	33		156
Confl. Bikes (#/hr)			10			27						6
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA	Free	Prot	NA	pt+ov	Split	NA	pt+ov	Split	NA	
Protected Phases	5	2		1	6	4 6	3	3	1 3	4	4	
Permitted Phases			Free									
Actuated Green, G (s)	21.0	25.0	120.0	23.0	27.0	54.0	25.0	25.0	53.0	27.0	27.0	
Effective Green, g (s)	22.0	26.0	120.0	24.0	28.0	56.0	26.0	26.0	54.0	27.0	28.0	
Actuated g/C Ratio	0.18	0.22	1.00	0.20	0.23	0.47	0.22	0.22	0.45	0.22	0.23	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	282	958	1503	297	693	620	325	673	647	329	653	
v/s Ratio Prot	c0.37	0.16		0.18	c0.22	0.30	0.31	c0.44	0.25	0.13	c0.24	
v/s Ratio Perm			0.22									
v/c Ratio	2.00	0.75	0.22	0.89	0.95	0.64	1.42	2.01	0.55	0.56	1.02	
Uniform Delay, d1	49.0	43.9	0.0	46.7	45.4	24.3	47.0	47.0	24.2	41.2	46.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.07	1.07	1.21	1.00	1.00	
Incremental Delay, d2	462.4	5.3	0.3	25.8	23.3	2.3	205.4	460.8	0.9	2.0	40.9	
Delay (s)	511.4	49.2	0.3	72.5	68.6	26.6	255.7	511.1	30.2	43.2	86.9	
Level of Service	F	D	A	E	E	C	F	F	C	D	F	
Approach Delay (s)		201.7			56.0			361.4			77.8	
Approach LOS		F			E			F			E	
Intersection Summary												
HCM 2000 Control Delay		211.3							F			
HCM 2000 Volume to Capacity ratio		1.47										
Actuated Cycle Length (s)		120.0							17.0			
Intersection Capacity Utilization		119.5%							H			
Analysis Period (min)		15										






















c Critical Lane Group

	→	←	↶	↑	↷	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	595	692	82	461	16	294
v/c Ratio	1.33	1.32	0.26	0.70	0.07	0.48
Control Delay	187.5	177.6	20.3	28.7	17.2	22.6
Queue Delay	5.5	4.3	0.0	58.3	0.8	0.0
Total Delay	193.0	181.9	20.3	86.9	18.0	22.6
Queue Length 50th (ft)	~446	~481	30	211	5	119
Queue Length 95th (ft)	#548	m#419	65	326	19	190
Internal Link Dist (ft)	1159	220		707		16
Turn Bay Length (ft)					30	
Base Capacity (vph)	449	524	315	662	229	618
Starvation Cap Reductn	0	190	0	0	0	0
Spillback Cap Reductn	179	0	0	368	127	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.20	2.07	0.26	1.57	0.16	0.48
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	396	16	26	578	19	78	387	51	14	189	73
Future Volume (vph)	64	396	16	26	578	19	78	387	51	14	189	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.99			0.99		1.00	0.98		1.00	0.95	
Flpb, ped/bikes		1.00			1.00		0.90	1.00		0.94	1.00	
Frt		1.00			1.00		1.00	0.98		1.00	0.96	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1502			1323		1343	1612		1475	1504	
Flt Permitted		0.72			0.96		0.54	1.00		0.36	1.00	
Satd. Flow (perm)		1092			1272		768	1612		559	1504	
Peak-hour factor, PHF	0.80	0.80	0.80	0.90	0.90	0.90	0.95	0.95	0.95	0.89	0.89	0.89
Adj. Flow (vph)	80	495	20	29	642	21	82	407	54	16	212	82
RTOR Reduction (vph)	0	1	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	594	0	0	691	0	82	461	0	16	294	0
Confl. Peds. (#/hr)	98		158	158		98	123		110	110		123
Confl. Bikes (#/hr)			15			84			42			19
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Effective Green, g (s)		37.0			37.0		37.0	37.0		37.0	37.0	
Actuated g/C Ratio		0.41			0.41		0.41	0.41		0.41	0.41	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		448			522		315	662		229	618	
v/s Ratio Prot								c0.29			0.20	
v/s Ratio Perm		c0.54			0.54		0.11			0.03		
v/c Ratio		1.33			1.32		0.26	0.70		0.07	0.48	
Uniform Delay, d1		26.5			26.5		17.5	21.9		16.1	19.4	
Progression Factor		1.00			1.39		1.00	1.00		1.00	1.00	
Incremental Delay, d2		161.3			146.8		2.0	6.0		0.6	2.6	
Delay (s)		187.8			183.6		19.5	27.8		16.7	22.0	
Level of Service		F			F		B	C		B	C	
Approach Delay (s)		187.8			183.6			26.6			21.7	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay		121.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		108.9%			ICU Level of Service			G				
Analysis Period (min)		15										

c Critical Lane Group

	→	↘	↙	←	↖	↗	↑	↘	↓
Lane Group	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	535	14	34	597	523	82	128	299	23
v/c Ratio	1.43	0.03	0.28	1.07	0.86	1.21	0.39	1.05	0.11
Control Delay	225.7	19.8	25.8	67.5	24.6	211.4	35.5	103.1	31.0
Queue Delay	1.2	0.0	0.0	17.1	0.0	78.5	0.0	0.0	0.0
Total Delay	226.9	19.8	25.8	84.6	24.6	289.9	35.5	103.1	31.0
Queue Length 50th (ft)	~435	7	10	~355	188	~57	64	~186	11
Queue Length 95th (ft)	m#308	m6	m8	m165	m124	#139	110	#344	32
Internal Link Dist (ft)	220			435			247		100
Turn Bay Length (ft)		50	100						
Base Capacity (vph)	373	455	122	556	611	68	326	286	217
Starvation Cap Reductn	41	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	281	0	55	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.61	0.03	0.28	2.17	0.86	6.31	0.39	1.05	0.11
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.									
m Volume for 95th percentile queue is metered by upstream signal.									

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	434	12	31	543	476	70	105	3	272	9	12
Future Volume (vph)	15	434	12	31	543	476	70	105	3	272	9	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.92	1.00	1.00	0.83	1.00	0.99		1.00	0.90	
Flpb, ped/bikes		1.00	1.00	0.98	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1547	1282	1453	1565	1102	1458	1632		1430	1088	
Flt Permitted		0.68	1.00	0.22	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1050	1282	344	1565	1102	341	1632		1430	1088	
Peak-hour factor, PHF	0.84	0.84	0.84	0.91	0.91	0.91	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	18	517	14	34	597	523	82	124	4	299	10	13
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	535	14	34	597	523	82	128	0	299	23	0
Confl. Peds. (#/hr)	81		45	45		81	59		154	154		59
Confl. Bikes (#/hr)			1			94			18			5
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	0%	0%	0%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	Perm	NA	Perm	Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2		2	6		6	3					
Actuated Green, G (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0	32.0	32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36	0.36	0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0	8.0	8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		373	455	122	556	710	68	326		286	217	
v/s Ratio Prot					0.38	0.15		0.08		c0.21	0.02	
v/s Ratio Perm		c0.51	0.01	0.10		0.33	c0.24					
v/c Ratio		1.43	0.03	0.28	1.07	0.74	1.21	0.39		1.05	0.11	
Uniform Delay, d1		29.0	18.9	20.7	29.0	15.0	36.0	31.3		36.0	29.4	
Progression Factor		1.14	1.03	1.12	1.01	1.82	1.00	1.00		1.00	1.00	
Incremental Delay, d2		196.9	0.0	0.5	37.0	0.6	174.8	3.5		65.6	1.0	
Delay (s)		229.9	19.6	23.7	66.4	28.0	210.8	34.8		101.6	30.4	
Level of Service		F	B	C	E	C	F	C		F	C	
Approach Delay (s)		224.6			47.7		103.5				96.5	
Approach LOS		F			D		F				F	
Intersection Summary												
HCM 2000 Control Delay			103.4			HCM 2000 Level of Service		F				
HCM 2000 Volume to Capacity ratio			1.27									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)		22.0				
Intersection Capacity Utilization			98.1%			ICU Level of Service		F				
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBT	SBR	SEL	SER
Lane Group Flow (vph)	1014	816	274	358	136
v/c Ratio	0.53	0.96	0.76	1.02	0.44
Control Delay	18.5	51.2	36.0	90.4	35.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.5	51.2	36.0	90.4	35.0
Queue Length 50th (ft)	312	266	95	~212	66
Queue Length 95th (ft)	m300	m237	#218	#275	96
Internal Link Dist (ft)	645	150		891	
Turn Bay Length (ft)					100
Base Capacity (vph)	1909	852	360	350	306
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.53	0.96	0.76	1.02	0.44

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.








m Volume for 95th percentile queue is metered by upstream signal.





















											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	882	512	176	30	0	200	57	165	96	99
Future Volume (vph)	0	882	512	176	30	0	200	57	165	96	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	10	12	12	12	11	12	12	10	10
Total Lost time (s)		6.0	6.0				6.0			5.0	5.0
Lane Util. Factor		0.95	0.95				1.00			1.00	1.00
Frbp, ped/bikes		1.00	0.90				1.00			1.00	0.98
Flpb, ped/bikes		1.00	1.00				1.00			1.00	1.00
Frt		1.00	0.96				0.86			1.00	0.85
Flt Protected		1.00	1.00				1.00			0.95	1.00
Satd. Flow (prot)		2963	2474				1227			1501	1314
Flt Permitted		1.00	1.00				1.00			0.95	1.00
Satd. Flow (perm)		2963	2474				1227			1501	1314
Peak-hour factor, PHF	0.87	0.87	0.88	0.88	0.88	0.94	0.94	0.94	0.73	0.73	0.73
Adj. Flow (vph)	0	1014	582	200	34	0	213	61	226	132	136
RTOR Reduction (vph)	0	0	0	0	0	0	74	0	0	0	0
Lane Group Flow (vph)	0	1014	816	0	0	0	200	0	0	358	136
Confl. Peds. (#/hr)	48			63	48	14		63	48		7
Confl. Bikes (#/hr)				23	31			19			1
Heavy Vehicles (%)	6%	6%	5%	5%	5%	2%	2%	2%	1%	1%	1%
Parking (#/hr)							5				
Turn Type		NA	NA				Prot		Prot	Prot	Perm
Protected Phases		1 2	1				2		3	3	
Permitted Phases											3
Actuated Green, G (s)		58.0	31.0				21.0			21.0	21.0
Effective Green, g (s)		58.0	31.0				21.0			21.0	21.0
Actuated g/C Ratio		0.64	0.34				0.23			0.23	0.23
Clearance Time (s)			6.0				6.0			5.0	5.0
Lane Grp Cap (vph)		1909	852				286			350	306
v/s Ratio Prot		0.34	c0.33				c0.16			c0.24	
v/s Ratio Perm											0.10
v/c Ratio		0.53	0.96				0.70			1.02	0.44
Uniform Delay, d1		8.6	28.9				31.6			34.5	29.5
Progression Factor		2.08	1.65				1.00			1.00	1.00
Incremental Delay, d2		0.1	3.6				13.3			54.1	4.6
Delay (s)		18.1	51.3				44.9			88.6	34.1
Level of Service		B	D				D			F	C
Approach Delay (s)		18.1	51.3			44.9				73.6	
Approach LOS		B	D			D				E	
Intersection Summary											
HCM 2000 Control Delay			41.9			HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.90								
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				17.0	
Intersection Capacity Utilization			69.0%			ICU Level of Service				C	
Analysis Period (min)			15								

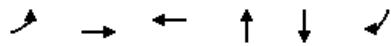
c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	980	0	0	716	0	411
Future Volume (Veh/h)	980	0	0	716	0	411
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1065	0	0	778	0	447
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	230					
pX, platoon unblocked			0.83		0.83	0.83
vC, conflicting volume			1065		1454	532
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			669		1138	28
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	48
cM capacity (veh/h)			761		162	864
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	
Volume Total	532	532	389	389	447	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	447	
cSH	1700	1700	1700	1700	864	
Volume to Capacity	0.31	0.31	0.23	0.23	0.52	
Queue Length 95th (ft)	0	0	0	0	76	
Control Delay (s)	0.0	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			2.6			
Intersection Capacity Utilization			65.0%		ICU Level of Service	C
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑		
Traffic Volume (veh/h)	1230	411	50	716	0	0
Future Volume (Veh/h)	1230	411	50	716	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1337	447	54	778	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	446			1142		
pX, platoon unblocked			0.84		0.90	0.84
vC, conflicting volume			1784		2058	892
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1555		1352	494
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			85		100	100
cM capacity (veh/h)			355		108	438
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	
Volume Total	891	893	54	389	389	
Volume Left	0	0	54	0	0	
Volume Right	0	447	0	0	0	
cSH	1700	1700	355	1700	1700	
Volume to Capacity	0.52	0.53	0.15	0.23	0.23	
Queue Length 95th (ft)	0	0	13	0	0	
Control Delay (s)	0.0	0.0	17.0	0.0	0.0	
Lane LOS			C			
Approach Delay (s)	0.0		1.1			
Approach LOS						
Intersection Summary						
Average Delay			0.3			
Intersection Capacity Utilization			55.7%	ICU Level of Service	B	
Analysis Period (min)			15			

							
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	444	965	171	667	484	217	384
v/c Ratio	1.12	1.08	0.85	1.17	1.12	0.65	1.15
Control Delay	111.2	90.1	74.4	126.9	102.4	32.1	111.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	111.2	90.1	74.4	126.9	102.4	32.1	111.3
Queue Length 50th (ft)	~300	~335	96	~239	~333	131	~243
Queue Length 95th (ft)	m#476	m#451	#206	#349	m#351	m149	m#335
Internal Link Dist (ft)		1062		1070	1123		2039
Turn Bay Length (ft)	205		240			140	
Base Capacity (vph)	398	892	206	572	432	333	334
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	1.12	1.08	0.83	1.17	1.12	0.65	1.15
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.							
m Volume for 95th percentile queue is metered by upstream signal.							

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	400	688	181	157	554	60	78	338	187	43	235	98
Future Volume (vph)	400	688	181	157	554	60	78	338	187	43	235	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	10	11	12	12	11	11	12	12	12
Total Lost time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	0.98		1.00	0.98			1.00	0.70		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00		0.99	
Frt	1.00	0.97		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		0.99	
Satd. Flow (prot)	1496	2734		1430	2862			1597	968		1503	
Flt Permitted	0.95	1.00		0.95	1.00			0.78	1.00		0.64	
Satd. Flow (perm)	1496	2734		1430	2862			1257	968		972	
Peak-hour factor, PHF	0.90	0.90	0.90	0.92	0.92	0.92	0.86	0.86	0.86	0.98	0.98	0.98
Adj. Flow (vph)	444	764	201	171	602	65	91	393	217	44	240	100
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	444	965	0	171	667	0	0	484	217	0	384	0
Confl. Peds. (#/hr)	55		32	32		55	150		216	216		150
Confl. Bikes (#/hr)			11			20			19			11
Heavy Vehicles (%)	5%	5%	5%	6%	6%	6%	1%	1%	1%	2%	2%	2%
Bus Blockages (#/hr)	0	0	8	0	0	8	0	0	0	0	0	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4		
Actuated Green, G (s)	24.0	29.4		12.6	18.0			31.0	31.0		31.0	
Effective Green, g (s)	24.0	29.4		12.6	18.0			31.0	31.0		31.0	
Actuated g/C Ratio	0.27	0.33		0.14	0.20			0.34	0.34		0.34	
Clearance Time (s)	4.0	8.0		4.0	8.0			5.0	5.0		5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	
Lane Grp Cap (vph)	398	893		200	572			432	333		334	
v/s Ratio Prot	c0.30	c0.35		0.12	0.23							
v/s Ratio Perm								0.38	0.22		c0.40	
v/c Ratio	1.12	1.08		0.85	1.17			1.12	0.65		1.15	
Uniform Delay, d1	33.0	30.3		37.8	36.0			29.5	24.9		29.5	
Progression Factor	0.94	1.20		1.00	1.00			1.03	1.00		0.94	
Incremental Delay, d2	79.4	53.8		28.2	92.6			71.5	2.7		82.2	
Delay (s)	110.5	90.1		66.0	128.6			101.8	27.7		110.0	
Level of Service	F	F		E	F			F	C		F	
Approach Delay (s)		96.5			115.8			78.9			110.0	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			99.2			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.16									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				17.0		
Intersection Capacity Utilization			111.9%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	417	397	674	210	379	265
v/c Ratio	1.15	0.21	0.46	0.54	0.89	0.96
Control Delay	118.0	8.7	7.7	43.9	65.8	90.3
Queue Delay	0.0	0.0	1.1	0.3	0.0	0.0
Total Delay	118.0	8.7	8.9	44.2	65.8	90.3
Queue Length 50th (ft)	~382	60	58	139	281	202
Queue Length 95th (ft)	#582	83	82	138	#452	#372
Internal Link Dist (ft)		1070	174	616	1971	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	363	1870	1467	396	436	280
Starvation Cap Reductn	0	0	525	0	0	0
Spillback Cap Reductn	0	23	0	20	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.15	0.21	0.72	0.56	0.87	0.95



















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												
Traffic Volume (vph)	384	270	96	59	311	250	0	59	69	4	341	241
Future Volume (vph)	384	270	96	59	311	250	0	59	69	4	341	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	10	10	10	12	12	12	12	12	12
Total Lost time (s)	5.0	5.0			4.5			5.0			5.0	5.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.97			0.93			0.94			1.00	0.75
Flpb, ped/bikes	0.95	1.00			0.99			1.00			1.00	1.00
Frt	1.00	0.96			0.94			0.93			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1449	2855			2566			1488			1642	1052
Flt Permitted	0.37	1.00			0.86			1.00			1.00	1.00
Satd. Flow (perm)	560	2855			2226			1488			1639	1052
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.61	0.61	0.61	0.91	0.91	0.91
Adj. Flow (vph)	417	293	104	64	338	272	0	97	113	4	375	265
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	417	397	0	0	674	0	0	210	0	0	379	265
Confl. Peds. (#/hr)	75		26	26		75	106		45	45		106
Confl. Bikes (#/hr)			1			3			5			3
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type	Perm	NA		pm+pt	NA			NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	78.6	78.6			79.1			31.4			31.4	31.4
Effective Green, g (s)	78.6	78.6			79.1			31.4			31.4	31.4
Actuated g/C Ratio	0.65	0.65			0.66			0.26			0.26	0.26
Clearance Time (s)	5.0	5.0			4.5			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)	366	1870			1467			389			428	275
v/s Ratio Prot		0.14						0.14				
v/s Ratio Perm	c0.74				0.30						0.23	c0.25
v/c Ratio	1.14	0.21			0.46			0.54			0.89	0.96
Uniform Delay, d1	20.7	8.3			10.0			38.1			42.6	43.7
Progression Factor	1.00	1.00			0.68			1.00			1.00	1.00
Incremental Delay, d2	90.6	0.3			0.2			1.4			19.2	44.0
Delay (s)	111.3	8.6			7.0			39.5			61.7	87.7
Level of Service	F	A			A			D			E	F
Approach Delay (s)		61.2			7.0			39.5			72.4	
Approach LOS		E			A			D			E	
Intersection Summary												
HCM 2000 Control Delay		46.7			HCM 2000 Level of Service			D				
HCM 2000 Volume to Capacity ratio		1.14										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			15.0				
Intersection Capacity Utilization		81.6%			ICU Level of Service			D				
Analysis Period (min)		15										

c Critical Lane Group















Lane Group	EBL	NBL	NBR	SWL	SWR
Lane Group Flow (vph)	444	542	1325	993	208
v/c Ratio	0.52	0.82	0.60	0.91	0.41
Control Delay	30.0	55.0	10.8	34.7	21.7
Queue Delay	5.0	0.0	0.0	0.0	0.0
Total Delay	35.1	55.0	10.8	34.7	21.7
Queue Length 50th (ft)	118	206	184	254	82
Queue Length 95th (ft)	153	#265	225	m298	m97
Internal Link Dist (ft)	174	694		1843	
Turn Bay Length (ft)		250	200		
Base Capacity (vph)	848	661	2198	1092	503
Starvation Cap Reductn	330	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.86	0.82	0.60	0.91	0.41

Intersection Summary











95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.























							
Movement	EBL	EBR	NBU	NBL	NBR	SWL	SWR
Lane Configurations							
Traffic Volume (vph)	441	3	38	439	1166	854	179
Future Volume (vph)	441	3	38	439	1166	854	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	9	12	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.76	0.97	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	0.85	1.00	0.85
Flt Protected	0.95			0.95	1.00	0.95	1.00
Satd. Flow (prot)	2907			2836	3314	3120	1439
Flt Permitted	0.95			0.95	1.00	0.95	1.00
Satd. Flow (perm)	2907			2836	3314	3120	1439
Peak-hour factor, PHF	1.00	0.91	0.88	0.88	0.88	0.86	0.86
Adj. Flow (vph)	441	3	43	499	1325	993	208
RTOR Reduction (vph)	0	0	0	0	128	0	0
Lane Group Flow (vph)	444	0	0	542	1198	993	208
Confl. Peds. (#/hr)	1			74			74
Confl. Bikes (#/hr)							5
Heavy Vehicles (%)	5%	5%	0%	0%	0%	1%	1%
Turn Type	Prot		Prot	Prot	Prot	Prot	Prot
Protected Phases	3		1	1	6	2	2
Permitted Phases							
Actuated Green, G (s)	35.0			28.0	75.0	42.0	42.0
Effective Green, g (s)	35.0			28.0	75.0	42.0	42.0
Actuated g/C Ratio	0.29			0.23	0.62	0.35	0.35
Clearance Time (s)	5.0			5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0			3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	847			661	2071	1092	503
v/s Ratio Prot	c0.15			c0.19	0.36	c0.32	0.14
v/s Ratio Perm							
v/c Ratio	0.52			0.82	0.58	0.91	0.41
Uniform Delay, d1	35.5			43.6	13.2	37.2	29.6
Progression Factor	0.77			1.00	1.00	0.65	0.66
Incremental Delay, d2	2.3			10.9	1.2	9.7	1.8
Delay (s)	29.8			54.5	14.4	33.9	21.3
Level of Service	C			D	B	C	C
Approach Delay (s)	29.8			26.1		31.7	
Approach LOS	C			C		C	
Intersection Summary							
HCM 2000 Control Delay			28.5		HCM 2000 Level of Service		C
HCM 2000 Volume to Capacity ratio			0.76				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		15.0
Intersection Capacity Utilization			68.8%		ICU Level of Service		C
Analysis Period (min)			15				







c Critical Lane Group







										
Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	197	486	71	354	865	139	887	80	515	285
v/c Ratio	1.12	1.08	0.29	3.13	1.29	0.84	1.01	0.67	1.17	2.21
Control Delay	100.9	65.7	20.6	996.7	168.3	64.2	51.9	47.2	120.0	581.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	100.9	65.7	20.6	996.7	168.3	64.2	51.9	47.2	120.0	581.1
Queue Length 50th (ft)	~126	~301	26	~362	~331	86	~309	40	~367	~274
Queue Length 95th (ft)	m81	m163	m21	m#424	m#366	m89	m#280	m51	m#457	m#328
Internal Link Dist (ft)		435			127		702		645	
Turn Bay Length (ft)	100					250		225		
Base Capacity (vph)	176	452	249	113	668	166	880	121	442	129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.12	1.08	0.29	3.13	1.29	0.84	1.01	0.66	1.17	2.21
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.										
m Volume for 95th percentile queue is metered by upstream signal.										

KSURP
14: Galileo Galilei Way & Broadway

2021 Updated Future Condition
Timing Plan: PM Peak Hour

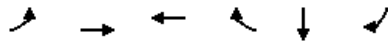
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	457	67	301	680	55	118	644	110	74	474	262
Future Volume (vph)	185	457	67	301	680	55	118	644	110	74	474	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	12	10	10	11	11	11	11	11	12	11	11
Total Lost time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.71	1.00	0.97		1.00	0.97		1.00	1.00	0.78
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1444	1629	895	1458	2861		1496	2833		1562	1589	1056
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1444	1629	895	1458	2861		1496	2833		1562	1589	1056
Peak-hour factor, PHF	0.94	0.94	0.94	0.85	0.85	0.85	0.85	0.85	0.85	0.92	0.92	0.92
Adj. Flow (vph)	197	486	71	354	800	65	139	758	129	80	515	285
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	197	486	71	354	865	0	139	887	0	80	515	285
Confl. Peds. (#/hr)			207			165			76			76
Confl. Bikes (#/hr)			54			180			13			19
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	7	0	7	0	0	0	0	0	0	0
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA		Prot	NA	custom
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2									5
Actuated Green, G (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Effective Green, g (s)	11.0	23.4	23.4	7.0	19.4		9.9	28.0		5.6	26.7	11.0
Actuated g/C Ratio	0.12	0.26	0.26	0.08	0.22		0.11	0.31		0.06	0.30	0.12
Clearance Time (s)	8.0	5.0	5.0	8.0	5.0		5.0	5.0		8.0	5.0	8.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	176	423	232	113	616		164	881		97	471	129
v/s Ratio Prot	0.14	c0.30		0.24	c0.30		c0.09	0.31		0.05	c0.32	
v/s Ratio Perm			0.08									c0.27
v/c Ratio	1.12	1.15	0.31	3.13	1.40		0.85	1.01		0.82	1.09	2.21
Uniform Delay, d1	39.5	33.3	26.8	41.5	35.3		39.3	31.0		41.7	31.6	39.5
Progression Factor	1.02	0.76	0.77	1.04	0.75		1.14	0.90		0.74	1.07	1.13
Incremental Delay, d2	61.3	69.9	0.3	979.3	190.2		14.1	20.2		24.6	58.6	557.1
Delay (s)	101.5	95.2	20.8	1022.4	216.7		58.9	48.0		55.3	92.4	601.9
Level of Service	F	F	C	F	F		E	D		E	F	F
Approach Delay (s)		89.8			450.7			49.5			254.0	
Approach LOS		F			F			D			F	
Intersection Summary												
HCM 2000 Control Delay			229.8			HCM 2000 Level of Service		F				
HCM 2000 Volume to Capacity ratio			1.42									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)		26.0				
Intersection Capacity Utilization			99.4%			ICU Level of Service		F				
Analysis Period (min)			15									
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑↑			
Traffic Volume (veh/h)	0	640	997	214	0	0
Future Volume (Veh/h)	0	640	997	214	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	696	1084	233	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		207	433			
pX, platoon unblocked					0.75	
vC, conflicting volume	1317				1896	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1317				2030	478
tC, single (s)	4.2				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)	510				37	534
Direction, Lane #	EB 1	WB 1	WB 2	WB 3		
Volume Total	696	434	434	450		
Volume Left	0	0	0	0		
Volume Right	0	0	0	233		
cSH	1700	1700	1700	1700		
Volume to Capacity	0.41	0.26	0.26	0.26		
Queue Length 95th (ft)	0	0	0	0		
Control Delay (s)	0.0	0.0	0.0	0.0		
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay			0.0			
Intersection Capacity Utilization			40.8%		ICU Level of Service	A
Analysis Period (min)			15			

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑↑			↗
Traffic Volume (veh/h)	0	640	724	0	0	487
Future Volume (Veh/h)	0	640	724	0	0	487
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	696	787	0	0	529
Pedestrians					200	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					17	
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		415	225			
pX, platoon unblocked					0.75	
vC, conflicting volume	987				1683	594
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	987				1742	594
tC, single (s)	4.2				6.9	7.0
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	0
cM capacity (veh/h)	575				47	368
Direction, Lane #	EB 1	WB 1	WB 2	SB 1		
Volume Total	696	394	394	529		
Volume Left	0	0	0	0		
Volume Right	0	0	0	529		
cSH	1700	1700	1700	368		
Volume to Capacity	0.41	0.23	0.23	1.44		
Queue Length 95th (ft)	0	0	0	685		
Control Delay (s)	0.0	0.0	0.0	240.6		
Lane LOS				F		
Approach Delay (s)	0.0	0.0		240.6		
Approach LOS				F		
Intersection Summary						
Average Delay			63.3			
Intersection Capacity Utilization			62.4%	ICU Level of Service	B	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	642	78	144	502	302	277
v/c Ratio	1.27	0.27	0.37	0.98	1.08	0.81
Control Delay	168.4	17.7	27.4	58.4	101.7	41.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	168.4	17.7	27.4	58.4	101.7	41.7
Queue Length 50th (ft)	~487	25	60	261	~199	77
Queue Length 95th (ft)	m#478	m26	m62	m#292	m#334	m#163
Internal Link Dist (ft)	145			882	481	
Turn Bay Length (ft)			160			100
Base Capacity (vph)	505	291	393	512	280	342
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	1.27	0.27	0.37	0.98	1.08	0.81
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	571	69	140	487	260	238
Future Volume (vph)	571	69	140	487	260	238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	10	10	11	10	10	10
Total Lost time (s)	4.5	7.0	6.0	5.5	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1492	1268	1540	1565	1404	1112
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1492	1268	1540	1565	1404	1112
Peak-hour factor, PHF	0.89	0.89	0.97	0.97	0.86	0.86
Adj. Flow (vph)	642	78	144	502	302	277
RTOR Reduction (vph)	0	24	0	0	0	59
Lane Group Flow (vph)	642	54	144	502	302	218
Confl. Peds. (#/hr)		444	444		221	403
Confl. Bikes (#/hr)		51				
Heavy Vehicles (%)	7%	7%	2%	2%	8%	8%
Parking (#/hr)						3
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	3	2	1	3	2
Permitted Phases						
Actuated Green, G (s)	29.5	18.0	23.0	29.5	18.0	23.0
Effective Green, g (s)	30.5	19.0	23.0	29.5	18.0	23.0
Actuated g/C Ratio	0.34	0.21	0.26	0.33	0.20	0.26
Clearance Time (s)	5.5	8.0	6.0	5.5	8.0	6.0
Lane Grp Cap (vph)	505	267	393	512	280	284
v/s Ratio Prot	c0.43	0.04	0.09	0.32	c0.22	c0.20
v/s Ratio Perm						
v/c Ratio	1.27	0.20	0.37	0.98	1.08	0.77
Uniform Delay, d1	29.8	29.3	27.5	30.0	36.0	31.0
Progression Factor	1.75	0.84	0.94	1.30	0.77	1.11
Incremental Delay, d2	126.4	0.5	0.9	18.6	71.1	15.0
Delay (s)	178.5	25.0	26.8	57.5	98.8	49.3
Level of Service	F	C	C	E	F	D
Approach Delay (s)	161.9			50.6	75.1	
Approach LOS	F			D	E	
Intersection Summary						
HCM 2000 Control Delay			99.1		HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.07			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	19.5
Intersection Capacity Utilization			73.4%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	355	737	538	210	663	239
v/c Ratio	1.26	0.76	0.96	0.51	1.46	0.91
Control Delay	167.0	17.9	61.1	31.2	246.0	66.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	167.0	17.9	61.1	31.2	246.0	66.4
Queue Length 50th (ft)	~266	111	296	98	~526	132
Queue Length 95th (ft)	m#266	m107	#504	169	m#586	m#169
Internal Link Dist (ft)		882	68		1123	
Turn Bay Length (ft)	340					200
Base Capacity (vph)	282	972	558	413	453	262
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	1.26	0.76	0.96	0.51	1.46	0.91

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.

m Volume for 95th percentile queue is metered by upstream signal.









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	316	581	75	0	522	204	0	0	0	553	57	220
Future Volume (vph)	316	581	75	0	522	204	0	0	0	553	57	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	10	12	11	11	11	12	12	12	11	10	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Frpb, ped/bikes	1.00	0.99			1.00	1.00					1.00	1.00
Flpb, ped/bikes	1.00	1.00			1.00	1.00					1.00	1.00
Frt	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1496	2822			1621	1378					1512	1391
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1496	2822			1621	1378					1512	1391
Peak-hour factor, PHF	0.89	0.89	0.89	0.97	0.97	0.97	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	355	653	84	0	538	210	0	0	0	601	62	239
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	355	737	0	0	538	210	0	0	0	0	663	239
Confl. Peds. (#/hr)	72					72						320
Confl. Bikes (#/hr)			29			173						
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	17.0	31.0			31.0	27.0					27.0	17.0
Effective Green, g (s)	17.0	31.0			31.0	27.0					27.0	17.0
Actuated g/C Ratio	0.19	0.34			0.34	0.30					0.30	0.19
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	972			558	413					453	262
v/s Ratio Prot	c0.24	0.26			c0.33	0.15					c0.44	0.17
v/s Ratio Perm												
v/c Ratio	1.26	0.76			0.96	0.51					1.46	0.91
Uniform Delay, d1	36.5	26.2			29.0	26.0					31.5	35.8
Progression Factor	1.36	0.60			1.00	1.00					1.09	0.98
Incremental Delay, d2	125.7	1.8			30.2	4.4					217.0	28.8
Delay (s)	175.5	17.6			59.2	30.4					251.2	64.0
Level of Service	F	B			E	C					F	E
Approach Delay (s)		68.9			51.1		0.0				201.6	
Approach LOS		E			D		A				F	
Intersection Summary												
HCM 2000 Control Delay		107.7				HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio		1.21										
Actuated Cycle Length (s)		90.0				Sum of lost time (s)				15.0		
Intersection Capacity Utilization		98.4%				ICU Level of Service				F		
Analysis Period (min)		15										
c Critical Lane Group												





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1499	236	0	588	168	0	0	388	0	0	119
Future Volume (Veh/h)	0	1499	236	0	588	168	0	0	388	0	0	119
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.25	0.92	0.92	0.61	0.61	0.61
Hourly flow rate (vph)	0	1578	248	0	619	177	0	0	422	0	0	195
Pedestrians		187						314			187	
Lane Width (ft)		12.0						12.0			12.0	
Walking Speed (ft/s)		4.0						4.0			4.0	
Percent Blockage		16						26			16	
Right turn flare (veh)												
Median type		None			Raised							
Median storage (veh)					1							
Upstream signal (ft)		1271										
pX, platoon unblocked				0.90			0.90	0.90	0.90	0.90	0.90	
vC, conflicting volume	983			2140			2708	2999	1227	2106	3034	772
vC1, stage 1 conf vol							2016	2016		894	894	
vC2, stage 2 conf vol							692	983		1211	2140	
vCu, unblocked vol	983			2042			2674	2999	1025	2004	3038	772
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)							6.5	5.5		6.6	5.6	
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			100			100	100	0	0	100	17
cM capacity (veh/h)	589			183			24	57	154	0	48	236
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	1052	774	413	383	422	195						
Volume Left	0	0	0	0	0	0						
Volume Right	0	248	0	177	422	195						
cSH	1700	1700	1700	1700	154	236						
Volume to Capacity	0.62	0.46	0.24	0.23	2.74	0.83						
Queue Length 95th (ft)	0	0	0	0	942	159						
Control Delay (s)	0.0	0.0	0.0	0.0	846.7	65.8						
Lane LOS					F	F						
Approach Delay (s)	0.0		0.0		846.7	65.8						
Approach LOS					F	F						
Intersection Summary												
Average Delay			114.3									
Intersection Capacity Utilization			88.9%		ICU Level of Service				E			
Analysis Period (min)			15									

								
Lane Group	EBL	EBT	WBL	WBT	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	399	440	105	362	668	60	523	299
v/c Ratio	1.24	0.63	0.43	0.53	1.02	0.37	0.92	0.95
Control Delay	158.7	23.1	31.8	30.9	70.9	35.4	44.4	49.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	158.7	23.1	31.8	30.9	70.9	35.4	44.4	49.7
Queue Length 50th (ft)	~285	182	64	221	~205	37	328	188
Queue Length 95th (ft)	#461	286	m88	m263	#271	m27	m224	m131
Internal Link Dist (ft)		1211		410	742		702	
Turn Bay Length (ft)			120					180
Base Capacity (vph)	321	699	245	689	655	161	570	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.24	0.63	0.43	0.53	1.02	0.37	0.92	0.95
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	383	346	77	88	253	51	39	332	170	57	497	284
Future Volume (vph)	383	346	77	88	253	51	39	332	170	57	497	284
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	13	12	12	10	11	11	10	12	11	10	11	10
Total Lost time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Util. Factor	1.00	1.00		1.00	1.00			0.95		1.00	1.00	1.00
Flpb, ped/bikes	1.00	0.93		1.00	0.94			0.91		1.00	1.00	0.67
Flpb, ped/bikes	0.82	1.00		0.82	1.00			0.99		0.91	1.00	1.00
Frt	1.00	0.97		1.00	0.97			0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00		0.95	1.00	1.00
Satd. Flow (prot)	1329	1499		1204	1476			2597		1341	1605	888
Flt Permitted	0.49	1.00		0.42	1.00			0.71		0.32	1.00	1.00
Satd. Flow (perm)	688	1499		528	1476			1843		455	1605	888
Peak-hour factor, PHF	0.96	0.96	0.96	0.84	0.84	0.84	0.81	0.81	0.81	0.95	0.95	0.95
Adj. Flow (vph)	399	360	80	105	301	61	48	410	210	60	523	299
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	399	440	0	105	362	0	0	668	0	60	523	299
Confl. Peds. (#/hr)	629		344	344		629	201		177	177		201
Confl. Bikes (#/hr)			29			36			39			39
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	7%	7%	7%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Effective Green, g (s)	42.0	42.0		42.0	42.0			32.0		32.0	32.0	32.0
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.36		0.36	0.36	0.36
Clearance Time (s)	8.0	8.0		8.0	8.0			8.0		8.0	8.0	8.0
Lane Grp Cap (vph)	321	699		246	688			655		161	570	315
v/s Ratio Prot		0.29			0.25						0.33	
v/s Ratio Perm	0.58			0.20				0.36		0.13		0.34
v/c Ratio	1.24	0.63		0.43	0.53			1.02		0.37	0.92	0.95
Uniform Delay, d1	24.0	18.1		16.0	17.0			29.0		21.5	27.7	28.2
Progression Factor	1.00	1.00		1.61	1.65			1.00		1.48	1.47	1.47
Incremental Delay, d2	132.9	4.3		3.7	2.0			40.3		0.6	2.9	7.3
Delay (s)	156.9	22.4		29.4	29.9			69.3		32.6	43.6	48.6
Level of Service	F	C		C	C			E		C	D	D
Approach Delay (s)		86.4			29.8			69.3			44.6	
Approach LOS		F			C			E			D	
Intersection Summary												
HCM 2000 Control Delay			60.2			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.15									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				16.0		
Intersection Capacity Utilization			131.8%			ICU Level of Service				H		
Analysis Period (min)			15									















c Critical Lane Group







								
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	77	543	47	114	254	383	204	158
v/c Ratio	0.64	1.50	0.77	0.42	0.93	0.74	0.67	0.50
Control Delay	52.4	263.4	60.9	24.2	70.4	36.1	34.4	26.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.4	263.4	60.9	24.2	70.4	36.1	34.4	26.9
Queue Length 50th (ft)	41	~425	24	52	138	189	68	51
Queue Length 95th (ft)	m64	m#559	m29	m54	#253	265	96	77
Internal Link Dist (ft)		410		813		1177	481	
Turn Bay Length (ft)	25		25		25			100
Base Capacity (vph)	121	362	61	270	274	519	303	315
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	1.50	0.77	0.42	0.93	0.74	0.67	0.50
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.								
m Volume for 95th percentile queue is metered by upstream signal.								



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	71	403	97	40	59	39	211	306	12	59	100	123
Future Volume (vph)	71	403	97	40	59	39	211	306	12	59	100	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	12	16	12	12	13	12	12	11	10
Total Lost time (s)	5.5	4.5		5.5	4.5		5.0	4.0			4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.86		1.00	0.71		1.00	0.99			1.00	0.80
Flpb, ped/bikes	0.39	1.00		1.00	1.00		0.87	1.00			0.95	1.00
Frt	1.00	0.97		1.00	0.94		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.98	1.00
Satd. Flow (prot)	598	1232		1310	918		1407	1507			1489	916
Flt Permitted	0.68	1.00		0.16	1.00		0.56	1.00			0.58	1.00
Satd. Flow (perm)	430	1232		216	918		823	1507			880	916
Peak-hour factor, PHF	0.92	0.92	0.92	0.86	0.86	0.86	0.83	0.83	0.83	0.78	0.78	0.78
Adj. Flow (vph)	77	438	105	47	69	45	254	369	14	76	128	158
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	77	543	0	47	114	0	254	383	0	0	204	158
Confl. Peds. (#/hr)	567		473	473		567	118		179	179		118
Confl. Bikes (#/hr)			100			5			8			11
Heavy Vehicles (%)	5%	5%	5%	24%	24%	24%	1%	1%	1%	4%	4%	4%
Parking (#/hr)		5			5			5				5
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)	25.5	25.5		25.5	25.5		30.0	30.0			30.0	30.0
Effective Green, g (s)	25.5	26.5		25.5	26.5		30.0	31.0			31.0	31.0
Actuated g/C Ratio	0.28	0.29		0.28	0.29		0.33	0.34			0.34	0.34
Clearance Time (s)	5.5	5.5		5.5	5.5		5.0	5.0			5.0	5.0
Lane Grp Cap (vph)	121	362		61	270		274	519			303	315
v/s Ratio Prot		c0.44			0.12			0.25				
v/s Ratio Perm	0.18			0.22			c0.31				0.23	0.17
v/c Ratio	0.64	1.50		0.77	0.42		0.93	0.74			0.67	0.50
Uniform Delay, d1	28.2	31.8		29.6	25.6		28.9	25.9			25.2	23.4
Progression Factor	1.17	1.11		0.87	0.85		1.00	1.00			0.85	0.87
Incremental Delay, d2	15.7	234.5		27.1	1.7		38.4	9.1			11.2	5.6
Delay (s)	48.6	269.6		52.9	23.3		67.4	35.0			32.8	25.9
Level of Service	D	F		D	C		E	C			C	C
Approach Delay (s)		242.2			31.9			47.9			29.8	
Approach LOS		F			C			D			C	
Intersection Summary												
HCM 2000 Control Delay		110.4									F	
HCM 2000 Volume to Capacity ratio		0.91										
Actuated Cycle Length (s)		90.0								15.5		
Intersection Capacity Utilization		78.8%								D		
Analysis Period (min)		15										

c Critical Lane Group







	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑↑		↑
Traffic Volume (veh/h)	1141	0	0	726	0	498
Future Volume (Veh/h)	1141	0	0	726	0	498
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1240	0	0	789	0	541
Pedestrians					230	
Lane Width (ft)					12.0	
Walking Speed (ft/s)					4.0	
Percent Blockage					19	
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	148					
pX, platoon unblocked			0.79		0.79	0.79
vC, conflicting volume			1470		1864	850
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1059		1559	272
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	0
cM capacity (veh/h)			416		66	462
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NE 1	
Volume Total	620	620	394	394	541	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	541	
cSH	1700	1700	1700	1700	462	
Volume to Capacity	0.36	0.36	0.23	0.23	1.17	
Queue Length 95th (ft)	0	0	0	0	500	
Control Delay (s)	0.0	0.0	0.0	0.0	125.7	
Lane LOS					F	
Approach Delay (s)	0.0		0.0		125.7	
Approach LOS					F	
Intersection Summary						
Average Delay			26.5			
Intersection Capacity Utilization			76.0%		ICU Level of Service	D
Analysis Period (min)			15			



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	0	67	1422	197	0	0	0	0	94	145
Future Volume (Veh/h)	0	0	0	67	1422	197	0	0	0	0	94	145
Sign Control	Free			Free			Stop			Stop		
Grade	0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.92	0.92	0.92	0.90	0.90	0.90
Hourly flow rate (vph)	0	0	0	75	1598	221	0	0	0	0	104	161
Pedestrians	81			32			42			74		
Lane Width (ft)	0.0			10.0			0.0			14.0		
Walking Speed (ft/s)	4.0			4.0			4.0			4.0		
Percent Blockage	0			2			0			7		
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1893			42			1285	2085	74	1964	1974	1064
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1893			42			1285	2085	74	1964	1974	1064
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.6	6.6	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.6	4.1	3.4
p0 queue free %	100			95			0	100	100	100	0	18
cM capacity (veh/h)	289			1580			0	46	951	30	52	197
Direction, Lane #	WB 1	WB 2	SB 1									
Volume Total	874	1020	265									
Volume Left	75	0	0									
Volume Right	0	221	161									
cSH	1580	1700	94									
Volume to Capacity	0.05	0.60	2.82									
Queue Length 95th (ft)	4	0	633									
Control Delay (s)	1.2	0.0	920.0									
Lane LOS	A		F									
Approach Delay (s)	0.6		920.0									
Approach LOS			F									
Intersection Summary												
Average Delay			113.4									
Intersection Capacity Utilization			128.4%	ICU Level of Service		H						
Analysis Period (min)			15									

						
Lane Group	EBT	WBL	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	922	345	1206	110	61	205
v/c Ratio	0.73	0.72	0.78	0.28	0.15	0.31
Control Delay	50.2	53.1	32.9	10.7	8.4	36.4
Queue Delay	0.6	57.0	48.8	1.5	1.0	0.0
Total Delay	50.8	110.1	81.8	12.2	9.4	36.4
Queue Length 50th (ft)	176	89	290	56	18	59
Queue Length 95th (ft)	m220	m131	372	82	30	93
Internal Link Dist (ft)	787		208		117	26
Turn Bay Length (ft)						
Base Capacity (vph)	1267	480	1555	389	409	662
Starvation Cap Reductn	0	0	490	156	212	0
Spillback Cap Reductn	97	178	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	1.14	1.13	0.47	0.31	0.31
Intersection Summary						
m Volume for 95th percentile queue is metered by upstream signal.						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	714	134	317	1091	18	101	56	0	57	132	0
Future Volume (vph)	0	714	134	317	1091	18	101	56	0	57	132	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0			5.0	
Lane Util. Factor		0.91		0.97	0.95		1.00	1.00			0.95	
Flt		0.98		1.00	1.00		1.00	1.00			1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)		4965		3433	3530		1770	1863			3486	
Flt Permitted		1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (perm)		4965		3433	3530		1770	1863			3486	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	776	146	345	1186	20	110	61	0	62	143	0
RTOR Reduction (vph)	0	27	0	0	1	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	895	0	345	1205	0	110	61	0	0	205	0
Turn Type		NA		Prot	NA		Split	NA		Split	NA	
Protected Phases		1		2	1 2		5	5		4	4	
Permitted Phases												
Actuated Green, G (s)		25.0		14.0	44.0		22.0	22.0			19.0	
Effective Green, g (s)		25.0		14.0	44.0		22.0	22.0			19.0	
Actuated g/C Ratio		0.25		0.14	0.44		0.22	0.22			0.19	
Clearance Time (s)		5.0		5.0			5.0	5.0			5.0	
Lane Grp Cap (vph)		1241		480	1553		389	409			662	
v/s Ratio Prot		0.18		0.10	c0.34		c0.06	0.03			c0.06	
v/s Ratio Perm												
v/c Ratio		0.72		0.72	0.78		0.28	0.15			0.31	
Uniform Delay, d1		34.3		41.1	23.8		32.4	31.5			34.9	
Progression Factor		1.45		1.12	1.24		0.27	0.24			1.00	
Incremental Delay, d2		1.9		6.8	2.9		1.8	0.7			1.2	
Delay (s)		51.8		52.6	32.5		10.5	8.3			36.1	
Level of Service		D		D	C		B	A			D	
Approach Delay (s)		51.8			37.0			9.7			36.1	
Approach LOS		D			D			A			D	
Intersection Summary												
HCM 2000 Control Delay			40.1			HCM 2000 Level of Service				D		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				20.0		
Intersection Capacity Utilization			54.1%			ICU Level of Service				A		
Analysis Period (min)			15									
c Critical Lane Group												


















2024 Future Conditions

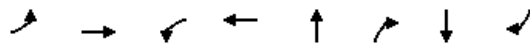
						
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1583	732	463	128	120	21
v/c Ratio	0.96	0.98	0.28	0.60	0.53	0.39
Control Delay	34.8	51.0	11.0	29.5	28.4	44.5
Queue Delay	0.0	22.2	0.0	0.0	0.0	0.0
Total Delay	34.8	73.2	11.0	29.5	28.4	44.5
Queue Length 50th (ft)	422	381	67	80	72	3
Queue Length 95th (ft)	#612	#645	96	m82	m73	#33
Internal Link Dist (ft)	1173		802		435	42
Turn Bay Length (ft)				85		
Base Capacity (vph)	1648	744	1654	214	225	54
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	53	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	1.06	0.28	0.60	0.53	0.39
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	1547	717	0	422	8	164	1	61	4	2	14
Future Volume (vph)	4	1547	717	0	422	8	164	1	61	4	2	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	12	11	12	12	12
Total Lost time (s)		5.0	5.0		5.0		6.0	6.0			5.5	
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00			1.00	
Frt		1.00	0.85		1.00		1.00	0.92			0.90	
Flt Protected		1.00	1.00		1.00		0.95	0.98			0.99	
Satd. Flow (prot)		3110	1340		2976		1372	1292			1501	
Flt Permitted		0.95	1.00		1.00		0.74	0.85			0.43	
Satd. Flow (perm)		2968	1340		2976		1074	1128			656	
Peak-hour factor, PHF	0.92	0.98	0.98	0.93	0.93	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	4	1579	732	0	454	9	180	1	67	4	2	15
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	0	0	14	0
Lane Group Flow (vph)	0	1583	732	0	462	0	128	120	0	0	7	0
Confl. Bikes (#/hr)			4									
Heavy Vehicles (%)	2%	3%	3%	15%	9%	2%	5%	2%	19%	2%	2%	2%
Bus Blockages (#/hr)	0	7	7	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA	custom		NA		Perm	NA		Perm	NA	
Protected Phases		2 9			6 9			4			3	
Permitted Phases	2 9		2 4				4			3		
Actuated Green, G (s)		50.0	50.0		50.0		18.0	18.0			5.5	
Effective Green, g (s)		50.0	44.0		50.0		18.0	18.0			5.5	
Actuated g/C Ratio		0.56	0.49		0.56		0.20	0.20			0.06	
Clearance Time (s)							6.0	6.0			5.5	
Vehicle Extension (s)							0.2	0.2			2.0	
Lane Grp Cap (vph)		1648	655		1653		214	225			40	
v/s Ratio Prot					0.16							
v/s Ratio Perm		c0.53	c0.55				0.12	0.11			c0.01	
v/c Ratio		0.96	1.12		0.28		0.60	0.53			0.17	
Uniform Delay, d1		19.1	23.0		10.5		32.7	32.2			40.1	
Progression Factor		1.00	1.00		1.00		0.83	0.83			1.00	
Incremental Delay, d2		13.9	72.1		0.0		0.3	0.1			9.2	
Delay (s)		32.9	95.1		10.6		27.5	26.8			49.3	
Level of Service		C	F		B		C	C			D	
Approach Delay (s)		52.6			10.6			27.2			49.3	
Approach LOS		D			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			44.1									D
HCM 2000 Volume to Capacity ratio			1.03									
Actuated Cycle Length (s)			90.0								21.5	
Intersection Capacity Utilization			73.6%								D	
Analysis Period (min)			15									

c Critical Lane Group

	→	←	↑	↘	↓
Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	642	537	225	80	660
v/c Ratio	1.52	1.73	0.59	0.19	0.96
Control Delay	272.3	364.4	17.4	30.5	55.9
Queue Delay	0.0	0.0	0.0	0.0	1.3
Total Delay	272.3	364.4	17.4	30.5	57.2
Queue Length 50th (ft)	~515	~456	74	0	412
Queue Length 95th (ft)	#690	#650	m88	m0	m421
Internal Link Dist (ft)	848	716	1999		435
Turn Bay Length (ft)				90	
Base Capacity (vph)	422	311	384	413	687
Starvation Cap Reductn	0	0	0	0	6
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.52	1.73	0.59	0.19	0.97
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.					
m Volume for 95th percentile queue is metered by upstream signal.					

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	51	446	61	73	353	63	31	152	37	74	516	91
Future Volume (vph)	51	446	61	73	353	63	31	152	37	74	516	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	12	11	12	11	11	12
Total Lost time (s)		8.0			8.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.96			0.98		1.00	0.98	
Flpb, ped/bikes		0.99			1.00			1.00		0.93	1.00	
Frt		0.99			0.98			0.98		1.00	0.98	
Flt Protected		1.00			0.99			0.99		0.95	1.00	
Satd. Flow (prot)		1326			1217			1314		1357	1548	
Flt Permitted		0.86			0.69			0.65		0.65	1.00	
Satd. Flow (perm)		1151			850			864		932	1548	
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	59	513	70	80	388	69	32	155	38	80	561	99
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	642	0	0	537	0	0	225	0	80	660	0
Confl. Peds. (#/hr)	202		79	79		202	75		82	82		75
Confl. Bikes (#/hr)			95			10						1
Heavy Vehicles (%)	16%	7%	0%	0%	10%	12%	7%	5%	0%	8%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		5			5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		33.0			33.0			40.0		40.0	40.0	
Effective Green, g (s)		33.0			33.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.37			0.37			0.44		0.44	0.44	
Clearance Time (s)		8.0			8.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		422			311			384		414	688	
v/s Ratio Prot											c0.43	
v/s Ratio Perm		0.56			c0.63			0.26		0.09		
v/c Ratio		1.52			1.73			0.59		0.19	0.96	
Uniform Delay, d1		28.5			28.5			18.8		15.2	24.2	
Progression Factor		1.00			1.00			0.71		1.91	1.86	
Incremental Delay, d2		246.4			340.2			3.1		0.3	10.8	
Delay (s)		274.9			368.7			16.5		29.4	55.9	
Level of Service		F			F			B		C	E	
Approach Delay (s)		274.9			368.7			16.5			53.1	
Approach LOS		F			F			B			D	
Intersection Summary												
HCM 2000 Control Delay		194.7			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.30										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			17.0				
Intersection Capacity Utilization		103.1%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	183	343	411	279	206	193	140	154
v/c Ratio	0.81	1.12	0.89	0.32	1.19	0.35	0.60	0.41
Control Delay	67.3	127.5	27.5	19.4	170.8	20.4	37.5	8.0
Queue Delay	55.2	0.0	53.3	49.0	0.0	0.0	72.8	9.0
Total Delay	122.5	127.5	80.8	68.3	170.8	20.4	110.3	17.0
Queue Length 50th (ft)	122	~279	314	212	~176	83	82	17
Queue Length 95th (ft)	#245	#437	m222	m110	#325	84	m94	m29
Internal Link Dist (ft)		716		212	1958		86	
Turn Bay Length (ft)	170					175		
Base Capacity (vph)	225	306	461	866	173	550	235	378
Starvation Cap Reductn	0	0	199	604	0	0	122	185
Spillback Cap Reductn	57	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.09	1.12	1.57	1.06	1.19	0.35	1.24	0.80

Intersection Summary





















~ Volume exceeds capacity, queue is theoretically infinite.

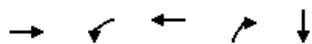
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	168	233	65	395	268	0	31	142	116	0	129	142
Future Volume (vph)	168	233	65	395	268	0	31	142	116	0	129	142
Ideal Flow (vphpl)	1900	1900	1900	2200	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	10	12	11	12	11	12	11	11
Total Lost time (s)	10.0	10.0		5.5	9.5			5.0	5.5		5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	0.97		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.97		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		1.00	1.00
Satd. Flow (prot)	1486	1250		1611	1478			1647	1153		1621	1378
Flt Permitted	0.59	1.00		0.95	1.00			0.71	1.00		1.00	1.00
Satd. Flow (perm)	920	1250		1611	1478			1191	1153		1621	1378
Peak-hour factor, PHF	0.92	0.87	0.87	0.96	0.96	0.92	0.60	0.92	0.60	0.92	0.92	0.92
Adj. Flow (vph)	183	268	75	411	279	0	52	154	193	0	140	154
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	132
Lane Group Flow (vph)	183	343	0	411	279	0	0	206	193	0	140	22
Confl. Bikes (#/hr)			73									
Heavy Vehicles (%)	2%	6%	7%	9%	8%	2%	4%	2%	18%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Parking (#/hr)		3	3									
Turn Type	Perm	NA		Prot	NA		Perm	NA	pm+ov		NA	Prot
Protected Phases		2		1	6			4	1		8	8
Permitted Phases	2						4		4	8		
Actuated Green, G (s)	27.0	27.0		31.5	64.5			16.0	47.5		16.0	16.0
Effective Green, g (s)	27.0	27.0		31.5	64.5			16.0	47.5		16.0	16.0
Actuated g/C Ratio	0.25	0.25		0.29	0.59			0.15	0.43		0.15	0.15
Clearance Time (s)	10.0	10.0		5.5	9.5			5.0	5.5		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	225	306		461	866			173	497		235	200
v/s Ratio Prot		c0.27		c0.26	0.19				0.11		0.09	0.02
v/s Ratio Perm	0.20							c0.17	0.06			
v/c Ratio	0.81	1.12		0.89	0.32			1.19	0.39		0.60	0.11
Uniform Delay, d1	39.1	41.5		37.6	11.6			47.0	21.3		44.0	40.8
Progression Factor	1.00	1.00		0.61	1.62			1.00	1.00		0.76	3.53
Incremental Delay, d2	18.8	88.1		2.7	0.1			129.0	0.2		0.9	0.0
Delay (s)	57.9	129.6		25.5	18.9			176.0	21.5		34.3	144.0
Level of Service	E	F		C	B			F	C		C	F
Approach Delay (s)		104.6			22.8			101.3			91.8	
Approach LOS		F			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			72.4			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)			29.0			
Intersection Capacity Utilization			78.0%			ICU Level of Service			D			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBL	WBT	NBR	SBT
Lane Group Flow (vph)	1264	462	955	366	66
v/c Ratio	0.64	1.46	1.46	0.32	0.19
Control Delay	15.7	257.0	247.9	0.8	32.6
Queue Delay	0.4	3.0	1.8	0.4	0.0
Total Delay	16.2	260.0	249.7	1.1	32.6
Queue Length 50th (ft)	132	~491	~508	3	15
Queue Length 95th (ft)	m168	#712	#642	m3	29
Internal Link Dist (ft)	240		764		257
Turn Bay Length (ft)		375			
Base Capacity (vph)	1964	316	654	1153	511
Starvation Cap Reductn	271	0	0	360	0
Spillback Cap Reductn	0	68	142	0	4
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.75	1.86	1.87	0.46	0.13

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.



















m Volume for 95th percentile queue is metered by upstream signal.









												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1213	0	659	716	0	0	0	329	13	21	16
Future Volume (vph)	0	1213	0	659	716	0	0	0	329	13	21	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	10	10	12	12	12	12	11	11	12
Total Lost time (s)		6.0		8.0	8.0				8.0		6.0	
Lane Util. Factor		0.91		0.91	0.91				1.00		0.95	
Frpb, ped/bikes		1.00		1.00	1.00				0.99		0.98	
Flpb, ped/bikes		1.00		1.00	1.00				1.00		1.00	
Frt		1.00		1.00	1.00				0.86		0.95	
Flt Protected		1.00		0.95	0.99				1.00		0.99	
Satd. Flow (prot)		4272		1289	2665				1349		2848	
Flt Permitted		1.00		0.95	0.99				1.00		0.99	
Satd. Flow (perm)		4272		1289	2665				1349		2848	
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.90	0.90	0.90	0.76	0.76	0.76
Adj. Flow (vph)	0	1264	0	679	738	0	0	0	366	17	28	21
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	1264	0	462	955	0	0	0	366	0	47	0
Confl. Bikes (#/hr)			7			2			33			20
Heavy Vehicles (%)	6%	2%	7%	7%	8%	0%	9%	23%	8%	2%	2%	2%
Turn Type		NA		Split	NA				pm+ov	Perm	NA	
Protected Phases		2		1	1				1		4	
Permitted Phases									2 4			
Actuated Green, G (s)		50.6		27.0	27.0				96.0		12.4	
Effective Green, g (s)		50.6		27.0	27.0				90.0		12.4	
Actuated g/C Ratio		0.46		0.25	0.25				0.82		0.11	
Clearance Time (s)		6.0		8.0	8.0				8.0		6.0	
Vehicle Extension (s)		2.0		2.0	2.0				2.0		2.0	
Lane Grp Cap (vph)		1965		316	654				1201		321	
v/s Ratio Prot		c0.30		c0.36	0.36				c0.07			
v/s Ratio Perm									0.20		0.02	
v/c Ratio		0.64		1.46	1.46				0.30		0.15	
Uniform Delay, d1		22.8		41.5	41.5				2.4		44.0	
Progression Factor		0.62		1.00	1.00				0.41		1.00	
Incremental Delay, d2		1.1		224.6	215.5				0.0		0.1	
Delay (s)		15.3		266.1	257.0				1.0		44.1	
Level of Service		B		F	F				A		D	
Approach Delay (s)		15.3			260.0			1.0			44.1	
Approach LOS		B			F			A			D	
Intersection Summary												
HCM 2000 Control Delay		125.6			HCM 2000 Level of Service				F			
HCM 2000 Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		110.0			Sum of lost time (s)				20.0			
Intersection Capacity Utilization		76.6%			ICU Level of Service				D			
Analysis Period (min)		15										
c Critical Lane Group												





















											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	263	853	510	588	799	339	197	365	246	220	1417
v/c Ratio	1.10	1.48	0.38	2.27	0.96	0.45	1.11	0.98	0.63	0.49	1.71
Control Delay	138.2	258.7	0.8	608.1	64.7	13.5	156.2	105.9	26.9	38.4	352.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	138.2	258.7	0.8	608.1	64.7	13.5	156.2	105.9	26.9	38.4	352.2
Queue Length 50th (ft)	~119	~477	0	~738	320	114	~180	159	34	152	~887
Queue Length 95th (ft)	#206	#606	0	#959	#451	173	#336	#259	171	240	#1031
Internal Link Dist (ft)		764			1549			1920			1578
Turn Bay Length (ft)	200		400	890		150	600			200	
Base Capacity (vph)	239	578	1356	259	834	758	178	373	390	447	830
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.10	1.48	0.38	2.27	0.96	0.45	1.11	0.98	0.63	0.49	1.71
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.											

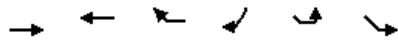
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	827	495	570	775	329	193	358	241	232	973	351
Future Volume (vph)	255	827	495	570	775	329	193	358	241	232	973	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	10	10	10	10	11	12	11	11	11
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.96	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	
Satd. Flow (prot)	2874	3020	1356	1417	2861	1322	1430	2991	1275	1450	2694	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	
Satd. Flow (perm)	2874	3020	1356	1417	2861	1322	1430	2991	1275	1450	2694	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	263	853	510	588	799	339	197	365	246	244	1024	369
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	215	0	0	0
Lane Group Flow (vph)	263	853	510	588	799	339	197	365	31	220	1417	0
Confl. Bikes (#/hr)			56			8			1			22
Heavy Vehicles (%)	6%	4%	2%	7%	6%	2%	6%	5%	14%	2%	6%	8%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	5	2	2 8	1 9	6 9	4	8	8	8	4	4	
Permitted Phases			Free			6						
Actuated Green, G (s)	10.0	23.0	120.0	18.0	32.0	61.8	15.0	15.0	15.0	37.0	37.0	
Effective Green, g (s)	10.0	23.0	120.0	18.0	32.0	61.8	15.0	15.0	15.0	37.0	37.0	
Actuated g/C Ratio	0.08	0.19	1.00	0.15	0.27	0.51	0.12	0.12	0.12	0.31	0.31	
Clearance Time (s)	5.0	6.0				6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.0				2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	239	578	1356	212	762	680	178	373	159	447	830	
v/s Ratio Prot	0.09	c0.28	0.14	c0.41	0.28	0.15	c0.14	0.12	0.02	0.15	c0.53	
v/s Ratio Perm			0.24			0.10						
v/c Ratio	1.10	1.48	0.38	2.77	1.05	0.50	1.11	0.98	0.19	0.49	1.71	
Uniform Delay, d1	55.0	48.5	0.0	51.0	44.0	19.0	52.5	52.3	47.1	33.8	41.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.27	1.27	4.08	1.00	1.00	
Incremental Delay, d2	87.7	223.4	0.1	811.2	46.1	0.2	97.6	39.4	0.2	0.3	323.4	
Delay (s)	142.7	271.9	0.1	862.2	90.1	19.2	164.4	105.9	192.1	34.2	364.9	
Level of Service	F	F	A	F	F	B	F	F	F	C	F	
Approach Delay (s)		165.7			339.2			146.4			320.5	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay			258.4			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.86									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)				32.0		
Intersection Capacity Utilization			124.8%			ICU Level of Service				H		
Analysis Period (min)			15									
c Critical Lane Group												

	→	←	↶	↑	↷	↓
Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	702	361	45	320	52	341
v/c Ratio	1.25	0.67	0.20	0.57	0.20	0.62
Control Delay	150.5	38.4	23.0	28.3	22.9	30.1
Queue Delay	7.0	57.7	0.0	8.7	1.0	0.0
Total Delay	157.5	96.1	23.0	37.0	23.9	30.1
Queue Length 50th (ft)	~504	216	18	145	20	158
Queue Length 95th (ft)	#674	286	45	231	49	252
Internal Link Dist (ft)	1159	194		707		145
Turn Bay Length (ft)					30	
Base Capacity (vph)	563	539	229	562	254	546
Starvation Cap Reductn	0	235	0	0	0	0
Spillback Cap Reductn	286	0	0	202	91	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	2.53	1.19	0.20	0.89	0.32	0.62
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												
Traffic Volume (vph)	120	432	52	14	277	16	42	261	36	48	275	39
Future Volume (vph)	120	432	52	14	277	16	42	261	36	48	275	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.99		1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.99			1.00		0.92	1.00		0.92	1.00	
Frt		0.99			0.99		1.00	0.98		1.00	0.98	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1447			1200		1334	1581		1402	1536	
Flt Permitted		0.82			0.96		0.46	1.00		0.49	1.00	
Satd. Flow (perm)		1202			1151		645	1581		717	1536	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	140	502	60	16	326	19	45	281	39	52	299	42
RTOR Reduction (vph)	0	4	0	0	2	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	698	0	0	359	0	45	320	0	52	341	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		560			537		229	562		254	546	
v/s Ratio Prot								0.20			c0.22	
v/s Ratio Perm		c0.58			0.31		0.07			0.07		
v/c Ratio		1.25			0.67		0.20	0.57		0.20	0.62	
Uniform Delay, d1		24.0			18.6		20.1	23.4		20.2	24.0	
Progression Factor		1.00			1.69		1.00	1.00		1.00	1.00	
Incremental Delay, d2		125.5			5.4		1.9	4.1		1.8	5.3	
Delay (s)		149.5			36.9		22.0	27.6		22.0	29.3	
Level of Service		F			D		C	C		C	C	
Approach Delay (s)		149.5			36.9			26.9			28.4	
Approach LOS		F			D			C			C	
Intersection Summary												
HCM 2000 Control Delay		76.5			HCM 2000 Level of Service			E				
HCM 2000 Volume to Capacity ratio		0.98										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			16.0				
Intersection Capacity Utilization		128.4%			ICU Level of Service			H				
Analysis Period (min)		15										
c Critical Lane Group												

								
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	607	102	315	201	24	48	255	86
v/c Ratio	1.20	1.46	0.61	0.34	0.37	0.18	0.89	0.34
Control Delay	123.3	235.1	10.0	5.0	49.1	32.1	68.7	35.4
Queue Delay	3.3	0.0	13.9	0.0	201.9	0.0	0.0	0.0
Total Delay	126.6	235.1	24.0	5.0	250.9	32.1	68.7	35.4
Queue Length 50th (ft)	~440	~77	108	19	12	23	142	42
Queue Length 95th (ft)	m#342	m#91	m120	m17	33	47	#282	87
Internal Link Dist (ft)	194		391			379		257
Turn Bay Length (ft)		100						
Base Capacity (vph)	507	70	520	599	65	260	286	251
Starvation Cap Reductn	152	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	184	0	57	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.71	1.46	0.94	0.34	3.00	0.18	0.89	0.34
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	410	106	90	277	177	19	24	14	235	68	11
Future Volume (vph)	0	410	106	90	277	177	19	24	14	235	68	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.95		1.00	1.00	0.87	1.00	0.88		1.00	0.97	
Flpb, ped/bikes		1.00		0.95	1.00	1.00	0.94	1.00		1.00	1.00	
Frt		0.97		1.00	1.00	0.85	1.00	0.94		1.00	0.98	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1427		1322	1464	1079	1406	1301		1430	1258	
Flt Permitted		1.00		0.14	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1427		198	1464	1079	329	1301		1430	1258	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	0	482	125	102	315	201	24	30	18	255	74	12
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	607	0	102	315	201	24	48	0	255	86	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	NA		Perm	NA	pm+ov	Perm	NA		Split	NA		
Protected Phases	2			6	4		3		4	4		
Permitted Phases	2		6		6	3						
Actuated Green, G (s)		32.0		32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0		32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36		0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		507		70	520	695	65	260		286	251	
v/s Ratio Prot		0.43			0.22	0.06		0.04		c0.18	0.07	
v/s Ratio Perm				c0.51		0.13	c0.07					
v/c Ratio		1.20		1.46	0.61	0.29	0.37	0.18		0.89	0.34	
Uniform Delay, d1		29.0		29.0	23.8	10.6	31.1	29.9		35.1	30.9	
Progression Factor		1.19		0.45	0.39	0.65	1.00	1.00		1.00	1.00	
Incremental Delay, d2		90.7		212.8	0.5	0.1	15.4	1.6		31.5	3.7	
Delay (s)		125.1		225.9	9.7	7.0	46.5	31.5		66.5	34.6	
Level of Service		F		F	A	A	D	C		E	C	
Approach Delay (s)		125.1			44.5		36.5				58.5	
Approach LOS		F			D		D				E	
Intersection Summary												
HCM 2000 Control Delay		76.9										
HCM 2000 Level of Service										E		
HCM 2000 Volume to Capacity ratio		1.01										
Actuated Cycle Length (s)		90.0								22.0		
Intersection Capacity Utilization		100.3%								G		
ICU Level of Service												
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	784	472	214	251	140	174
v/c Ratio	1.25	0.84	1.27	1.00	0.82	1.09
Control Delay	154.1	41.0	197.5	97.8	77.1	140.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	154.1	41.0	197.5	97.8	77.1	140.2
Queue Length 50th (ft)	~589	248	~162	~151	83	~118
Queue Length 95th (ft)	#811	#429	#304	#281	#170	#228
Internal Link Dist (ft)	665	186				891
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	626	561	168	250	170	159
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	1.25	0.84	1.27	1.00	0.82	1.09



















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.

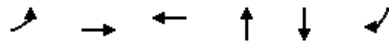
											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	706	434	164	33	0	166	48	119	104	44
Future Volume (vph)	0	706	434	164	33	0	166	48	119	104	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		6.0	6.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	0.98	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.96	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.97	
Satd. Flow (prot)		1550	1389	1321			1241		1458	1359	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.97	
Satd. Flow (perm)		1550	1389	1321			1241		1458	1359	
Peak-hour factor, PHF	0.90	0.90	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	784	472	178	36	0	195	56	140	122	52
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	784	472	214	0	0	251	0	140	174	0
Confl. Peds. (#/hr)					166			90			
Confl. Bikes (#/hr)				4	16		1	8			15
Heavy Vehicles (%)	0%	14%	19%	2%	6%	100%	1%	0%	4%	4%	24%
Parking (#/hr)							5	5			
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		38.0	38.0	12.0			19.0		11.0	11.0	
Effective Green, g (s)		38.0	38.0	12.0			19.0		11.0	11.0	
Actuated g/C Ratio		0.40	0.40	0.13			0.20		0.12	0.12	
Clearance Time (s)		6.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		626	561	168			250		170	159	
v/s Ratio Prot		c0.51	0.34	0.16			c0.20		0.10	c0.13	
v/s Ratio Perm											
v/c Ratio		1.25	0.84	1.27			1.00		0.82	1.09	
Uniform Delay, d1		28.0	25.3	41.0			37.5		40.6	41.5	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		126.4	14.2	161.3			57.9		25.3	98.9	
Delay (s)		154.4	39.5	202.3			95.4		65.9	140.4	
Level of Service		F	D	F			F		E	F	
Approach Delay (s)		154.4	90.3			95.4				107.1	
Approach LOS		F	F			F				F	
Intersection Summary											
HCM 2000 Control Delay			118.2			HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.23								
Actuated Cycle Length (s)			94.0			Sum of lost time (s)			30.0		
Intersection Capacity Utilization			80.7%			ICU Level of Service			D		
Analysis Period (min)			15								
c Critical Lane Group											

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Volume (veh/h)	809	0	0	631	0	107
Future Volume (Veh/h)	809	0	0	631	0	107
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	879	0	0	686	0	116
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	266			1297		
pX, platoon unblocked			0.61		0.73	0.61
vC, conflicting volume			879		1565	879
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			481		867	481
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	67
cM capacity (veh/h)			659		235	357
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	879	686	116			
Volume Left	0	0	0			
Volume Right	0	0	116			
cSH	1700	1700	357			
Volume to Capacity	0.52	0.40	0.33			
Queue Length 95th (ft)	0	0	35			
Control Delay (s)	0.0	0.0	19.9			
Lane LOS			C			
Approach Delay (s)	0.0	0.0	19.9			
Approach LOS			C			
Intersection Summary						
Average Delay			1.4			
Intersection Capacity Utilization		55.9%		ICU Level of Service	B	
Analysis Period (min)		15				

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	548	366	227	631	0	0
Future Volume (Veh/h)	548	366	227	631	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	596	398	247	686	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	430			1133		
pX, platoon unblocked			0.62		0.76	0.62
vC, conflicting volume			994		1975	795
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			679		1272	356
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			56		100	100
cM capacity (veh/h)			563		79	424
Direction, Lane #	EB 1	WB 1				
Volume Total	994	933				
Volume Left	0	247				
Volume Right	398	0				
cSH	1700	563				
Volume to Capacity	0.58	0.44				
Queue Length 95th (ft)	0	56				
Control Delay (s)	0.0	13.1				
Lane LOS		B				
Approach Delay (s)	0.0	13.1				
Approach LOS						
Intersection Summary						
Average Delay		6.4				
Intersection Capacity Utilization		103.6%	ICU Level of Service	G		
Analysis Period (min)		15				

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	100	324	83	282	674	225	204	654
v/c Ratio	0.89	1.09	0.37	2.01	1.01	0.81	0.28	1.19
Control Delay	104.2	113.1	35.2	505.5	71.6	16.0	0.9	125.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.2	113.1	35.2	505.5	71.6	16.0	0.9	125.2
Queue Length 50th (ft)	58	~209	40	~253	~204	43	0	~451
Queue Length 95th (ft)	#153	#371	84	#407	#324	m77	m0	m#416
Internal Link Dist (ft)		1053			1058	1174		1999
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	112	298	226	140	669	279	718	549
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	1.09	0.37	2.01	1.01	0.81	0.28	1.19
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	95	308	79	262	603	24	107	114	200	32	423	146
Future Volume (vph)	95	308	79	262	603	24	107	114	200	32	423	146
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.82	1.00	0.99			1.00	1.00		0.96	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.98	1.00		0.99	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1444	1344	1019	1264	2618			1595	1243		1409	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.43	1.00		0.97	
Satd. Flow (perm)	1444	1344	1019	1264	2618			697	1243		1374	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	100	324	83	282	648	26	109	116	204	35	460	159
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	100	324	83	282	674	0	0	225	204	0	654	0
Confl. Peds. (#/hr)			66			124	93		299	299		93
Confl. Bikes (#/hr)			11			21			7			11
Heavy Vehicles (%)	5%	23%	9%	20%	14%	0%	0%	5%	13%	6%	3%	6%
Parking (#/hr)												4
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	14			8
Permitted Phases			2				4			8		
Actuated Green, G (s)	7.0	20.0	20.0	10.0	23.0			36.0	52.0		36.0	
Effective Green, g (s)	7.0	20.0	20.0	10.0	23.0			36.0	46.0		36.0	
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.26			0.40	0.51		0.40	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	112	298	226	140	669			278	635		549	
v/s Ratio Prot	0.07	0.24		c0.22	c0.26				0.16			
v/s Ratio Perm			0.08					0.32			c0.48	
v/c Ratio	0.89	1.09	0.37	2.01	1.01			0.81	0.32		1.19	
Uniform Delay, d1	41.1	35.0	29.6	40.0	33.5			24.0	12.9		27.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00			0.43	0.08		1.54	
Incremental Delay, d2	51.8	77.4	4.6	480.7	36.6			2.4	0.0		87.9	
Delay (s)	92.9	112.4	34.2	520.7	70.1			12.8	1.0		129.5	
Level of Service	F	F	C	F	E			B	A		F	
Approach Delay (s)		95.8			203.0			7.2			129.5	
Approach LOS		F			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			129.8			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.30									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			112.0%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	233	305	1398	29	148	226
v/c Ratio	1.97	0.26	1.06	0.12	0.50	1.45
Control Delay	489.7	15.9	54.2	42.7	50.8	270.3
Queue Delay	0.0	0.0	19.3	0.0	0.0	0.0
Total Delay	489.7	15.9	73.5	42.7	50.8	270.3
Queue Length 50th (ft)	~190	64	~350	19	104	~239
Queue Length 95th (ft)	#355	93	m224	32	173	#398
Internal Link Dist (ft)		1058	178	161	1958	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	118	1166	1324	232	295	156
Starvation Cap Reductn	0	0	382	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	1.97	0.26	1.48	0.13	0.50	1.45

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.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	210	212	62	355	715	257	8	8	2	14	130	219
Future Volume (vph)	210	212	62	355	715	257	8	8	2	14	130	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	9.0	9.0			9.0			9.0			9.0	9.0
Lane Util. Factor	1.00	0.95			0.95			1.00			1.00	1.00
Frpb, ped/bikes	1.00	0.93			0.94			0.99			1.00	0.77
Flpb, ped/bikes	0.96	1.00			0.98			0.92			0.99	1.00
Frt	1.00	0.97			0.97			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.98			1.00	1.00
Satd. Flow (prot)	1149	2189			2690			1499			1655	851
Flt Permitted	0.18	1.00			0.71			0.83			0.97	1.00
Satd. Flow (perm)	223	2189			1933			1267			1611	851
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.61	0.61	0.61	0.97	0.97	0.97
Adj. Flow (vph)	233	236	69	374	753	271	13	13	3	14	134	226
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	233	305	0	0	1398	0	0	29	0	0	148	226
Confl. Peds. (#/hr)	84		60	60		84	127		65	65		127
Confl. Bikes (#/hr)			4			12			3			7
Heavy Vehicles (%)	31%	27%	2%	1%	10%	1%	0%	0%	0%	0%	2%	27%
Parking (#/hr)		5	5									
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	64.0	64.0			80.0			22.0			22.0	22.0
Effective Green, g (s)	64.0	64.0			80.0			22.0			22.0	22.0
Actuated g/C Ratio	0.53	0.53			0.67			0.18			0.18	0.18
Clearance Time (s)	9.0	9.0			9.0			9.0			9.0	9.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	118	1167			1332			232			295	156
v/s Ratio Prot		0.14			c0.06							
v/s Ratio Perm	c1.05				0.64			0.02			0.09	c0.27
v/c Ratio	1.97	0.26			1.05			0.12			0.50	1.45
Uniform Delay, d1	28.0	15.2			20.0			41.0			44.1	49.0
Progression Factor	1.00	1.00			1.45			1.00			1.00	1.00
Incremental Delay, d2	467.5	0.5			24.6			1.1			6.0	234.1
Delay (s)	495.5	15.7			53.5			42.1			50.1	283.1
Level of Service	F	B			D			D			D	F
Approach Delay (s)		223.5			53.5			42.1			190.9	
Approach LOS		F			D			D			F	
Intersection Summary												
HCM 2000 Control Delay		114.5			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.82										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			27.0				
Intersection Capacity Utilization		105.3%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	269	923	761	1243	579
v/c Ratio	0.45	1.14	0.28	1.09	1.34
Control Delay	27.9	116.8	14.1	66.7	189.5
Queue Delay	0.6	0.8	0.0	0.0	3.1
Total Delay	28.5	117.6	14.1	66.7	192.5
Queue Length 50th (ft)	42	~429	79	~586	~590
Queue Length 95th (ft)	56	#557	206	m187	m235
Internal Link Dist (ft)	178		1008	1920	
Turn Bay Length (ft)		300			
Base Capacity (vph)	604	812	2703	1141	431
Starvation Cap Reductn	115	0	0	0	0
Spillback Cap Reductn	0	106	0	0	111
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.55	1.31	0.28	1.09	1.81

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.










m Volume for 95th percentile queue is metered by upstream signal.

							
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	 			 	 	 	
Traffic Volume (vph)	229	0	55	812	715	1106	515
Future Volume (vph)	229	0	55	812	715	1106	515
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	11	11	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2418			3046	4468	3185	1264
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2418			3046	4468	3185	1264
Peak-hour factor, PHF	0.85	0.85	0.94	0.94	0.94	0.89	0.89
Adj. Flow (vph)	269	0	59	864	761	1243	579
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	269	0	0	923	761	1243	579
Confl. Bikes (#/hr)							4
Heavy Vehicles (%)	26%	0%	0%	0%	1%	2%	15%
Turn Type	Prot		Prot	Prot	NA	NA	custom
Protected Phases	4		1	1	3 6	2 3	2 4
Permitted Phases							
Actuated Green, G (s)	30.0			32.0	71.0	43.0	41.0
Effective Green, g (s)	30.0			32.0	71.0	43.0	41.0
Actuated g/C Ratio	0.25			0.27	0.59	0.36	0.34
Clearance Time (s)	5.0			5.0			
Vehicle Extension (s)	1.0			2.0			
Lane Grp Cap (vph)	604			812	2643	1141	431
v/s Ratio Prot	0.11			c0.30	0.17	c0.39	c0.46
v/s Ratio Perm							
v/c Ratio	0.45			1.14	0.29	1.09	1.34
Uniform Delay, d1	38.0			44.0	12.1	38.5	39.5
Progression Factor	0.67			1.00	1.00	0.61	1.36
Incremental Delay, d2	2.3			76.4	0.0	41.9	156.0
Delay (s)	27.6			120.4	12.1	65.3	209.5
Level of Service	C			F	B	E	F
Approach Delay (s)	27.6				71.4	111.1	
Approach LOS	C				E	F	
Intersection Summary							
HCM 2000 Control Delay			87.5		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio			1.23				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		20.0
Intersection Capacity Utilization			81.2%		ICU Level of Service		D
Analysis Period (min)			15				
c Critical Lane Group							

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	272	359	74	76	277	46	44	453	121	57	437	281
v/c Ratio	1.32	0.69	0.80	0.68	0.65	0.51	0.39	1.15	1.23	0.56	1.08	1.54
Control Delay	184.5	28.6	40.1	64.1	26.5	53.8	49.2	127.0	204.8	59.3	100.3	296.7
Queue Delay	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 Delay	184.5	28.6	40.1	64.1	26.5	53.8	49.2	127.0	204.8	59.3	100.3	296.7
Queue Length 50th (ft)	~197	170	38	37	144	28	24	~312	~86	31	~284	~226
Queue Length 95th (ft)	m#181	m160	m36	m54	m179	m41	58	#488	#191	65	#408	#347
Internal Link Dist (ft)		391			240			769			665	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	206	517	98	112	427	107	119	393	98	122	415	183
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.32	0.69	0.76	0.68	0.65	0.43	0.37	1.15	1.23	0.47	1.05	1.54
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.												
m Volume for 95th percentile queue is metered by upstream signal.												

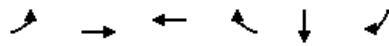
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	258	341	70	74	269	45	39	403	108	48	367	236
Future Volume (vph)	258	341	70	74	269	45	39	403	108	48	367	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	11	10	10	11	10	10	11	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1430	1494	1112	1264	1468	969	1342	1437	1112	1099	1437	1268
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1430	1494	1112	1264	1468	969	1342	1437	1112	1099	1437	1268
Peak-hour factor, PHF	0.95	0.95	0.95	0.97	0.97	0.97	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	272	359	74	76	277	46	44	453	121	57	437	281
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	272	359	74	76	277	46	44	453	121	57	437	281
Heavy Vehicles (%)	6%	8%	22%	20%	9%	40%	13%	15%	22%	38%	15%	7%
Bus Blockages (#/hr)	0	6	0	0	8	0	0	0	0	0	0	0
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	30.2	6.4	8.0	25.2	7.2	6.4	24.6	8.0	7.2	25.4	13.0
Effective Green, g (s)	13.0	30.2	6.4	8.0	25.2	7.2	6.4	24.6	8.0	7.2	25.4	13.0
Actuated g/C Ratio	0.14	0.34	0.07	0.09	0.28	0.08	0.07	0.27	0.09	0.08	0.28	0.14
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	206	501	79	112	411	77	95	392	98	87	405	183
v/s Ratio Prot	0.19	c0.24	c0.07	0.06	0.19	0.05	0.03	c0.32	0.11	0.05	0.30	c0.22
v/s Ratio Perm												
v/c Ratio	1.32	0.72	0.94	0.68	0.67	0.60	0.46	1.16	1.23	0.66	1.08	1.54
Uniform Delay, d1	38.5	26.2	41.6	39.8	28.8	40.0	40.1	32.7	41.0	40.2	32.3	38.5
Progression Factor	1.17	1.00	0.74	1.01	0.67	1.01	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	147.3	0.8	16.7	9.1	6.4	6.0	1.3	95.1	166.8	12.7	67.5	266.5
Delay (s)	192.2	26.9	47.4	49.1	25.5	46.3	41.5	127.8	207.8	52.9	99.8	305.0
Level of Service	F	C	D	D	C	D	D	F	F	D	F	F
Approach Delay (s)		92.8			32.4			137.3			170.8	
Approach LOS		F			C			F			F	
Intersection Summary												
HCM 2000 Control Delay		118.4										
HCM 2000 Volume to Capacity ratio		1.03										
Actuated Cycle Length (s)		90.0							20.0			
Intersection Capacity Utilization		76.8%										
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	498	388	296	0	0
Future Volume (Veh/h)	0	498	388	296	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	541	422	322	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage veh)						
Upstream signal (ft)		320	334			
pX, platoon unblocked	0.70				0.80	0.70
vC, conflicting volume	744				1124	583
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	417				476	187
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	797				436	597
Direction, Lane #	EB 1	WB 1				
Volume Total	541	744				
Volume Left	0	0				
Volume Right	0	322				
cSH	1700	1700				
Volume to Capacity	0.32	0.44				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		41.8%	ICU Level of Service	A		
Analysis Period (min)		15				

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	498	509	0	0	175
Future Volume (Veh/h)	0	498	509	0	0	175
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	541	553	0	0	190
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		473	181			
pX, platoon unblocked	0.69				0.78	0.69
vC, conflicting volume	553				1094	553
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	123				438	123
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	70
cM capacity (veh/h)	1007				451	638
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	541	553	190			
Volume Left	0	0	0			
Volume Right	0	0	190			
cSH	1700	1700	638			
Volume to Capacity	0.32	0.33	0.30			
Queue Length 95th (ft)	0	0	31			
Control Delay (s)	0.0	0.0	13.0			
Lane LOS			B			
Approach Delay (s)	0.0	0.0	13.0			
Approach LOS			B			
Intersection Summary						
Average Delay			1.9			
Intersection Capacity Utilization		44.3%		ICU Level of Service	A	
Analysis Period (min)		15				

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	477	116	356	516	106	263
v/c Ratio	0.96	0.54	0.94	0.99	0.49	0.99
Control Delay	67.3	49.9	33.7	42.9	34.0	63.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.3	49.9	33.7	42.9	34.0	63.8
Queue Length 50th (ft)	297	52	109	323	59	163
Queue Length 95th (ft)	m#392	m75	m79	m235	m41	m108
Internal Link Dist (ft)	101			897	493	
Turn Bay Length (ft)		150	160			100
Base Capacity (vph)	496	215	378	523	218	267
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	0.96	0.54	0.94	0.99	0.49	0.99
Intersection Summary						
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	410	100	292	423	86	213
Future Volume (vph)	410	100	292	423	86	213
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	11	12	11	10
Total Lost time (s)	5.0	8.0	6.0	5.0	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1489	1077	1481	1569	1091	1046
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1489	1077	1481	1569	1091	1046
Peak-hour factor, PHF	0.86	0.86	0.82	0.82	0.81	0.81
Adj. Flow (vph)	477	116	356	516	106	263
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	477	116	356	516	106	263
Heavy Vehicles (%)	11%	26%	6%	9%	44%	8%
Bus Blockages (#/hr)	0	0	0	0	0	16
Parking (#/hr)						2
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	2	3	1	2	3
Permitted Phases						
Actuated Green, G (s)	30.0	18.0	23.0	30.0	18.0	23.0
Effective Green, g (s)	30.0	18.0	23.0	30.0	18.0	23.0
Actuated g/C Ratio	0.33	0.20	0.26	0.33	0.20	0.26
Clearance Time (s)	5.0	8.0	6.0	5.0	8.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	496	215	378	523	218	267
v/s Ratio Prot	0.32	c0.11	0.24	c0.33	0.10	c0.25
v/s Ratio Perm						
v/c Ratio	0.96	0.54	0.94	0.99	0.49	0.99
Uniform Delay, d1	29.4	32.3	32.8	29.8	31.9	33.3
Progression Factor	1.40	1.30	0.76	1.08	1.01	1.51
Incremental Delay, d2	25.3	6.5	5.7	9.1	0.7	13.4
Delay (s)	66.6	48.4	30.7	41.2	33.0	63.6
Level of Service	E	D	C	D	C	E
Approach Delay (s)	63.0			36.9	54.8	
Approach LOS	E			D	D	
Intersection Summary						
HCM 2000 Control Delay			48.9		HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.87			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	19.0
Intersection Capacity Utilization			66.1%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	247	291	791	420	470	187
v/c Ratio	0.80	0.32	1.62	1.19	1.28	0.59
Control Delay	35.3	23.8	313.0	141.0	150.1	31.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.3	23.8	313.0	141.0	150.1	31.6
Queue Length 50th (ft)	107	83	~653	~290	~319	106
Queue Length 95th (ft)	m112	m84	#834	#447	m153	m85
Internal Link Dist (ft)		897	92		1174	
Turn Bay Length (ft)	340			350		180
Base Capacity (vph)	310	899	489	354	367	315
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	0.80	0.32	1.62	1.19	1.28	0.59

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.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	211	31	0	688	365	0	0	0	245	178	168
Future Volume (vph)	205	211	31	0	688	365	0	0	0	245	178	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	12	12	10	10	12	12	12	10	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Fr _t	1.00	0.98			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (prot)	1271	2791			1520	1330					1379	1289
Flt Permitted	0.95	1.00			1.00	1.00					0.97	1.00
Satd. Flow (perm)	1271	2791			1520	1330					1379	1289
Peak-hour factor, PHF	0.83	0.83	0.83	0.87	0.87	0.87	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	247	254	37	0	791	420	0	0	0	272	198	187
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	247	291	0	0	791	420	0	0	0	0	470	187
Heavy Vehicles (%)	15%	2%	38%	0%	5%	2%	2%	2%	2%	3%	35%	9%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	22.0	29.0			29.0	24.0					24.0	22.0
Effective Green, g (s)	22.0	29.0			29.0	24.0					24.0	22.0
Actuated g/C Ratio	0.24	0.32			0.32	0.27					0.27	0.24
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	310	899			489	354					367	315
v/s Ratio Prot	c0.19	0.10			c0.52	0.32					c0.34	0.15
v/s Ratio Perm												
v/c Ratio	0.80	0.32			1.62	1.19					1.28	0.59
Uniform Delay, d ₁	31.9	23.1			30.5	33.0					33.0	30.0
Progression Factor	0.85	1.01			1.00	1.00					0.53	1.00
Incremental Delay, d ₂	6.1	0.3			287.2	108.8					128.3	0.7
Delay (s)	33.3	23.5			317.7	141.8					145.8	30.7
Level of Service	C	C			F	F					F	C
Approach Delay (s)		28.0			256.7			0.0			113.0	
Approach LOS		C			F			A			F	
Intersection Summary												
HCM 2000 Control Delay		166.3			HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio		1.27										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)					15.0		
Intersection Capacity Utilization		88.3%			ICU Level of Service					E		
Analysis Period (min)		15										
c Critical Lane Group												

KSURP
19: Memorial Drive Ramp & Main St/Longfellow Bridge

2024 Future AM
Timing Plan: DEFAULT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	501	144	0	950	173	0	0	252	0	0	228
Future Volume (Veh/h)	0	501	144	0	950	173	0	0	252	0	0	228
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.87	0.87	0.87	0.92	0.92	0.76	0.78	0.78	0.78
Hourly flow rate (vph)	0	651	187	0	1092	199	0	0	332	0	0	292
Pedestrians								150			107	
Lane Width (ft)								16.0			16.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								17			12	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		1307										
pX, platoon unblocked												
vC, conflicting volume	1398			988			2278	2292	569	1856	2187	1199
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1398			988			2278	2292	569	1856	2187	1199
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			0	100	15	100	100	0
cM capacity (veh/h)	436			590			0	28	390	5	34	150
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	434	404	1092	199	332	292						
Volume Left	0	0	0	0	0	0						
Volume Right	0	187	0	199	332	292						
cSH	1700	1700	1700	1700	390	150						
Volume to Capacity	0.26	0.24	0.64	0.12	0.85	1.94						
Queue Length 95th (ft)	0	0	0	0	203	564						
Control Delay (s)	0.0	0.0	0.0	0.0	49.0	498.7						
Lane LOS					E	F						
Approach Delay (s)	0.0		0.0		49.0	498.7						
Approach LOS					E	F						
Intersection Summary												
Average Delay			58.8									
Intersection Capacity Utilization			77.9%		ICU Level of Service				D			
Analysis Period (min)			15									



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	318	407	68	265	315	123	66	316	218
v/c Ratio	1.35	1.07	0.34	0.80	0.90	0.79	0.88	0.61	1.00
Control Delay	218.3	103.0	41.1	53.6	66.3	73.5	122.4	31.7	103.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	218.3	103.0	41.1	53.6	66.3	73.5	122.4	31.7	103.0
Queue Length 50th (ft)	~267	~305	37	154	190	73	42	158	~146
Queue Length 95th (ft)	#357	#393	79	#286	#345	#161	#114	231	#266
Internal Link Dist (ft)		189		408	669			769	
Turn Bay Length (ft)	225		120			250	200		180
Base Capacity (vph)	235	380	224	330	358	175	75	523	219
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	1.07	0.30	0.80	0.88	0.70	0.88	0.60	1.00






















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												
Traffic Volume (vph)	248	274	44	67	217	43	0	296	116	56	269	185
Future Volume (vph)	248	274	44	67	217	43	0	296	116	56	269	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	10	11	11	10	10	10	10	11	10
Total Lost time (s)	9.0	5.0		9.0	5.0			5.0	9.0	5.0	5.0	9.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	0.92		1.00	0.88			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1309	1307		1296	1244			1464	1012	1060	1425	1222
Flt Permitted	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1309	1307		1296	1244			1464	1012	1060	1425	1222
Peak-hour factor, PHF	0.78	0.78	0.78	0.98	0.98	0.98	0.94	0.94	0.94	0.85	0.85	0.85
Adj. Flow (vph)	318	351	56	68	221	44	0	315	123	66	316	218
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	318	407	0	68	265	0	0	315	123	66	316	218
Confl. Peds. (#/hr)	485		258	258		485	84		76	76		84
Confl. Bikes (#/hr)			60			21			34		41	41
Heavy Vehicles (%)	20%	14%	10%	17%	9%	38%	4%	9%	34%	43%	16%	11%
Turn Type	Prot	NA		Prot	NA			NA	Over	Prot	NA	Over
Protected Phases	5	2		1	6			8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	17.6	28.5		15.1	26.0			23.4	15.1	7.0	35.4	17.6
Effective Green, g (s)	17.6	28.5		15.1	26.0			23.4	15.1	7.0	35.4	17.6
Actuated g/C Ratio	0.18	0.29		0.15	0.27			0.24	0.15	0.07	0.36	0.18
Clearance Time (s)	9.0	5.0		9.0	5.0			5.0	9.0	5.0	5.0	9.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	235	380		199	330			349	155	75	514	219
v/s Ratio Prot	c0.24	c0.31		0.05	0.21			c0.22	0.12	c0.06	0.22	0.18
v/s Ratio Perm												
v/c Ratio	1.35	1.07		0.34	0.80			0.90	0.79	0.88	0.61	1.00
Uniform Delay, d1	40.2	34.8		37.0	33.6			36.2	39.9	45.1	25.7	40.2
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	184.3	66.4		1.0	18.4			25.4	23.7	64.7	2.2	59.2
Delay (s)	224.5	101.1		38.0	52.0			61.6	63.6	109.8	27.9	99.3
Level of Service	F	F		D	D			E	E	F	C	F
Approach Delay (s)		155.2			49.2			62.2			62.9	
Approach LOS		F			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			92.5			HCM 2000 Level of Service				F		
HCM 2000 Volume to Capacity ratio			1.10									
Actuated Cycle Length (s)			98.0			Sum of lost time (s)				24.0		
Intersection Capacity Utilization			75.0%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	541	303	495	208	140
v/c Ratio	1.19	1.01	1.63	0.96	0.38
Control Delay	127.6	67.6	325.6	49.6	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	127.6	67.6	325.6	49.6	6.0
Queue Length 50th (ft)	~374	~129	~410	32	21
Queue Length 95th (ft)	#494	m114	#599	m#161	m26
Internal Link Dist (ft)	408	749	1173	493	
Turn Bay Length (ft)					100
Base Capacity (vph)	456	300	303	216	370
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.19	1.01	1.63	0.96	0.38

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.

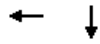
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	261	111	111	90	26	108	242	95	80	105	125
Future Volume (vph)	72	261	111	111	90	26	108	242	95	80	105	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	11	11	12	12	10	12	12	11	11
Total Lost time (s)		4.5			4.5			9.0			9.0	9.0
Lane Util. Factor		1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes		0.85			0.92			0.91			1.00	0.96
Flpb, ped/bikes		0.94			0.90			1.00			0.94	1.00
Frt		0.97			0.98			0.97			1.00	0.85
Flt Protected		0.99			0.98			0.99			0.98	1.00
Satd. Flow (prot)		939			897			1130			1212	1191
Flt Permitted		0.89			0.59			0.85			0.56	1.00
Satd. Flow (perm)		845			542			975			698	1191
Peak-hour factor, PHF	0.82	0.82	0.82	0.75	0.75	0.75	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	88	318	135	148	120	35	120	269	106	90	118	140
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	541	0	0	303	0	0	495	0	0	208	140
Confl. Peds. (#/hr)	734		503	503		734	12		211	211		12
Confl. Bikes (#/hr)			72			25			10			
Heavy Vehicles (%)	36%	16%	40%	25%	30%	33%	9%	6%	10%	19%	30%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	11
Parking (#/hr)		5			5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)		48.5			48.5			28.0			28.0	28.0
Effective Green, g (s)		48.5			48.5			28.0			28.0	28.0
Actuated g/C Ratio		0.54			0.54			0.31			0.31	0.31
Clearance Time (s)		4.5			4.5			9.0			9.0	9.0
Vehicle Extension (s)		2.0			2.0			2.0			2.0	2.0
Lane Grp Cap (vph)		455			292			303			217	370
v/s Ratio Prot												
v/s Ratio Perm		c0.64			0.56			c0.51			0.30	0.12
v/c Ratio		1.19			1.04			1.63			0.96	0.38
Uniform Delay, d1		20.8			20.8			31.0			30.4	24.2
Progression Factor		1.00			1.22			1.00			0.22	0.18
Incremental Delay, d2		105.2			47.6			299.7			32.4	0.1
Delay (s)		125.9			73.0			330.7			39.2	4.5
Level of Service		F			E			F			D	A
Approach Delay (s)		125.9			73.0			330.7			25.3	
Approach LOS		F			E			F			C	
Intersection Summary												
HCM 2000 Control Delay		155.7									F	
HCM 2000 Volume to Capacity ratio		1.53										
Actuated Cycle Length (s)		90.0									22.5	
Intersection Capacity Utilization		83.0%									E	
Analysis Period (min)		15										

c Critical Lane Group

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑		↗
Traffic Volume (veh/h)	456	0	0	1053	0	382
Future Volume (Veh/h)	456	0	0	1053	0	382
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	496	0	0	1145	0	415
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	172					
pX, platoon unblocked			0.95		0.95	0.95
vC, conflicting volume			496		1641	248
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			369		1572	109
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	53
cM capacity (veh/h)			1129		96	880
Direction, Lane #	EB 1	EB 2	WB 1	NE 1		
Volume Total	248	248	1145	415		
Volume Left	0	0	0	0		
Volume Right	0	0	0	415		
cSH	1700	1700	1700	880		
Volume to Capacity	0.15	0.15	0.67	0.47		
Queue Length 95th (ft)	0	0	0	64		
Control Delay (s)	0.0	0.0	0.0	12.7		
Lane LOS				B		
Approach Delay (s)	0.0		0.0	12.7		
Approach LOS				B		
Intersection Summary						
Average Delay			2.6			
Intersection Capacity Utilization			58.8%	ICU Level of Service	B	
Analysis Period (min)			15			

















Lane Group	WBT	SBT
Lane Group Flow (vph)	1667	146
v/c Ratio	0.85	0.87
Control Delay	18.2	85.0
Queue Delay	0.0	0.0
Total Delay	18.2	85.0
Queue Length 50th (ft)	325	90
Queue Length 95th (ft)	#728	#166
Internal Link Dist (ft)	383	1173
Turn Bay Length (ft)		
Base Capacity (vph)	1957	181
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.85	0.81

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												
Traffic Volume (vph)	0	0	0	17	1111	339	0	0	0	0	28	90
Future Volume (vph)	0	0	0	17	1111	339	0	0	0	0	28	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12	12	12	12	12	10	12
Total Lost time (s)					5.0						4.5	
Lane Util. Factor					0.95						1.00	
Frpb, ped/bikes					0.95						0.98	
Flpb, ped/bikes					1.00						1.00	
Frt					0.97						0.90	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					2754						1035	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					2754						1035	
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	19	1262	385	0	0	0	0	35	111
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1667	0	0	0	0	0	146	0
Confl. Peds. (#/hr)						62						5
Confl. Bikes (#/hr)						8						
Heavy Vehicles (%)	2%	2%	2%	0%	1%	1%	2%	2%	2%	0%	0%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	8	0
Parking (#/hr)											5	
Turn Type				Perm	NA						NA	
Protected Phases					6						3	
Permitted Phases				6								
Actuated Green, G (s)					69.6						16.1	
Effective Green, g (s)					69.6						16.1	
Actuated g/C Ratio					0.70						0.16	
Clearance Time (s)					5.0						4.5	
Vehicle Extension (s)					0.2						2.0	
Lane Grp Cap (vph)					1916						166	
v/s Ratio Prot											c0.14	
v/s Ratio Perm					0.61							
v/c Ratio					0.87						0.88	
Uniform Delay, d1					11.7						41.0	
Progression Factor					1.00						1.00	
Incremental Delay, d2					5.7						36.3	
Delay (s)					17.4						77.3	
Level of Service					B						E	
Approach Delay (s)		0.0			17.4			0.0			77.3	
Approach LOS		A			B			A			E	
Intersection Summary												
HCM 2000 Control Delay			22.3		HCM 2000 Level of Service						C	
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)						11.5	
Intersection Capacity Utilization			124.3%		ICU Level of Service						H	
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	SBL
Lane Group Flow (vph)	2241	49
v/c Ratio	1.04	0.19
Control Delay	47.2	21.3
Queue Delay	0.0	4.2
Total Delay	47.2	25.4
Queue Length 50th (ft)	~693	12
Queue Length 95th (ft)	#1066	m18
Internal Link Dist (ft)	1130	51
Turn Bay Length (ft)		
Base Capacity (vph)	2157	284
Starvation Cap Reductn	0	180
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.04	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.



















m Volume for 95th percentile queue is metered by upstream signal.

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	0	1972	0	0	46	0
Future Volume (vph)	0	1972	0	0	46	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12
Total Lost time (s)		5.0			4.5	
Lane Util. Factor		0.95			1.00	
Frpb, ped/bikes		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3032			1624	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3032			1624	
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	2241	0	0	49	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	2241	0	0	49	0
Confl. Peds. (#/hr)					10	
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type		NA			Prot	
Protected Phases		2			3	
Permitted Phases						
Actuated Green, G (s)		69.6			16.1	
Effective Green, g (s)		69.6			16.1	
Actuated g/C Ratio		0.70			0.16	
Clearance Time (s)		5.0			4.5	
Vehicle Extension (s)		0.2			2.0	
Lane Grp Cap (vph)		2110			261	
v/s Ratio Prot		c0.74			c0.03	
v/s Ratio Perm						
v/c Ratio		1.06			0.19	
Uniform Delay, d1		15.2			36.3	
Progression Factor		1.00			0.57	
Incremental Delay, d2		38.5			0.1	
Delay (s)		53.7			20.8	
Level of Service		D			C	
Approach Delay (s)		53.7	0.0		20.8	
Approach LOS		D	A		C	
Intersection Summary						
HCM 2000 Control Delay		53.0		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio		0.87				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		11.5
Intersection Capacity Utilization		129.3%		ICU Level of Service		H
Analysis Period (min)		15				
c Critical Lane Group						

								
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	1098	148	338	459	53	284	397	17
v/c Ratio	0.56	0.38	0.18	1.17	0.34	0.53	1.46	0.04
Control Delay	14.9	38.7	21.4	131.7	18.0	18.9	259.4	27.8
Queue Delay	0.0	0.1	0.0	1.9	2.6	63.9	2.3	0.0
Total Delay	14.9	38.8	21.4	133.6	20.6	82.9	261.6	27.8
Queue Length 50th (ft)	231	85	129	~394	22	118	~385	8
Queue Length 95th (ft)	290	163	m86	m#302	m23	m125	#577	26
Internal Link Dist (ft)	802		240			86	334	
Turn Bay Length (ft)		150						
Base Capacity (vph)	1966	393	1916	393	157	540	271	443
Starvation Cap Reductn	0	0	0	64	46	335	0	0
Spillback Cap Reductn	61	24	0	0	0	0	42	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.40	0.18	1.40	0.48	1.39	1.73	0.04
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1010	136	0	311	422	49	261	0	211	155	16
Future Volume (vph)	0	1010	136	0	311	422	49	261	0	211	155	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	10	10	11	11	12	12	10	10
Total Lost time (s)		4.5	4.5		6.0	4.5	7.0	7.0			7.0	7.0
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (prot)		3303	1478		3303	1478	1711	1801			1690	1478
Flt Permitted		1.00	1.00		1.00	1.00	0.29	1.00			0.52	1.00
Satd. Flow (perm)		3303	1478		3303	1478	525	1801			904	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1098	148	0	338	459	53	284	0	229	168	17
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1098	148	0	338	459	53	284	0	0	397	17
Turn Type		NA	custom		NA	custom	Perm	NA		Perm	NA	Perm
Protected Phases		3 6	3		2 3	3		8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)		65.5	29.3		65.5	29.3	33.0	33.0			33.0	33.0
Effective Green, g (s)		59.5	29.3		65.5	29.3	33.0	33.0			33.0	33.0
Actuated g/C Ratio		0.54	0.27		0.60	0.27	0.30	0.30			0.30	0.30
Clearance Time (s)			4.5			4.5	7.0	7.0			7.0	7.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		1786	393		1966	393	157	540			271	443
v/s Ratio Prot		c0.33	0.10		0.10	c0.31		0.16				
v/s Ratio Perm							0.10				c0.44	0.01
v/c Ratio		0.61	0.38		0.17	1.17	0.34	0.53			1.46	0.04
Uniform Delay, d1		17.4	32.9		10.0	40.4	30.0	32.0			38.5	27.3
Progression Factor		1.00	1.00		1.98	1.62	0.52	0.55			1.00	1.00
Incremental Delay, d2		1.6	2.7		0.0	78.3	1.5	0.9			228.4	0.2
Delay (s)		19.0	35.6		19.9	143.7	17.1	18.6			266.9	27.4
Level of Service		B	D		B	F	B	B			F	C
Approach Delay (s)		20.9			91.2			18.3			257.1	
Approach LOS		C			F			B			F	
Intersection Summary												
HCM 2000 Control Delay			75.7			HCM 2000 Level of Service				E		
HCM 2000 Volume to Capacity ratio			1.09									
Actuated Cycle Length (s)			110.0			Sum of lost time (s)				17.5		
Intersection Capacity Utilization			76.9%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

	→	↘	←	↙	↑	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBT
Lane Group Flow (vph)	1006	354	1246	458	455	16
v/c Ratio	0.70	0.47	0.80	1.43	1.36	0.08
Control Delay	19.6	14.6	22.6	232.2	201.0	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.6	14.6	22.6	232.2	201.0	0.7
Queue Length 50th (ft)	215	114	289	~380	~365	0
Queue Length 95th (ft)	290	186	383	m#415	m#402	0
Internal Link Dist (ft)	1173		802		435	42
Turn Bay Length (ft)				85		
Base Capacity (vph)	1440	750	1570	320	335	203
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	0.70	0.47	0.79	1.43	1.36	0.08
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	958	347	0	1155	4	786	2	43	8	0	6
Future Volume (vph)	26	958	347	0	1155	4	786	2	43	8	0	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	12	11	12	12	12
Total Lost time (s)		5.0	5.0		5.0		6.0	6.0			5.5	
Lane Util. Factor		0.95	1.00		0.95		0.95	0.95			1.00	
Frpb, ped/bikes		1.00	0.98		1.00		1.00	1.00			1.00	
Flpb, ped/bikes		1.00	1.00		1.00		1.00	1.00			1.00	
Frt		1.00	0.85		1.00		1.00	0.98			0.94	
Flt Protected		1.00	1.00		1.00		0.95	0.96			0.97	
Satd. Flow (prot)		3107	1340		2980		1372	1438			1534	
Flt Permitted		0.88	1.00		1.00		0.95	0.96			0.57	
Satd. Flow (perm)		2734	1340		2980		1372	1438			896	
Peak-hour factor, PHF	0.92	0.98	0.98	0.93	0.93	0.92	0.91	0.92	0.91	0.92	0.92	0.92
Adj. Flow (vph)	28	978	354	0	1242	4	864	2	47	9	0	7
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	1006	354	0	1246	0	458	455	0	0	1	0
Confl. Bikes (#/hr)			4									
Heavy Vehicles (%)	2%	3%	3%	15%	9%	2%	5%	2%	19%	2%	2%	2%
Bus Blockages (#/hr)	0	7	7	0	0	0	0	0	0	0	0	0
Turn Type	Perm	NA	custom		NA		Split	NA		Perm	NA	
Protected Phases		2 9			6 9		4	4			3	
Permitted Phases	2 9		2 4							3		
Actuated Green, G (s)		47.0	50.4		47.0		21.0	21.0			5.5	
Effective Green, g (s)		47.0	44.4		47.0		21.0	21.0			5.5	
Actuated g/C Ratio		0.52	0.49		0.52		0.23	0.23			0.06	
Clearance Time (s)							6.0	6.0			5.5	
Vehicle Extension (s)							0.2	0.2			2.0	
Lane Grp Cap (vph)		1427	661		1556		320	335			54	
v/s Ratio Prot					c0.42		c0.33	0.32				
v/s Ratio Perm		0.37	0.26								c0.00	
v/c Ratio		0.70	0.54		0.80		1.43	1.36			0.02	
Uniform Delay, d1		16.3	15.7		17.7		34.5	34.5			39.7	
Progression Factor		1.00	1.00		1.00		1.06	1.06			1.00	
Incremental Delay, d2		1.3	0.4		2.9		201.6	169.3			0.6	
Delay (s)		17.6	16.1		20.5		238.1	205.8			40.3	
Level of Service		B	B		C		F	F			D	
Approach Delay (s)		17.2			20.5			222.0			40.3	
Approach LOS		B			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			71.4		HCM 2000 Level of Service					E		
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					21.5		
Intersection Capacity Utilization			91.7%		ICU Level of Service					F		
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	463	582	496	15	321
v/c Ratio	1.47	1.76	0.83	0.06	0.50
Control Delay	256.4	377.3	25.5	14.8	24.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	256.4	377.3	25.5	14.8	24.2
Queue Length 50th (ft)	~366	~497	294	7	178
Queue Length 95th (ft)	#527	#698	m234	m15	285
Internal Link Dist (ft)	848	218	1999		435
Turn Bay Length (ft)				90	
Base Capacity (vph)	314	331	597	264	648
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.47	1.76	0.83	0.06	0.50

Intersection Summary


















~ Volume exceeds capacity, queue is theoretically infinite.

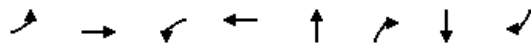
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	288	25	63	322	145	10	461	16	14	227	68
Future Volume (vph)	90	288	25	63	322	145	10	461	16	14	227	68
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	11	12	12	11	12	11	11	12
Total Lost time (s)		8.0			8.0			9.0		9.0	9.0	
Lane Util. Factor		1.00			1.00			1.00		1.00	1.00	
Frbp, ped/bikes		0.98			0.85			0.99		1.00	0.94	
Flpb, ped/bikes		1.00			0.99			1.00		0.91	1.00	
Frt		0.99			0.96			1.00		1.00	0.97	
Flt Protected		0.99			0.99			1.00		0.95	1.00	
Satd. Flow (prot)		1324			1050			1356		1329	1461	
Flt Permitted		0.64			0.86			0.99		0.42	1.00	
Satd. Flow (perm)		857			905			1345		594	1461	
Peak-hour factor, PHF	0.87	0.87	0.87	0.91	0.91	0.91	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	103	331	29	69	354	159	10	470	16	15	247	74
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	463	0	0	582	0	0	496	0	15	321	0
Confl. Peds. (#/hr)	202		79	79		202	75		82	82		75
Confl. Bikes (#/hr)			95			10						1
Heavy Vehicles (%)	16%	7%	0%	0%	10%	12%	7%	5%	0%	8%	2%	7%
Bus Blockages (#/hr)	0	0	0	0	5	0	0	0	0	0	0	0
Parking (#/hr)		5			5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			4			8	
Permitted Phases	2			6			4			8		
Actuated Green, G (s)		33.0			33.0			40.0		40.0	40.0	
Effective Green, g (s)		33.0			33.0			40.0		40.0	40.0	
Actuated g/C Ratio		0.37			0.37			0.44		0.44	0.44	
Clearance Time (s)		8.0			8.0			9.0		9.0	9.0	
Lane Grp Cap (vph)		314			331			597		264	649	
v/s Ratio Prot											0.22	
v/s Ratio Perm		0.54			c0.64			c0.37		0.03		
v/c Ratio		1.47			1.76			0.83		0.06	0.49	
Uniform Delay, d1		28.5			28.5			22.0		14.2	17.8	
Progression Factor		1.00			1.00			1.03		0.98	1.19	
Incremental Delay, d2		230.1			353.4			1.3		0.4	2.4	
Delay (s)		258.6			381.9			23.9		14.3	23.5	
Level of Service		F			F			C		B	C	
Approach Delay (s)		258.6			381.9			23.9			23.1	
Approach LOS		F			F			C			C	
Intersection Summary												
HCM 2000 Control Delay		192.7			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.25										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			17.0				
Intersection Capacity Utilization		92.7%			ICU Level of Service			F				
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	326	181	160	180	501	1003	183	186
v/c Ratio	1.24	0.54	0.51	0.24	2.43	2.00	0.60	0.42
Control Delay	171.7	39.0	18.4	10.4	680.3	480.0	25.0	2.2
Queue Delay	0.7	23.0	0.3	1.9	0.0	0.5	69.4	17.2
Total Delay	172.4	62.0	18.7	12.3	680.3	480.5	94.4	19.3
Queue Length 50th (ft)	~260	100	78	91	~530	~1004	52	5
Queue Length 95th (ft)	#431	164	m107	m114	#729	#719	m26	m1
Internal Link Dist (ft)		307		212	1958		86	
Turn Bay Length (ft)	170					175		
Base Capacity (vph)	262	334	314	761	206	501	307	447
Starvation Cap Reductn	0	0	14	440	0	0	169	242
Spillback Cap Reductn	14	143	0	0	0	28	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.31	0.95	0.53	0.56	2.43	2.12	1.33	0.91

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.

























m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	300	138	19	154	173	0	88	326	602	0	168	171
Future Volume (vph)	300	138	19	154	173	0	88	326	602	0	168	171
Ideal Flow (vphpl)	1900	1900	1900	2200	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	10	12	10	10	12	11	12	11	12	11	11
Total Lost time (s)	10.0	10.0		5.5	9.5			5.0	5.5		5.0	5.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	0.98		1.00	1.00			1.00	1.00		1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Frt	1.00	0.98		1.00	1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99	1.00		1.00	1.00
Satd. Flow (prot)	1486	1287		1611	1478			1643	1153		1621	1378
Flt Permitted	0.64	1.00		0.95	1.00			0.65	1.00		1.00	1.00
Satd. Flow (perm)	1007	1287		1611	1478			1088	1153		1621	1378
Peak-hour factor, PHF	0.92	0.87	0.87	0.96	0.96	0.92	0.60	0.92	0.60	0.92	0.92	0.92
Adj. Flow (vph)	326	159	22	160	180	0	147	354	1003	0	183	186
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	151
Lane Group Flow (vph)	326	181	0	160	180	0	0	501	1003	0	183	35
Confl. Bikes (#/hr)			73									
Heavy Vehicles (%)	2%	6%	7%	9%	8%	2%	4%	2%	18%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	8	0	0	0
Parking (#/hr)		3	3									
Turn Type	Perm	NA		Prot	NA		Perm	NA	pm+ov		NA	Prot
Protected Phases		2		1	6			4	1		8	8
Permitted Phases	2						4		4	8		
Actuated Green, G (s)	26.0	26.0		19.5	51.5			19.0	38.5		19.0	19.0
Effective Green, g (s)	26.0	26.0		19.5	51.5			19.0	38.5		19.0	19.0
Actuated g/C Ratio	0.26	0.26		0.20	0.52			0.19	0.38		0.19	0.19
Clearance Time (s)	10.0	10.0		5.5	9.5			5.0	5.5		5.0	5.0
Vehicle Extension (s)	2.0	2.0		2.0	2.0			2.0	2.0		2.0	2.0
Lane Grp Cap (vph)	261	334		314	761			206	443		307	261
v/s Ratio Prot		0.14		0.10	0.12				c0.44		0.11	0.03
v/s Ratio Perm	c0.32							c0.46	0.43			
v/c Ratio	1.25	0.54		0.51	0.24			2.43	2.26		0.60	0.14
Uniform Delay, d1	37.0	31.9		36.0	13.4			40.5	30.8		37.0	33.7
Progression Factor	1.00	1.00		0.37	0.72			1.00	1.00		0.64	0.82
Incremental Delay, d2	139.8	6.2		0.4	0.0			658.9	576.0		0.2	0.0
Delay (s)	176.8	38.1		13.7	9.6			699.4	606.8		24.0	27.8
Level of Service	F	D		B	A			F	F		C	C
Approach Delay (s)		127.3			11.5			637.6			25.9	
Approach LOS		F			B			F			C	
Intersection Summary												
HCM 2000 Control Delay		381.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.73										
Actuated Cycle Length (s)		100.0			Sum of lost time (s)			29.0				
Intersection Capacity Utilization		87.6%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												

	→	↖	←	↗	↓
Lane Group	EBT	WBL	WBT	NBR	SBT
Lane Group Flow (vph)	939	278	912	833	84
v/c Ratio	0.93	0.56	0.87	0.73	0.22
Control Delay	37.4	29.9	40.1	9.5	21.1
Queue Delay	2.1	0.0	11.2	30.8	0.0
Total Delay	39.6	29.9	51.2	40.3	21.1
Queue Length 50th (ft)	227	154	300	242	11
Queue Length 95th (ft)	m186	251	#434	m50	25
Internal Link Dist (ft)	240		764		257
Turn Bay Length (ft)		375			
Base Capacity (vph)	1025	500	1043	1137	422
Starvation Cap Reductn	31	0	0	343	0
Spillback Cap Reductn	0	0	124	0	1
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.94	0.56	0.99	1.05	0.20
Intersection Summary					
# 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.					
m Volume for 95th percentile queue is metered by upstream signal.					

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		  		  	  				  		  	
Traffic Volume (vph)	0	901	0	300	855	0	0	0	750	8	20	36
Future Volume (vph)	0	901	0	300	855	0	0	0	750	8	20	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	10	10	12	12	12	12	11	11	12
Total Lost time (s)		6.0		8.0	8.0				8.0		11.0	
Lane Util. Factor		0.91		0.91	0.91				1.00		0.95	
Frpb, ped/bikes		1.00		1.00	1.00				0.99		0.97	
Flpb, ped/bikes		1.00		1.00	1.00				1.00		1.00	
Frt		1.00		1.00	1.00				0.86		0.92	
Flt Protected		1.00		0.95	1.00				1.00		0.99	
Satd. Flow (prot)		4272		1289	2686				1355		2727	
Flt Permitted		1.00		0.95	1.00				1.00		0.99	
Satd. Flow (perm)		4272		1289	2686				1355		2727	
Peak-hour factor, PHF	0.96	0.96	0.96	0.97	0.97	0.97	0.90	0.90	0.90	0.76	0.76	0.76
Adj. Flow (vph)	0	939	0	309	881	0	0	0	833	11	26	47
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	41	0
Lane Group Flow (vph)	0	939	0	278	912	0	0	0	833	0	43	0
Confl. Bikes (#/hr)			7			2			33			20
Heavy Vehicles (%)	6%	2%	7%	7%	8%	0%	9%	23%	8%	2%	2%	2%
Turn Type		NA		Split	NA				pm+ov	Perm	NA	
Protected Phases		2		1	1				1		4	
Permitted Phases									2 4			
Actuated Green, G (s)		23.7		38.9	38.9				81.0		12.4	
Effective Green, g (s)		23.7		38.9	38.9				75.0		12.4	
Actuated g/C Ratio		0.24		0.39	0.39				0.75		0.12	
Clearance Time (s)		6.0		8.0	8.0				8.0		11.0	
Vehicle Extension (s)		2.0		2.0	2.0				2.0		2.0	
Lane Grp Cap (vph)		1012		501	1044				1124		338	
v/s Ratio Prot		c0.22		0.22	c0.34				c0.29			
v/s Ratio Perm									0.33		0.02	
v/c Ratio		0.93		0.55	0.87				0.74		0.13	
Uniform Delay, d1		37.3		23.8	28.3				7.0		39.0	
Progression Factor		0.94		1.00	1.00				4.71		1.00	
Incremental Delay, d2		1.7		4.4	10.1				0.2		0.1	
Delay (s)		36.6		28.2	38.4				33.3		39.0	
Level of Service		D		C	D				C		D	
Approach Delay (s)		36.6			36.0			33.3			39.0	
Approach LOS		D			D			C			D	
Intersection Summary												
HCM 2000 Control Delay			35.5		HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				25.0			
Intersection Capacity Utilization			96.8%		ICU Level of Service				F			
Analysis Period (min)			15									
c Critical Lane Group												

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	702	734	303	306	686	374	219	714	335	114	674
v/c Ratio	2.26	1.27	0.22	1.17	0.89	0.82	0.60	0.93	0.58	0.45	1.47
Control Delay	601.3	174.8	0.4	151.9	57.7	44.8	46.6	63.8	12.4	50.9	257.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	601.3	174.8	0.4	151.9	57.7	44.8	46.6	63.8	12.4	50.9	257.1
Queue Length 50th (ft)	~454	~377	0	~284	270	199	158	290	105	87	~392
Queue Length 95th (ft)	#574	#501	0	#464	#380	#389	246	#398	169	153	#519
Internal Link Dist (ft)		764			1549			1920			1578
Turn Bay Length (ft)	200		400	890		150	600			200	
Base Capacity (vph)	311	578	1361	262	768	456	369	772	577	253	460
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	2.26	1.27	0.22	1.17	0.89	0.82	0.59	0.92	0.58	0.45	1.47
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												
Traffic Volume (vph)	681	712	294	297	665	363	215	700	328	121	402	226
Future Volume (vph)	681	712	294	297	665	363	215	700	328	121	402	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	11	10	10	10	10	11	12	11	11	11
Total Lost time (s)	5.0	6.0	6.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor	0.97	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	0.91	0.91	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	0.99	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frft	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	
Satd. Flow (prot)	2874	3020	1361	1417	2861	1319	1430	2991	1275	1450	2632	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.98	1.00	
Satd. Flow (perm)	2874	3020	1361	1417	2861	1319	1430	2991	1275	1450	2632	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.98	0.98	0.98	0.95	0.95	0.95
Adj. Flow (vph)	702	734	303	306	686	374	219	714	335	127	423	238
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	249	0	0	0
Lane Group Flow (vph)	702	734	303	306	686	374	219	714	86	114	674	0
Confl. Bikes (#/hr)			56			8			1			22
Heavy Vehicles (%)	6%	4%	2%	7%	6%	2%	6%	5%	14%	2%	6%	8%
Turn Type	Prot	NA	pt+ov	Prot	NA	custom	Split	NA	Prot	Split	NA	
Protected Phases	5	2	2 8	1 9	6 9	4	8	8	8	4	4	
Permitted Phases			Free			6						
Actuated Green, G (s)	13.0	23.0	120.0	18.3	29.3	39.8	30.7	30.7	30.7	21.0	21.0	
Effective Green, g (s)	13.0	23.0	120.0	18.3	29.3	39.8	30.7	30.7	30.7	21.0	21.0	
Actuated g/C Ratio	0.11	0.19	1.00	0.15	0.24	0.33	0.26	0.26	0.26	0.18	0.18	
Clearance Time (s)	5.0	6.0				6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)	2.0	2.0				2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	311	578	1361	216	698	437	365	765	326	253	460	
v/s Ratio Prot	c0.24	c0.24	0.11	c0.22	0.24	0.15	0.15	c0.24	0.07	0.08	c0.26	
v/s Ratio Perm			0.11			0.13						
v/c Ratio	2.26	1.27	0.22	1.42	0.98	0.86	0.60	0.93	0.26	0.45	1.47	
Uniform Delay, d1	53.5	48.5	0.0	50.9	45.1	37.4	39.3	43.6	35.6	44.3	49.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.02	2.06	1.00	1.00	
Incremental Delay, d2	576.0	134.7	0.0	212.5	29.5	14.6	1.7	17.2	0.1	0.5	221.0	
Delay (s)	629.5	183.2	0.0	263.4	74.6	52.0	40.9	61.9	73.5	44.8	270.5	
Level of Service	F	F	A	F	E	D	D	E	E	D	F	
Approach Delay (s)		331.4			110.7			61.3			237.9	
Approach LOS		F			F			E			F	
Intersection Summary												
HCM 2000 Control Delay			192.4			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.41									
Actuated Cycle Length (s)			120.0			Sum of lost time (s)			32.0			
Intersection Capacity Utilization			98.9%			ICU Level of Service			F			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBT	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	441	774	74	486	13	212
v/c Ratio	1.05	1.41	0.24	0.85	0.09	0.42
Control Delay	84.6	215.6	23.2	43.0	21.2	25.3
Queue Delay	19.2	5.7	0.0	53.9	0.8	0.0
Total Delay	103.7	221.2	23.2	96.9	22.0	25.3
Queue Length 50th (ft)	~275	~625	29	252	5	90
Queue Length 95th (ft)	#429	m#420	64	#428	19	154
Internal Link Dist (ft)	1159	194		707		145
Turn Bay Length (ft)					30	
Base Capacity (vph)	419	548	303	571	152	501
Starvation Cap Reductn	0	243	0	0	0	0
Spillback Cap Reductn	77	0	0	244	65	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.29	2.54	0.24	1.49	0.15	0.42

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.

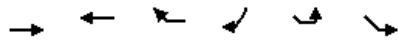
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	257	37	21	595	42	69	419	33	12	126	69
Future Volume (vph)	85	257	37	21	595	42	69	419	33	12	126	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	15	12	12	10	12	10	12	12	11	11	12
Total Lost time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frpb, ped/bikes		0.98			0.99		1.00	0.99		1.00	0.93	
Flpb, ped/bikes		0.99			1.00		0.89	1.00		0.95	1.00	
Frt		0.99			0.99		1.00	0.99		1.00	0.95	
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1448			1196		1296	1607		1442	1411	
Flt Permitted		0.61			0.98		0.63	1.00		0.28	1.00	
Satd. Flow (perm)		889			1169		853	1607		428	1411	
Peak-hour factor, PHF	0.86	0.86	0.86	0.85	0.85	0.85	0.93	0.93	0.93	0.92	0.92	0.92
Adj. Flow (vph)	99	299	43	25	700	49	74	451	35	13	137	75
RTOR Reduction (vph)	0	4	0	0	3	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	437	0	0	771	0	74	486	0	13	212	0
Confl. Peds. (#/hr)	115		118	118		115	106		96	96		106
Confl. Bikes (#/hr)			56			3			20			41
Heavy Vehicles (%)	5%	5%	5%	11%	11%	11%	4%	4%	4%	3%	3%	3%
Parking (#/hr)		10			10							
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Effective Green, g (s)		42.0			42.0		32.0	32.0		32.0	32.0	
Actuated g/C Ratio		0.47			0.47		0.36	0.36		0.36	0.36	
Clearance Time (s)		8.0			8.0		8.0	8.0		8.0	8.0	
Lane Grp Cap (vph)		414			545		303	571		152	501	
v/s Ratio Prot								c0.30			0.15	
v/s Ratio Perm		0.49			c0.66		0.09			0.03		
v/c Ratio		1.05			1.42		0.24	0.85		0.09	0.42	
Uniform Delay, d1		24.0			24.0		20.5	26.8		19.3	22.0	
Progression Factor		1.00			1.39		1.00	1.00		1.00	1.00	
Incremental Delay, d2		59.4			187.9		1.9	14.8		1.1	2.6	
Delay (s)		83.4			221.2		22.4	41.6		20.4	24.6	
Level of Service		F			F		C	D		C	C	
Approach Delay (s)		83.4			221.2			39.0			24.4	
Approach LOS		F			F			D			C	
Intersection Summary												
HCM 2000 Control Delay		117.7								F		
HCM 2000 Volume to Capacity ratio		1.17										
Actuated Cycle Length (s)		90.0								16.0		
Intersection Capacity Utilization		115.8%								H		
Analysis Period (min)		15										
c Critical Lane Group												

								
Lane Group	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	355	8	625	351	127	335	143	25
v/c Ratio	0.79	0.04	1.20	0.59	1.95	1.29	0.50	0.11
Control Delay	37.5	8.1	112.2	9.6	504.8	188.3	39.0	31.0
Queue Delay	55.3	0.0	10.0	0.0	97.1	0.0	0.0	0.0
Total Delay	92.8	8.1	122.2	9.6	601.9	188.3	39.0	31.0
Queue Length 50th (ft)	209	1	~425	37	~113	~245	73	12
Queue Length 95th (ft)	m209	m1	m160	m23	#192	#340	132	34
Internal Link Dist (ft)	194		391			379		257
Turn Bay Length (ft)		100						
Base Capacity (vph)	448	221	520	599	65	260	286	233
Starvation Cap Reductn	143	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	306	0	55	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.16	0.04	2.92	0.59	12.70	1.29	0.50	0.11
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	290	8	7	550	309	100	167	98	132	15	8
Future Volume (vph)	4	290	8	7	550	309	100	167	98	132	15	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	11	12	10	10	10	11	11	12	10	10	12
Total Lost time (s)		8.0		8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Util. Factor		1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frbp, ped/bikes		0.99		1.00	1.00	0.87	1.00	0.88		1.00	0.94	
Flpb, ped/bikes		1.00		0.91	1.00	1.00	0.93	1.00		1.00	1.00	
Frt		1.00		1.00	1.00	0.85	1.00	0.94		1.00	0.95	
Flt Protected		1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1534		1263	1464	1079	1398	1305		1430	1166	
Flt Permitted		0.82		0.47	1.00	1.00	0.22	1.00		0.95	1.00	
Satd. Flow (perm)		1262		624	1464	1079	327	1305		1430	1166	
Peak-hour factor, PHF	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79	0.92	0.92	0.92
Adj. Flow (vph)	5	341	9	8	625	351	127	211	124	143	16	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	355	0	8	625	351	127	335	0	143	25	0
Confl. Peds. (#/hr)	75		123	123		75	54		127			54
Confl. Bikes (#/hr)			85			8						17
Heavy Vehicles (%)	4%	4%	4%	9%	9%	9%	5%	5%	5%	6%	6%	6%
Bus Blockages (#/hr)	0	6	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											5	
Turn Type	Perm	NA		Perm	NA	pm+ov	Perm	NA		Split	NA	
Protected Phases		2			6	4		3		4	4	
Permitted Phases	2			6		6	3					
Actuated Green, G (s)		32.0		32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Effective Green, g (s)		32.0		32.0	32.0	50.0	18.0	18.0		18.0	18.0	
Actuated g/C Ratio		0.36		0.36	0.36	0.56	0.20	0.20		0.20	0.20	
Clearance Time (s)		8.0		8.0	8.0	8.0	6.0	6.0		8.0	8.0	
Lane Grp Cap (vph)		448		221	520	695	65	261		286	233	
v/s Ratio Prot					c0.43	c0.10		0.26		0.10	0.02	
v/s Ratio Perm		0.28		0.01		0.22	c0.39					
v/c Ratio		0.79		0.04	1.20	0.51	1.95	1.28		0.50	0.11	
Uniform Delay, d1		26.0		18.9	29.0	12.4	36.0	36.0		32.0	29.4	
Progression Factor		1.23		0.42	0.50	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.1		0.0	92.7	0.2	480.0	153.5		6.1	0.9	
Delay (s)		35.9		7.9	107.2	12.6	516.0	189.5		38.1	30.4	
Level of Service		D		A	F	B	F	F		D	C	
Approach Delay (s)		35.9			72.7			279.3			37.0	
Approach LOS		D			E			F			D	
Intersection Summary												
HCM 2000 Control Delay		111.5										F
HCM 2000 Volume to Capacity ratio		1.25										
Actuated Cycle Length (s)		90.0								22.0		
Intersection Capacity Utilization		90.3%								E		
Analysis Period (min)		15										
c Critical Lane Group												



Lane Group	EBT	WBT	WBR	SBR	SEL2	SEL
Lane Group Flow (vph)	792	482	160	159	315	405
v/c Ratio	1.24	0.84	0.91	0.85	1.36	2.10
Control Delay	148.0	40.6	91.5	76.6	219.9	535.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	148.0	40.6	91.5	76.6	219.9	535.4
Queue Length 50th (ft)	~599	256	96	93	~249	~386
Queue Length 95th (ft)	#821	#443	#220	#181	#382	#528
Internal Link Dist (ft)	665	186				891
Turn Bay Length (ft)			100		100	100
Base Capacity (vph)	640	573	175	197	232	193
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	1.24	0.84	0.91	0.81	1.36	2.10



















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.

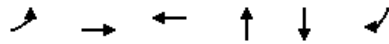
											
Movement	EBL	EBT	WBT	WBR	WBR2	SBL	SBR	SBR2	SEL2	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	713	443	98	49	0	119	16	268	124	220
Future Volume (vph)	0	713	443	98	49	0	119	16	268	124	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	11	10	12	12	11	12	10	11	10
Total Lost time (s)		6.0	6.0	4.0			10.0		10.0	10.0	
Lane Util. Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	0.96	
Flpb, ped/bikes		1.00	1.00	1.00			1.00		1.00	1.00	
Frt		1.00	1.00	0.85			0.86		1.00	0.90	
Flt Protected		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (prot)		1550	1389	1313			1240		1458	1213	
Flt Permitted		1.00	1.00	1.00			1.00		0.95	0.98	
Satd. Flow (perm)		1550	1389	1313			1240		1458	1213	
Peak-hour factor, PHF	0.90	0.90	0.92	0.92	0.92	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	0	792	482	107	53	0	140	19	315	146	259
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	792	482	160	0	0	159	0	315	405	0
Confl. Peds. (#/hr)					166			90			
Confl. Bikes (#/hr)				4	16		1	8			15
Heavy Vehicles (%)	0%	14%	19%	2%	6%	100%	1%	0%	4%	4%	24%
Parking (#/hr)							5	5			
Turn Type		NA	NA	custom			Prot		Prot	Prot	
Protected Phases		2	2 6	5			3		4	4	
Permitted Phases											
Actuated Green, G (s)		38.8	38.8	12.6			14.2		15.0	15.0	
Effective Green, g (s)		38.8	38.8	12.6			14.2		15.0	15.0	
Actuated g/C Ratio		0.41	0.41	0.13			0.15		0.16	0.16	
Clearance Time (s)		6.0		4.0			10.0		10.0	10.0	
Vehicle Extension (s)		2.0		3.0			2.0		2.0	2.0	
Lane Grp Cap (vph)		639	573	175			187		232	193	
v/s Ratio Prot		c0.51	0.35	0.12			c0.13		0.22	c0.33	
v/s Ratio Perm											
v/c Ratio		1.24	0.84	0.91			0.85		1.36	2.10	
Uniform Delay, d1		27.6	24.8	40.2			38.9		39.5	39.5	
Progression Factor		1.00	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2		120.8	13.9	43.9			28.1		186.4	511.5	
Delay (s)		148.4	38.8	84.1			67.0		225.9	551.0	
Level of Service		F	D	F			E		F	F	
Approach Delay (s)		148.4	50.1			67.0				408.8	
Approach LOS		F	D			E				F	
Intersection Summary											
HCM 2000 Control Delay			196.5			HCM 2000 Level of Service			F		
HCM 2000 Volume to Capacity ratio			1.43								
Actuated Cycle Length (s)			94.0			Sum of lost time (s)			30.0		
Intersection Capacity Utilization			94.4%			ICU Level of Service			F		
Analysis Period (min)			15								
c Critical Lane Group											

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑			↑		↑
Traffic Volume (veh/h)	838	0	0	583	0	452
Future Volume (Veh/h)	838	0	0	583	0	452
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	911	0	0	634	0	491
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	266			1297		
pX, platoon unblocked			0.60		0.71	0.60
vC, conflicting volume			911		1545	911
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			520		875	520
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	0
cM capacity (veh/h)			629		227	334
Direction, Lane #	EB 1	WB 1	NB 1			
Volume Total	911	634	491			
Volume Left	0	0	0			
Volume Right	0	0	491			
cSH	1700	1700	334			
Volume to Capacity	0.54	0.37	1.47			
Queue Length 95th (ft)	0	0	663			
Control Delay (s)	0.0	0.0	256.4			
Lane LOS			F			
Approach Delay (s)	0.0	0.0	256.4			
Approach LOS			F			
Intersection Summary						
Average Delay			61.8			
Intersection Capacity Utilization			78.8%	ICU Level of Service	D	
Analysis Period (min)			15			

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (veh/h)	1172	53	26	583	0	0
Future Volume (Veh/h)	1172	53	26	583	0	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1274	58	28	634	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	430			1133		
pX, platoon unblocked			0.61		0.72	0.61
vC, conflicting volume			1332		1993	1303
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1224		1478	1176
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			92		100	100
cM capacity (veh/h)			346		92	142
Direction, Lane #	EB 1	WB 1				
Volume Total	1332	662				
Volume Left	0	28				
Volume Right	58	0				
cSH	1700	346				
Volume to Capacity	0.78	0.08				
Queue Length 95th (ft)	0	7				
Control Delay (s)	0.0	2.7				
Lane LOS		A				
Approach Delay (s)	0.0	2.7				
Approach LOS						
Intersection Summary						
Average Delay		0.9				
Intersection Capacity Utilization		68.2%	ICU Level of Service	C		
Analysis Period (min)		15				

								
Lane Group	EBL	EBT	EBR	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	368	603	217	120	545	391	224	359
v/c Ratio	1.44	1.64	0.78	0.75	0.96	1.10	0.34	0.87
Control Delay	248.6	327.5	52.1	66.3	64.4	83.7	19.2	52.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	248.6	327.5	52.1	66.3	64.4	83.7	19.2	52.6
Queue Length 50th (ft)	~286	~515	117	65	162	~268	117	200
Queue Length 95th (ft)	#457	#717	#242	#143	#266	m214	m116	m#263
Internal Link Dist (ft)		1053			1058	1174		1999
Turn Bay Length (ft)	200		200	240			140	
Base Capacity (vph)	256	367	279	182	570	355	676	411
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.44	1.64	0.78	0.66	0.96	1.10	0.33	0.87
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	350	573	206	112	463	44	118	266	220	30	243	57
Future Volume (vph)	350	573	206	112	463	44	118	266	220	30	243	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	10	10	12	12	11	12	14	12
Total Lost time (s)	9.0	9.0	9.0	9.0	9.0			6.0	9.0		6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.82	1.00	0.97			1.00	1.00		0.97	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00			0.98	1.00		0.99	
Frt	1.00	1.00	0.85	1.00	0.99			1.00	0.85		0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00			0.98	1.00		1.00	
Satd. Flow (prot)	1444	1344	1023	1264	2566			1590	1243		1438	
Flt Permitted	0.95	1.00	1.00	0.95	1.00			0.66	1.00		0.85	
Satd. Flow (perm)	1444	1344	1023	1264	2566			1066	1243		1234	
Peak-hour factor, PHF	0.95	0.95	0.95	0.93	0.93	0.93	0.98	0.98	0.98	0.92	0.92	0.92
Adj. Flow (vph)	368	603	217	120	498	47	120	271	224	33	264	62
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	368	603	217	120	545	0	0	391	224	0	359	0
Confl. Peds. (#/hr)			66			124	93		299	299		93
Confl. Bikes (#/hr)			11			21			7			11
Heavy Vehicles (%)	5%	23%	9%	20%	14%	0%	0%	5%	13%	6%	3%	6%
Parking (#/hr)												4
Turn Type	Prot	NA	Perm	Prot	NA		Perm	NA	pt+ov	Perm	NA	
Protected Phases	5	2		1	6			4	14			8
Permitted Phases			2				4			8		
Actuated Green, G (s)	16.0	24.6	24.6	11.4	20.0			30.0	47.4		30.0	
Effective Green, g (s)	16.0	24.6	24.6	11.4	20.0			30.0	41.4		30.0	
Actuated g/C Ratio	0.18	0.27	0.27	0.13	0.22			0.33	0.46		0.33	
Clearance Time (s)	9.0	9.0	9.0	9.0	9.0			6.0			6.0	
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0			2.0			2.0	
Lane Grp Cap (vph)	256	367	279	160	570			355	571		411	
v/s Ratio Prot	c0.25	c0.45		0.09	0.21				0.18			
v/s Ratio Perm			0.21					c0.37			0.29	
v/c Ratio	1.44	1.64	0.78	0.75	0.96			1.10	0.39		0.87	
Uniform Delay, d1	37.0	32.7	30.2	37.9	34.6			30.0	16.0		28.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00			1.10	1.55		1.32	
Incremental Delay, d2	217.8	301.4	19.0	16.0	28.3			50.1	0.0		14.0	
Delay (s)	254.8	334.1	49.2	53.9	62.9			83.3	24.8		51.1	
Level of Service	F	F	D	D	E			F	C		D	
Approach Delay (s)		257.5			61.2			62.0			51.1	
Approach LOS		F			E			E			D	
Intersection Summary												
HCM 2000 Control Delay			142.6			HCM 2000 Level of Service			F			
HCM 2000 Volume to Capacity ratio			1.46									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			24.0			
Intersection Capacity Utilization			110.7%			ICU Level of Service			H			
Analysis Period (min)			15									
c Critical Lane Group												



Lane Group	EBL	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	383	445	666	37	350	280
v/c Ratio	1.80	0.42	0.47	0.11	0.90	1.39
Control Delay	401.7	21.7	36.7	37.3	71.6	240.2
Queue Delay	0.0	0.1	36.5	0.0	0.0	0.0
Total Delay	401.7	21.8	73.2	37.3	71.6	240.2
Queue Length 50th (ft)	~446	114	254	23	265	~289
Queue Length 95th (ft)	#481	158	295	35	#439	#463
Internal Link Dist (ft)		1058	178	161	1958	
Turn Bay Length (ft)	170					200
Base Capacity (vph)	213	1053	1418	348	389	201
Starvation Cap Reductn	0	0	788	0	0	0
Spillback Cap Reductn	0	79	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.80	0.46	1.06	0.11	0.90	1.39



















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												
Traffic Volume (vph)	345	304	96	35	368	230	2	13	8	5	335	272
Future Volume (vph)	345	304	96	35	368	230	2	13	8	5	335	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	12	12	12	12	12	12	12	12	11
Total Lost time (s)	9.0	9.0			9.0			9.0			9.0	9.0
Lane Util. Factor	1.00	0.95			0.95			1.00	0.95		1.00	1.00
Frpb, ped/bikes	1.00	0.93			0.88			0.96			1.00	0.78
Flpb, ped/bikes	0.88	1.00			1.00			0.99			1.00	1.00
Frt	1.00	0.96			0.95			0.95			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	1049	2180			2522			1543			1673	863
Flt Permitted	0.40	1.00			0.90			0.96			1.00	1.00
Satd. Flow (perm)	440	2180			2278			1492			1669	863
Peak-hour factor, PHF	0.90	0.90	0.90	0.95	0.95	0.95	0.61	0.61	0.61	0.97	0.97	0.97
Adj. Flow (vph)	383	338	107	37	387	242	3	21	13	5	345	280
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	383	445	0	0	666	0	0	37	0	0	350	280
Confl. Peds. (#/hr)	84		60	60		84	127		65	65		127
Confl. Bikes (#/hr)			4			12			3			7
Heavy Vehicles (%)	31%	27%	2%	1%	10%	1%	0%	0%	0%	0%	2%	27%
Parking (#/hr)		5	5									
Turn Type	Perm	NA		pm+pt	NA		Perm	NA		Perm	NA	Perm
Protected Phases		2		1	6			4			8	
Permitted Phases	2			6			4			8		8
Actuated Green, G (s)	58.0	58.0			74.0			28.0			28.0	28.0
Effective Green, g (s)	58.0	58.0			74.0			28.0			28.0	28.0
Actuated g/C Ratio	0.48	0.48			0.62			0.23			0.23	0.23
Clearance Time (s)	9.0	9.0			9.0			9.0			9.0	9.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	212	1053			1419			348			389	201
v/s Ratio Prot		0.20			c0.03							
v/s Ratio Perm	c0.87				0.26			0.02			0.21	c0.32
v/c Ratio	1.81	0.42			0.47			0.11			0.90	1.39
Uniform Delay, d1	31.0	20.1			12.4			36.2			44.6	46.0
Progression Factor	1.00	1.00			2.89			1.00			1.00	1.00
Incremental Delay, d2	381.1	1.2			0.9			0.6			26.3	204.3
Delay (s)	412.1	21.4			36.8			36.8			70.9	250.3
Level of Service	F	C			D			D			E	F
Approach Delay (s)		202.1			36.8			36.8			150.6	
Approach LOS		F			D			D			F	
Intersection Summary												
HCM 2000 Control Delay		133.3			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.61										
Actuated Cycle Length (s)		120.0			Sum of lost time (s)			27.0				
Intersection Capacity Utilization		88.8%			ICU Level of Service			E				
Analysis Period (min)		15										
c Critical Lane Group												







































Lane Group	EBL	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	383	525	744	930	190
v/c Ratio	0.61	0.83	0.35	0.72	0.37
Control Delay	27.2	56.7	24.1	45.1	17.2
Queue Delay	1.0	9.9	0.0	0.0	1.1
Total Delay	28.2	66.7	24.1	45.1	18.3
Queue Length 50th (ft)	137	202	163	382	78
Queue Length 95th (ft)	m176	248	204	m344	m82
Internal Link Dist (ft)	178		1008	1920	
Turn Bay Length (ft)		300			
Base Capacity (vph)	626	812	2148	1323	514
Starvation Cap Reductn	84	0	0	0	0
Spillback Cap Reductn	0	255	0	0	156
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.71	0.94	0.35	0.70	0.53









Intersection Summary










m Volume for 95th percentile queue is metered by upstream signal.

							
Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR
Lane Configurations	 			 	 	 	
Traffic Volume (vph)	322	3	35	459	699	828	169
Future Volume (vph)	322	3	35	459	699	828	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	11	11	12	12
Total Lost time (s)	5.0			5.0	5.0	5.0	5.0
Lane Util. Factor	0.97			0.97	0.91	0.95	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00	1.00
Frt	1.00			1.00	1.00	1.00	0.85
Flt Protected	0.95			0.95	1.00	1.00	1.00
Satd. Flow (prot)	2427			3046	4468	3185	1264
Flt Permitted	0.95			0.95	1.00	1.00	1.00
Satd. Flow (perm)	2427			3046	4468	3185	1264
Peak-hour factor, PHF	0.85	0.85	0.94	0.94	0.94	0.89	0.89
Adj. Flow (vph)	379	4	37	488	744	930	190
RTOR Reduction (vph)	0	0	0	0	0	0	0
Lane Group Flow (vph)	383	0	0	525	744	930	190
Confl. Bikes (#/hr)							4
Heavy Vehicles (%)	26%	0%	0%	0%	1%	2%	15%
Turn Type	Prot		Prot	Prot	NA	NA	custom
Protected Phases	4		1	1	3 6	2 3	2 4
Permitted Phases							
Actuated Green, G (s)	31.0			25.0	56.0	49.0	48.9
Effective Green, g (s)	31.0			25.0	56.0	49.0	48.9
Actuated g/C Ratio	0.26			0.21	0.47	0.41	0.41
Clearance Time (s)	5.0			5.0			
Vehicle Extension (s)	1.0			2.0			
Lane Grp Cap (vph)	626			634	2085	1300	515
v/s Ratio Prot	c0.16			c0.17	0.17	c0.29	0.15
v/s Ratio Perm							
v/c Ratio	0.61			0.83	0.36	0.72	0.37
Uniform Delay, d1	39.2			45.4	20.5	29.7	24.8
Progression Factor	0.58			1.00	1.00	1.42	1.17
Incremental Delay, d2	4.2			8.3	0.0	0.6	0.7
Delay (s)	26.9			53.8	20.5	42.6	29.7
Level of Service	C			D	C	D	C
Approach Delay (s)	26.9				34.3	40.4	
Approach LOS	C				C	D	
Intersection Summary							
HCM 2000 Control Delay			35.7		HCM 2000 Level of Service		D
HCM 2000 Volume to Capacity ratio			0.75				
Actuated Cycle Length (s)			120.0		Sum of lost time (s)		20.0
Intersection Capacity Utilization			63.9%		ICU Level of Service		B
Analysis Period (min)			15				
c Critical Lane Group							

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	160	359	28	293	491	58	85	566	117	64	542	371
v/c Ratio	0.78	0.70	0.30	2.62	1.16	0.62	0.75	1.45	1.19	0.60	1.33	2.03
Control Delay	52.4	32.1	36.3	770.7	125.8	60.8	78.7	245.5	191.2	61.9	192.7	505.3
Queue Delay	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 Delay	52.4	32.1	36.3	770.7	125.8	60.8	78.7	245.5	191.2	61.9	192.7	505.3
Queue Length 50th (ft)	79	164	13	~293	~357	32	48	~448	~81	35	~400	~334
Queue Length 95th (ft)	m110	m211	m18	m#401	m#500	m52	#121	#636	#186	#72	#540	#464
Internal Link Dist (ft)		391			240			769			665	
Turn Bay Length (ft)	100		75	285		200	250		250	200		325
Base Capacity (vph)	206	514	98	112	424	107	119	390	98	122	415	183
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	0.70	0.29	2.62	1.16	0.54	0.71	1.45	1.19	0.52	1.31	2.03
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.												
m Volume for 95th percentile queue is metered by upstream signal.												

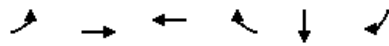
												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	152	341	27	284	476	56	76	504	104	54	455	312
Future Volume (vph)	152	341	27	284	476	56	76	504	104	54	455	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	10	11	10	10	11	10	10	11	10	10	11	10
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr't	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1430	1494	1112	1264	1468	969	1342	1437	1112	1099	1437	1268
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1430	1494	1112	1264	1468	969	1342	1437	1112	1099	1437	1268
Peak-hour factor, PHF	0.95	0.95	0.95	0.97	0.97	0.97	0.89	0.89	0.89	0.84	0.84	0.84
Adj. Flow (vph)	160	359	28	293	491	58	85	566	117	64	542	371
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	160	359	28	293	491	58	85	566	117	64	542	371
Heavy Vehicles (%)	6%	8%	22%	20%	9%	40%	13%	15%	22%	38%	15%	7%
Bus Blockages (#/hr)	0	6	0	0	8	0	0	0	0	0	0	0
Turn Type	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over	Prot	NA	Over
Protected Phases	5	2	3	1	6	7	3	8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	13.0	30.0	6.4	8.0	25.0	7.6	6.4	24.4	8.0	7.6	25.6	13.0
Effective Green, g (s)	13.0	30.0	6.4	8.0	25.0	7.6	6.4	24.4	8.0	7.6	25.6	13.0
Actuated g/C Ratio	0.14	0.33	0.07	0.09	0.28	0.08	0.07	0.27	0.09	0.08	0.28	0.14
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0	2.0	0.2	2.0
Lane Grp Cap (vph)	206	498	79	112	407	81	95	389	98	92	408	183
v/s Ratio Prot	0.11	c0.24	0.03	0.23	c0.33	0.06	c0.06	c0.39	0.11	0.06	0.38	c0.29
v/s Ratio Perm												
v/c Ratio	0.78	0.72	0.35	2.62	1.21	0.72	0.89	1.46	1.19	0.70	1.33	2.03
Uniform Delay, d1	37.1	26.3	39.8	41.0	32.5	40.1	41.5	32.8	41.0	40.1	32.2	38.5
Progression Factor	0.97	0.99	0.82	1.06	0.98	0.89	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.7	4.8	0.5	750.2	112.3	20.2	58.0	218.6	152.1	16.8	163.9	481.0
Delay (s)	44.9	30.8	33.0	793.6	144.2	56.0	99.5	251.4	193.1	56.9	196.1	519.5
Level of Service	D	C	C	F	F	E	F	F	F	E	F	F
Approach Delay (s)		35.0			364.1			225.7			309.8	
Approach LOS		D			F			F			F	
Intersection Summary												
HCM 2000 Control Delay		255.8				HCM 2000 Level of Service		F				
HCM 2000 Volume to Capacity ratio		1.35										
Actuated Cycle Length (s)		90.0				Sum of lost time (s)		20.0				
Intersection Capacity Utilization		88.6%				ICU Level of Service		E				
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	500	816	184	0	0
Future Volume (Veh/h)	0	500	816	184	0	0
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	543	887	200	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		320	334			
pX, platoon unblocked	0.76				0.86	0.76
vC, conflicting volume	1087				1530	987
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	957				1022	826
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	547				224	283
Direction, Lane #	EB 1	WB 1				
Volume Total	543	1087				
Volume Left	0	0				
Volume Right	0	200				
cSH	1700	1700				
Volume to Capacity	0.32	0.64				
Queue Length 95th (ft)	0	0				
Control Delay (s)	0.0	0.0				
Lane LOS						
Approach Delay (s)	0.0	0.0				
Approach LOS						
Intersection Summary						
Average Delay		0.0				
Intersection Capacity Utilization		57.5%		ICU Level of Service	B	
Analysis Period (min)		15				

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	500	520	0	0	480
Future Volume (Veh/h)	0	500	520	0	0	480
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	543	565	0	0	522
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		473	181			
pX, platoon unblocked	0.75				0.85	0.75
vC, conflicting volume	565				1108	565
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	256				533	256
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	11
cM capacity (veh/h)	984				429	588
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	543	565	522			
Volume Left	0	0	0			
Volume Right	0	0	522			
cSH	1700	1700	588			
Volume to Capacity	0.32	0.33	0.89			
Queue Length 95th (ft)	0	0	261			
Control Delay (s)	0.0	0.0	41.4			
Lane LOS			E			
Approach Delay (s)	0.0	0.0	41.4			
Approach LOS			E			
Intersection Summary						
Average Delay			13.2			
Intersection Capacity Utilization			63.8%	ICU Level of Service	B	
Analysis Period (min)			15			

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	494	71	287	443	196	336
v/c Ratio	1.00	0.33	0.76	0.85	0.90	1.26
Control Delay	61.2	22.0	35.4	46.9	44.9	154.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	61.2	22.0	35.4	46.9	44.9	154.7
Queue Length 50th (ft)	207	34	172	218	121	~235
Queue Length 95th (ft)	m#385	m43	m212	m273	m71	m94
Internal Link Dist (ft)	101			897	493	
Turn Bay Length (ft)		150	160			100
Base Capacity (vph)	496	215	378	523	218	267
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	1.00	0.33	0.76	0.85	0.90	1.26
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.						
m Volume for 95th percentile queue is metered by upstream signal.						

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑	↑	↑	↑	↑	↑
Traffic Volume (vph)	425	61	235	363	159	272
Future Volume (vph)	425	61	235	363	159	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	11	10	11	12	11	10
Total Lost time (s)	5.0	8.0	6.0	5.0	8.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1489	1077	1481	1569	1091	1046
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	1489	1077	1481	1569	1091	1046
Peak-hour factor, PHF	0.86	0.86	0.82	0.82	0.81	0.81
Adj. Flow (vph)	494	71	287	443	196	336
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	494	71	287	443	196	336
Heavy Vehicles (%)	11%	26%	6%	9%	44%	8%
Bus Blockages (#/hr)	0	0	0	0	0	16
Parking (#/hr)						2
Turn Type	NA	Over	Prot	NA	Prot	Over
Protected Phases	1	2	3	1	2	3
Permitted Phases						
Actuated Green, G (s)	30.0	18.0	23.0	30.0	18.0	23.0
Effective Green, g (s)	30.0	18.0	23.0	30.0	18.0	23.0
Actuated g/C Ratio	0.33	0.20	0.26	0.33	0.20	0.26
Clearance Time (s)	5.0	8.0	6.0	5.0	8.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	496	215	378	523	218	267
v/s Ratio Prot	c0.33	0.07	0.19	0.28	c0.18	c0.32
v/s Ratio Perm						
v/c Ratio	1.00	0.33	0.76	0.85	0.90	1.26
Uniform Delay, d1	29.9	30.8	30.9	27.9	35.1	33.5
Progression Factor	0.91	0.61	0.74	1.17	1.04	1.20
Incremental Delay, d2	31.5	2.6	11.0	13.0	5.9	119.2
Delay (s)	58.7	21.4	33.9	45.5	42.4	159.2
Level of Service	E	C	C	D	D	F
Approach Delay (s)	54.0			41.0	116.2	
Approach LOS	D			D	F	
Intersection Summary						
HCM 2000 Control Delay			66.9		HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.06			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	19.0
Intersection Capacity Utilization			64.9%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						



Lane Group	EBL	EBT	WBT	WBR	SBT	SBR
Lane Group Flow (vph)	448	576	421	217	791	127
v/c Ratio	1.59	0.65	0.89	0.54	1.79	0.44
Control Delay	300.5	16.5	53.1	32.4	389.4	36.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	300.5	16.5	53.1	32.4	389.4	36.7
Queue Length 50th (ft)	~366	108	226	103	~684	66
Queue Length 95th (ft)	m#355	m103	#377	168	m#888	m97
Internal Link Dist (ft)		897	92		1174	
Turn Bay Length (ft)	340			350		180
Base Capacity (vph)	282	883	472	399	441	286
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	1.59	0.65	0.89	0.54	1.79	0.44

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.










m Volume for 95th percentile queue is metered by upstream signal.






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	435	43	0	366	189	0	0	0	609	103	114
Future Volume (vph)	372	435	43	0	366	189	0	0	0	609	103	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	9	10	12	12	10	10	12	12	12	10	11	11
Total Lost time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Util. Factor	1.00	0.95			1.00	1.00					1.00	1.00
Fr't	1.00	0.99			1.00	0.85					1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (prot)	1271	2842			1520	1330					1473	1289
Flt Permitted	0.95	1.00			1.00	1.00					0.96	1.00
Satd. Flow (perm)	1271	2842			1520	1330					1473	1289
Peak-hour factor, PHF	0.83	0.83	0.83	0.87	0.87	0.87	0.92	0.92	0.92	0.90	0.90	0.90
Adj. Flow (vph)	448	524	52	0	421	217	0	0	0	677	114	127
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	448	576	0	0	421	217	0	0	0	0	791	127
Heavy Vehicles (%)	15%	2%	38%	0%	5%	2%	2%	2%	2%	3%	35%	9%
Turn Type	Prot	NA			NA	Over				Split	NA	Over
Protected Phases	5	2			6	4				4	4	5
Permitted Phases												
Actuated Green, G (s)	20.0	28.0			28.0	27.0					27.0	20.0
Effective Green, g (s)	20.0	28.0			28.0	27.0					27.0	20.0
Actuated g/C Ratio	0.22	0.31			0.31	0.30					0.30	0.22
Clearance Time (s)	7.0	4.0			4.0	4.0					4.0	7.0
Lane Grp Cap (vph)	282	884			472	399					441	286
v/s Ratio Prot	c0.35	0.20			c0.28	0.16					c0.54	0.10
v/s Ratio Perm												
v/c Ratio	1.59	0.65			0.89	0.54					1.79	0.44
Uniform Delay, d1	35.0	26.8			29.6	26.3					31.5	30.2
Progression Factor	1.04	0.55			1.00	1.00					0.99	1.04
Incremental Delay, d2	272.0	1.6			21.8	5.2					365.0	4.3
Delay (s)	308.5	16.3			51.3	31.6					396.1	35.8
Level of Service	F	B			D	C					F	D
Approach Delay (s)		144.1			44.6		0.0				346.2	
Approach LOS		F			D		A				F	
Intersection Summary												
HCM 2000 Control Delay		191.4									F	
HCM 2000 Volume to Capacity ratio		1.40										
Actuated Cycle Length (s)		90.0								15.0		
Intersection Capacity Utilization		97.8%								F		
Analysis Period (min)		15										
c Critical Lane Group												

KSURP
19: Memorial Drive Ramp & Main St/Longfellow Bridge

2024 Future PM
Timing Plan: DEFAULT

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	1375	230	0	439	86	0	0	563	0	0	105
Future Volume (Veh/h)	0	1375	230	0	439	86	0	0	563	0	0	105
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.77	0.77	0.77	0.87	0.87	0.87	0.92	0.92	0.76	0.78	0.78	0.78
Hourly flow rate (vph)	0	1786	299	0	505	99	0	0	741	0	0	135
Pedestrians								150			107	
Lane Width (ft)								16.0			16.0	
Walking Speed (ft/s)								4.0			4.0	
Percent Blockage								17			12	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (ft)		1307										
pX, platoon unblocked				0.98			0.98	0.98	0.98	0.98	0.98	
vC, conflicting volume	711			2235			2726	2796	1192	2246	2847	612
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	711			2216			2719	2791	1147	2227	2843	612
tC, single (s)	4.1			4.1			7.5	6.5	6.9	7.5	6.5	7.0
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	0	0	100	64
cM capacity (veh/h)	791			195			4	13	158	0	13	374
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	1191	894	505	99	741	135						
Volume Left	0	0	0	0	0	0						
Volume Right	0	299	0	99	741	135						
cSH	1700	1700	1700	1700	158	374						
Volume to Capacity	0.70	0.53	0.30	0.06	4.69	0.36						
Queue Length 95th (ft)	0	0	0	0	Err	40						
Control Delay (s)	0.0	0.0	0.0	0.0	Err	20.0						
Lane LOS					F	C						
Approach Delay (s)	0.0		0.0		Err	20.0						
Approach LOS					F	C						
Intersection Summary												
Average Delay			2079.1									
Intersection Capacity Utilization			96.8%		ICU Level of Service				F			
Analysis Period (min)			15									

									
Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	288	444	107	423	389	104	46	481	374
v/c Ratio	1.05	1.20	0.69	1.54	1.01	0.87	0.63	0.93	1.47
Control Delay	110.1	147.0	65.7	289.2	85.4	97.2	81.4	56.8	262.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	110.1	147.0	65.7	289.2	85.4	97.2	81.4	56.8	262.7
Queue Length 50th (ft)	~210	~352	65	~373	~264	64	28	277	~334
Queue Length 95th (ft)	#299	#438	#143	#558	#445	#161	#77	#426	#475
Internal Link Dist (ft)		189		408	669			769	
Turn Bay Length (ft)	225		120			250	200		180
Base Capacity (vph)	273	369	158	275	387	123	75	538	255
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.05	1.20	0.68	1.54	1.01	0.85	0.61	0.89	1.47
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												
Traffic Volume (vph)	225	241	105	105	326	88	0	366	98	39	409	318
Future Volume (vph)	225	241	105	105	326	88	0	366	98	39	409	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	11	11	12	10	11	11	10	10	10	10	11	10
Total Lost time (s)	9.0	5.0		9.0	5.0			5.0	9.0	5.0	5.0	9.0
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	0.82		1.00	0.84			1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.97			1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1309	1140		1296	1173			1464	1012	1060	1425	1222
Flt Permitted	0.95	1.00		0.95	1.00			1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1309	1140		1296	1173			1464	1012	1060	1425	1222
Peak-hour factor, PHF	0.78	0.78	0.78	0.98	0.98	0.98	0.94	0.94	0.94	0.85	0.85	0.85
Adj. Flow (vph)	288	309	135	107	333	90	0	389	104	46	481	374
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	288	444	0	107	423	0	0	389	104	46	481	374
Confl. Peds. (#/hr)	485		258	258		485	84		76	76		84
Confl. Bikes (#/hr)			60			21			34		41	41
Heavy Vehicles (%)	20%	14%	10%	17%	9%	38%	4%	9%	34%	43%	16%	11%
Turn Type	Prot	NA		Prot	NA			NA	Over	Prot	NA	Over
Protected Phases	5	2		1	6			8	1	7	4	5
Permitted Phases												
Actuated Green, G (s)	20.5	30.8		11.7	22.0			25.9	11.7	5.6	36.5	20.5
Effective Green, g (s)	20.5	30.8		11.7	22.0			25.9	11.7	5.6	36.5	20.5
Actuated g/C Ratio	0.21	0.31		0.12	0.22			0.26	0.12	0.06	0.37	0.21
Clearance Time (s)	9.0	5.0		9.0	5.0			5.0	9.0	5.0	5.0	9.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	273	358		154	263			386	120	60	530	255
v/s Ratio Prot	0.22	c0.39		0.08	c0.36			c0.27	0.10	0.04	c0.34	c0.31
v/s Ratio Perm												
v/c Ratio	1.05	1.24		0.69	1.61			1.01	0.87	0.77	0.91	1.47
Uniform Delay, d1	38.8	33.6		41.4	38.0			36.1	42.4	45.6	29.2	38.8
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	69.7	129.7		12.8	290.8			47.8	43.8	43.5	19.2	230.2
Delay (s)	108.4	163.3		54.2	328.8			83.8	86.1	89.0	48.3	269.0
Level of Service	F	F		D	F			F	F	F	D	F
Approach Delay (s)		141.7			273.4			84.3			142.0	
Approach LOS		F			F			F			F	
Intersection Summary												
HCM 2000 Control Delay		157.4			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.39										
Actuated Cycle Length (s)		98.0			Sum of lost time (s)			24.0				
Intersection Capacity Utilization		87.3%			ICU Level of Service			E				
Analysis Period (min)		15										

c Critical Lane Group



Lane Group	EBT	WBT	NBT	SBT	SBR
Lane Group Flow (vph)	459	213	685	229	201
v/c Ratio	2.07	1.47	2.22	0.76	0.51
Control Delay	518.5	242.5	582.1	29.1	16.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	518.5	242.5	582.1	29.1	16.8
Queue Length 50th (ft)	~416	~174	~634	47	41
Queue Length 95th (ft)	#535	m#150	#845	m#107	m85
Internal Link Dist (ft)	408	749	1173	493	
Turn Bay Length (ft)					100
Base Capacity (vph)	222	145	308	302	395
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	2.07	1.47	2.22	0.76	0.51

Intersection Summary


















~ Volume exceeds capacity, queue is theoretically infinite.







Queue shown is maximum after two cycles.

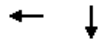
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	251	67	40	93	27	247	305	65	53	150	179
Future Volume (vph)	58	251	67	40	93	27	247	305	65	53	150	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	13	12	11	11	12	12	10	12	12	11	11
Total Lost time (s)		4.5			4.5			9.0			9.0	9.0
Lane Util. Factor		1.00			1.00			1.00			1.00	1.00
Frpb, ped/bikes		0.88			0.87			0.95			1.00	0.95
Flpb, ped/bikes		0.93			0.96			0.99			0.97	1.00
Frt		0.98			0.98			0.99			1.00	0.85
Flt Protected		0.99			0.99			0.98			0.99	1.00
Satd. Flow (prot)		997			903			1180			1251	1186
Flt Permitted		0.89			0.64			0.77			0.72	1.00
Satd. Flow (perm)		890			582			926			908	1186
Peak-hour factor, PHF	0.82	0.82	0.82	0.75	0.75	0.75	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph)	71	306	82	53	124	36	274	339	72	60	169	201
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	459	0	0	213	0	0	685	0	0	229	201
Confl. Peds. (#/hr)	734		503	503		734	12		211	211		12
Confl. Bikes (#/hr)			72			25			10			
Heavy Vehicles (%)	36%	16%	40%	25%	30%	33%	9%	6%	10%	19%	30%	8%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	11
Parking (#/hr)		5			5			5				
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		1			1			3			3	
Permitted Phases	1			1			3			3		3
Actuated Green, G (s)		22.5			22.5			30.0			30.0	30.0
Effective Green, g (s)		22.5			22.5			30.0			30.0	30.0
Actuated g/C Ratio		0.25			0.25			0.33			0.33	0.33
Clearance Time (s)		4.5			4.5			9.0			9.0	9.0
Lane Grp Cap (vph)		222			145			308			302	395
v/s Ratio Prot												
v/s Ratio Perm		c0.52			0.37			c0.74			0.25	0.17
v/c Ratio		2.07			1.47			2.22			0.76	0.51
Uniform Delay, d1		33.8			33.8			30.0			26.8	24.1
Progression Factor		1.00			0.91			1.00			0.48	0.52
Incremental Delay, d2		495.6			214.5			561.2			13.8	3.9
Delay (s)		529.4			245.2			591.2			26.7	16.3
Level of Service		F			F			F			C	B
Approach Delay (s)		529.4			245.2			591.2			21.8	
Approach LOS		F			F			F			C	
Intersection Summary												
HCM 2000 Control Delay		397.1			HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio		1.67										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)			22.5				
Intersection Capacity Utilization		102.2%			ICU Level of Service			G				
Analysis Period (min)		15										
c Critical Lane Group												

						
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑			↑		↗
Traffic Volume (veh/h)	1044	0	0	555	0	379
Future Volume (Veh/h)	1044	0	0	555	0	379
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1135	0	0	603	0	412
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	172					
pX, platoon unblocked			0.85		0.85	0.85
vC, conflicting volume			1135		1738	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			801		1512	132
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	46
cM capacity (veh/h)			694		94	757
Direction, Lane #	EB 1	EB 2	WB 1	NE 1		
Volume Total	568	568	603	412		
Volume Left	0	0	0	0		
Volume Right	0	0	0	412		
cSH	1700	1700	1700	757		
Volume to Capacity	0.33	0.33	0.35	0.54		
Queue Length 95th (ft)	0	0	0	83		
Control Delay (s)	0.0	0.0	0.0	15.3		
Lane LOS				C		
Approach Delay (s)	0.0		0.0	15.3		
Approach LOS				C		
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			59.0%	ICU Level of Service	B	
Analysis Period (min)			15			



Lane Group	WBT	SBT
Lane Group Flow (vph)	1868	359
v/c Ratio	1.38	1.09
Control Delay	202.0	111.9
Queue Delay	0.0	0.0
Total Delay	202.0	111.9
Queue Length 50th (ft)	~912	~260
Queue Length 95th (ft)	#1019	#371
Internal Link Dist (ft)	383	1173
Turn Bay Length (ft)		
Base Capacity (vph)	1352	328
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.38	1.09















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												
Traffic Volume (vph)	0	0	0	24	1376	244	0	0	0	0	76	215
Future Volume (vph)	0	0	0	24	1376	244	0	0	0	0	76	215
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	10	12	12	12	12	12	10	12
Total Lost time (s)					5.0						4.5	
Lane Util. Factor					0.95						1.00	
Frpb, ped/bikes					0.97						0.98	
Flpb, ped/bikes					1.00						1.00	
Frt					0.98						0.90	
Flt Protected					1.00						1.00	
Satd. Flow (prot)					2840						1043	
Flt Permitted					1.00						1.00	
Satd. Flow (perm)					2840						1043	
Peak-hour factor, PHF	0.92	0.92	0.92	0.88	0.88	0.88	0.92	0.92	0.92	0.81	0.81	0.81
Adj. Flow (vph)	0	0	0	27	1564	277	0	0	0	0	94	265
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	1868	0	0	0	0	0	359	0
Confl. Peds. (#/hr)						62						5
Confl. Bikes (#/hr)						8						
Heavy Vehicles (%)	2%	2%	2%	0%	1%	1%	2%	2%	2%	0%	0%	20%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	8	0
Parking (#/hr)											5	
Turn Type				Perm	NA						NA	
Protected Phases					6						3	
Permitted Phases				6								
Actuated Green, G (s)					45.6						31.5	
Effective Green, g (s)					45.6						31.5	
Actuated g/C Ratio					0.46						0.32	
Clearance Time (s)					5.0						4.5	
Vehicle Extension (s)					0.2						2.0	
Lane Grp Cap (vph)					1295						328	
v/s Ratio Prot											c0.34	
v/s Ratio Perm					0.66							
v/c Ratio					1.44						1.09	
Uniform Delay, d1					27.2						34.2	
Progression Factor					1.00						1.00	
Incremental Delay, d2					203.5						77.4	
Delay (s)					230.7						111.7	
Level of Service					F						F	
Approach Delay (s)		0.0			230.7			0.0			111.7	
Approach LOS		A			F			A			F	
Intersection Summary												
HCM 2000 Control Delay			211.6		HCM 2000 Level of Service					F		
HCM 2000 Volume to Capacity ratio			1.17									
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					14.5		
Intersection Capacity Utilization			129.2%		ICU Level of Service					H		
Analysis Period (min)			15									

c Critical Lane Group



Lane Group	EBT	SBL
Lane Group Flow (vph)	1858	107
v/c Ratio	1.29	0.21
Control Delay	161.1	10.1
Queue Delay	0.0	10.3
Total Delay	161.1	20.4
Queue Length 50th (ft)	~878	21
Queue Length 95th (ft)	#984	m18
Internal Link Dist (ft)	1130	51
Turn Bay Length (ft)		
Base Capacity (vph)	1442	511
Starvation Cap Reductn	0	369
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	1.29	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.

m Volume for 95th percentile queue is metered by upstream signal.

						
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		 			 	
Traffic Volume (vph)	0	1635	0	0	101	0
Future Volume (vph)	0	1635	0	0	101	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	10	12	12	12	12
Total Lost time (s)		5.0			4.5	
Lane Util. Factor		0.95			1.00	
Frpb, ped/bikes		1.00			1.00	
Flpb, ped/bikes		1.00			1.00	
Frt		1.00			1.00	
Flt Protected		1.00			0.95	
Satd. Flow (prot)		3032			1624	
Flt Permitted		1.00			0.95	
Satd. Flow (perm)		3032			1624	
Peak-hour factor, PHF	0.88	0.88	0.92	0.92	0.94	0.94
Adj. Flow (vph)	0	1858	0	0	107	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1858	0	0	107	0
Confl. Peds. (#/hr)					10	
Heavy Vehicles (%)	2%	0%	2%	2%	0%	0%
Turn Type		NA			Prot	
Protected Phases		2			3	
Permitted Phases						
Actuated Green, G (s)		45.6			31.5	
Effective Green, g (s)		45.6			31.5	
Actuated g/C Ratio		0.46			0.32	
Clearance Time (s)		5.0			4.5	
Vehicle Extension (s)		0.2			2.0	
Lane Grp Cap (vph)		1382			511	
v/s Ratio Prot		c0.61			c0.07	
v/s Ratio Perm						
v/c Ratio		1.34			0.21	
Uniform Delay, d1		27.2			25.1	
Progression Factor		1.00			0.39	
Incremental Delay, d2		159.9			0.0	
Delay (s)		187.1			9.8	
Level of Service		F			A	
Approach Delay (s)		187.1	0.0		9.8	
Approach LOS		F	A		A	
Intersection Summary						
HCM 2000 Control Delay		177.5		HCM 2000 Level of Service		F
HCM 2000 Volume to Capacity ratio		0.79				
Actuated Cycle Length (s)		100.0		Sum of lost time (s)		14.5
Intersection Capacity Utilization		134.2%		ICU Level of Service		H
Analysis Period (min)		15				
c Critical Lane Group						

	→	↘	←	↖	↗	↑	↓	↙
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	520	46	715	253	240	222	768	39
v/c Ratio	0.27	0.09	0.38	0.49	3.38	0.41	2.33	0.09
Control Delay	10.7	24.6	15.1	37.8	1088.4	15.0	627.8	26.0
Queue Delay	0.0	0.0	42.8	0.0	0.0	68.8	0.8	0.0
Total Delay	10.7	24.6	57.9	37.8	1088.4	83.8	628.6	26.0
Queue Length 50th (ft)	80	19	241	169	~267	74	~804	18
Queue Length 95th (ft)	109	49	m292	m200	m#141	m44	#1031	43
Internal Link Dist (ft)	802		240			86	334	
Turn Bay Length (ft)		150						
Base Capacity (vph)	1932	514	1882	514	71	540	330	443
Starvation Cap Reductn	0	0	1217	0	0	383	0	0
Spillback Cap Reductn	276	0	0	0	0	0	22	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.31	0.09	1.08	0.49	3.38	1.41	2.49	0.09
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.								
m Volume for 95th percentile queue is metered by upstream signal.								

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	478	42	0	658	233	221	204	0	412	294	36
Future Volume (vph)	0	478	42	0	658	233	221	204	0	412	294	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	10	10	12	10	10	11	11	12	12	10	10
Total Lost time (s)		4.5	4.5		6.0	4.5	7.0	7.0			7.0	7.0
Lane Util. Factor		0.95	1.00		0.95	1.00	1.00	1.00			1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00			1.00	0.85
Flt Protected		1.00	1.00		1.00	1.00	0.95	1.00			0.97	1.00
Satd. Flow (prot)		3303	1478		3303	1478	1711	1801			1689	1478
Flt Permitted		1.00	1.00		1.00	1.00	0.13	1.00			0.63	1.00
Satd. Flow (perm)		3303	1478		3303	1478	240	1801			1100	1478
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	520	46	0	715	253	240	222	0	448	320	39
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	520	46	0	715	253	240	222	0	0	768	39
Turn Type		NA	custom		NA	custom	Perm	NA		Perm	NA	Perm
Protected Phases		3 6	3		2 3	3		8			4	
Permitted Phases							8			4		4
Actuated Green, G (s)		58.5	34.8		58.5	34.8	30.0	30.0			30.0	30.0
Effective Green, g (s)		52.5	34.8		58.5	34.8	30.0	30.0			30.0	30.0
Actuated g/C Ratio		0.52	0.35		0.58	0.35	0.30	0.30			0.30	0.30
Clearance Time (s)			4.5			4.5	7.0	7.0			7.0	7.0
Vehicle Extension (s)			2.0			2.0	2.0	2.0			2.0	2.0
Lane Grp Cap (vph)		1734	514		1932	514	72	540			330	443
v/s Ratio Prot		0.16	0.03		c0.22	c0.17		0.12				
v/s Ratio Perm							c1.00				0.70	0.03
v/c Ratio		0.30	0.09		0.37	0.49	3.33	0.41			2.33	0.09
Uniform Delay, d1		13.4	21.9		11.0	25.6	35.0	27.9			35.0	25.2
Progression Factor		1.00	1.00		1.24	1.30	0.51	0.52			1.00	1.00
Incremental Delay, d2		0.4	0.3		0.3	1.9	1053.2	0.2			606.7	0.4
Delay (s)		13.8	22.3		13.9	35.3	1071.0	14.7			641.7	25.6
Level of Service		B	C		B	D	F	B			F	C
Approach Delay (s)		14.5			19.5			563.5			611.9	
Approach LOS		B			B			F			F	
Intersection Summary												
HCM 2000 Control Delay		278.7								F		
HCM 2000 Volume to Capacity ratio		1.51										
Actuated Cycle Length (s)		100.0								17.5		
Intersection Capacity Utilization		85.4%								E		
Analysis Period (min)		15										
c Critical Lane Group												

SimTraffic Results

2024 Future Condition

2024 Future Conditions

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	7:30	7:30	7:30	7:30	7:30	7:30
End Time	8:45	8:45	8:45	8:45	8:45	8:45
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	13642	13842	13848	13123	13432	13574
Vehs Exited	13459	13477	13465	12545	13041	13194
Starting Vehs	1275	1125	1233	1214	1176	1201
Ending Vehs	1458	1490	1616	1792	1567	1576
Travel Distance (mi)	8115	8223	8232	7686	7808	8013
Travel Time (hr)	3429.9	3125.6	3343.1	3202.9	3181.2	3256.5
Total Delay (hr)	3132.5	2824.1	3041.7	2922.2	2894.5	2963.0
Total Stops	31459	31111	32623	28596	30019	30764
Fuel Used (gal)	991.8	924.6	970.5	923.1	926.5	947.3

Interval #0 Information Seeding

Start Time	7:30
End Time	7:45
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	7:45
End Time	8:45
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	13642	13842	13848	13123	13432	13574
Vehs Exited	13459	13477	13465	12545	13041	13194
Starting Vehs	1275	1125	1233	1214	1176	1201
Ending Vehs	1458	1490	1616	1792	1567	1576
Travel Distance (mi)	8115	8223	8232	7686	7808	8013
Travel Time (hr)	3429.9	3125.6	3343.1	3202.9	3181.2	3256.5
Total Delay (hr)	3132.5	2824.1	3041.7	2922.2	2894.5	2963.0
Total Stops	31459	31111	32623	28596	30019	30764
Fuel Used (gal)	991.8	924.6	970.5	923.1	926.5	947.3

1: Third St & O'Brien Highway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.3	106.9	49.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	156.5
Denied Del/Veh (s)	293.0	249.9	247.3	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.1	206.1
Total Delay (hr)	0.2	66.6	15.5	0.9	0.0	1.5	0.2	1.1	0.1	0.0	0.1	86.4
Total Del/Veh (s)	193.4	196.1	97.5	11.4	7.0	58.1	26.6	100.6	99.8	39.0	18.2	136.7
Stop Delay (hr)	0.2	61.2	12.3	0.6	0.0	1.4	0.2	1.1	0.1	0.0	0.1	77.3
Stop Del/Veh (s)	177.2	180.1	77.5	7.8	5.0	53.6	25.1	97.8	99.0	36.9	18.2	122.3

2: Third St & Cambridge St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	6.5	59.2	9.1	1.4	11.8	1.8	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	474.7	477.5	488.0	119.0	198.3	173.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	2.8	25.5	3.8	3.0	14.7	3.0	0.4	1.9	0.6	1.0	5.5	1.0
Total Del/Veh (s)	264.1	275.3	281.5	259.2	262.6	295.6	61.1	63.5	87.5	59.2	46.8	51.9
Stop Delay (hr)	2.7	25.1	3.8	3.0	14.3	3.0	0.3	1.8	0.5	0.9	4.6	0.9
Stop Del/Veh (s)	260.4	270.5	279.7	254.6	256.3	291.7	56.5	58.1	84.0	52.6	39.1	46.3

2: Third St & Cambridge St Performance by movement

Movement	All
Denied Delay (hr)	89.8
Denied Del/Veh (s)	207.9
Total Delay (hr)	63.2
Total Del/Veh (s)	161.9
Stop Delay (hr)	60.9
Stop Del/Veh (s)	156.1

3: First St/North First St & Cambridge St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Denied Del/Veh (s)	0.0	0.0	0.0	0.9	1.8	0.0	0.0	0.0	0.0	0.0	0.4
Total Delay (hr)	7.4	5.3	1.4	1.0	1.6	3.6	20.5	9.0	0.9	1.8	52.5
Total Del/Veh (s)	232.2	83.2	106.2	15.8	34.9	559.1	292.9	377.3	38.9	72.7	143.1
Stop Delay (hr)	7.1	4.7	1.3	0.9	1.5	3.5	20.2	8.8	0.9	1.8	50.8
Stop Del/Veh (s)	225.3	73.5	97.5	14.0	33.1	553.4	288.3	370.1	36.9	72.2	138.3

4: Cambridge St/East Street & O'Brien Highway Performance by movement

Movement	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	1.6	1.7	0.0	0.0	0.0	0.0	0.0	3.3
Denied Del/Veh (s)	0.0	15.6	14.7	0.0	0.0	0.1	0.1	0.1	6.3
Total Delay (hr)	6.2	17.4	15.5	0.0	1.1	0.2	0.4	0.1	40.9
Total Del/Veh (s)	26.7	160.7	127.8	3.1	18.0	62.1	65.7	23.9	75.7
Stop Delay (hr)	5.3	16.6	14.2	0.0	1.0	0.2	0.4	0.1	37.8
Stop Del/Veh (s)	22.7	153.1	117.6	1.2	16.3	60.0	62.3	23.2	69.9

5: Land Blvd/Charlestown Ave & O'Brien Highway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	147.8	194.1	82.0	0.0	0.0	0.0	52.3	220.0	78.7
Denied Del/Veh (s)	0.0	0.2	0.0	907.7	886.9	899.6	0.0	0.0	0.0	780.9	795.2	789.3
Total Delay (hr)	3.7	26.7	3.3	60.6	22.8	7.0	6.4	6.1	29.2	14.6	68.3	29.6
Total Del/Veh (s)	73.1	158.3	35.0	623.0	196.0	146.0	131.5	46.6	451.3	340.8	386.0	474.3
Stop Delay (hr)	3.4	24.4	2.2	60.2	19.1	5.6	6.2	5.4	29.1	13.9	66.0	29.5
Stop Del/Veh (s)	67.9	144.8	23.4	619.5	164.2	116.3	126.2	40.8	450.3	325.2	373.2	471.8

5: Land Blvd/Charlestown Ave & O'Brien Highway Performance by movement

Movement	All
Denied Delay (hr)	774.9
Denied Del/Veh (s)	534.4
Total Delay (hr)	278.3
Total Del/Veh (s)	252.6
Stop Delay (hr)	265.1
Stop Del/Veh (s)	240.6

6: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	20.9	73.7	9.2	0.0	0.0	0.0	0.0	0.3	0.0	0.5	2.0	0.4
Denied Del/Veh (s)	633.2	604.0	621.8	0.0	0.3	0.0	1.7	3.8	3.7	44.9	27.1	31.5
Total Delay (hr)	8.6	33.3	4.0	0.1	1.6	0.1	0.5	2.9	0.5	0.9	1.9	0.3
Total Del/Veh (s)	373.1	387.4	380.0	37.1	28.3	23.3	49.4	38.5	39.9	77.5	27.8	24.0
Stop Delay (hr)	8.8	34.0	4.1	0.1	1.3	0.1	0.5	2.5	0.4	0.8	1.7	0.2
Stop Del/Veh (s)	382.9	396.2	391.0	33.4	23.1	20.7	45.3	33.2	36.8	74.5	23.9	22.5

6: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	106.9
Denied Del/Veh (s)	254.0
Total Delay (hr)	54.5
Total Del/Veh (s)	147.7
Stop Delay (hr)	54.5
Stop Del/Veh (s)	147.7

7: Technology Square/Hampshire Street & Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	3.6	0.5	14.7
Denied Del/Veh (s)	0.2	0.2	0.1	0.0	0.0	0.1	0.2	0.1	165.8	204.5	153.9	48.4
Total Delay (hr)	3.5	0.8	1.3	0.9	0.2	0.1	0.5	0.4	6.2	1.6	0.3	15.9
Total Del/Veh (s)	43.7	39.0	74.8	16.2	6.3	30.6	68.3	110.7	108.1	100.8	94.5	53.0
Stop Delay (hr)	3.1	0.8	1.3	0.7	0.2	0.1	0.4	0.4	6.0	1.5	0.3	14.6
Stop Del/Veh (s)	37.9	36.0	71.5	12.0	5.1	28.8	64.9	109.9	103.2	94.6	90.8	48.7

8: Galileo Galilei Way & Binney St & Fulkerson St Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.1	1.3	0.1	0.1	0.6	0.1	0.5	0.3	0.1	3.2
Denied Del/Veh (s)	0.3	12.2	2.5	21.1	12.4	8.3	17.5	9.6	10.8	7.2
Total Delay (hr)	6.9	2.1	2.0	0.4	4.4	1.2	2.5	3.3	1.4	24.1
Total Del/Veh (s)	39.9	20.2	60.1	60.7	96.7	96.5	87.1	111.5	116.3	54.5
Stop Delay (hr)	4.9	1.7	1.9	0.4	4.2	1.2	2.4	3.1	1.3	21.1
Stop Del/Veh (s)	28.7	16.3	56.9	57.6	93.2	93.4	82.0	106.2	112.4	47.7

9: North Garage West Driveway & Binney St Performance by movement

Movement	EBT	WBT	NBT	NBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.1
Total Delay (hr)	0.7	0.9	0.0	0.3	1.8
Total Del/Veh (s)	3.1	7.1	0.2	14.7	4.7
Stop Delay (hr)	0.0	0.6	0.0	0.3	0.9
Stop Del/Veh (s)	0.2	5.0	0.0	14.3	2.4

10: North Garage East Driveway & Binney St Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.1	0.7	0.8
Denied Del/Veh (s)	0.0	0.0	3.2	5.2	2.2
Total Delay (hr)	0.4	0.1	2.7	6.8	10.1
Total Del/Veh (s)	2.9	1.4	63.4	50.4	25.7
Stop Delay (hr)	0.0	0.0	2.4	5.7	8.1
Stop Del/Veh (s)	0.2	0.2	55.2	42.1	20.8

11: Third St & Binney St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.2
Denied Del/Veh (s)	0.2	0.4	1.0	2.3	0.3	0.0	0.0	0.0	0.0	1.4	2.8	6.6
Total Delay (hr)	1.3	4.2	0.8	14.9	18.7	0.9	6.0	7.8	7.5	1.2	16.9	5.6
Total Del/Veh (s)	53.5	38.1	41.3	277.2	140.5	194.9	406.5	213.9	242.1	190.9	165.1	179.6
Stop Delay (hr)	1.1	3.4	0.7	14.7	18.2	0.9	5.9	7.6	7.3	1.1	15.7	5.3
Stop Del/Veh (s)	47.0	31.5	35.9	272.5	136.3	195.0	401.1	209.6	235.1	178.3	152.8	168.8

11: Third St & Binney St Performance by movement

Movement	All
Denied Delay (hr)	0.7
Denied Del/Veh (s)	1.3
Total Delay (hr)	85.8
Total Del/Veh (s)	151.8
Stop Delay (hr)	81.9
Stop Del/Veh (s)	144.9

12: First St & Binney St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0
Denied Del/Veh (s)	0.9	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.4	52.6
Total Delay (hr)	4.8	1.1	0.3	1.2	2.1	1.0	0.1	0.1	0.0	0.8	11.2	19.5
Total Del/Veh (s)	111.4	18.8	19.3	14.2	14.2	17.6	50.4	58.4	71.9	360.8	180.7	471.6
Stop Delay (hr)	4.6	0.9	0.2	1.0	1.6	0.9	0.1	0.1	0.0	0.8	11.0	19.3
Stop Del/Veh (s)	106.1	14.9	17.0	11.7	10.9	16.0	48.8	55.6	71.6	353.3	176.4	466.3

12: First St & Binney St Performance by movement

Movement	All
Denied Delay (hr)	2.1
Denied Del/Veh (s)	4.2
Total Delay (hr)	42.2
Total Del/Veh (s)	82.9
Stop Delay (hr)	40.4
Stop Del/Veh (s)	79.4

13: Land Blvd & Binney St Performance by movement

Movement	EBL	EBT	NBU	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	1.7	25.0	22.2	0.0	0.0	48.9
Denied Del/Veh (s)	0.1	0.0	108.7	112.6	108.7	0.0	0.0	59.4
Total Delay (hr)	2.2	0.0	2.5	33.7	5.0	4.3	2.3	50.0
Total Del/Veh (s)	46.4	2.1	167.6	161.6	26.8	17.0	25.4	62.3
Stop Delay (hr)	2.1	0.0	2.1	28.9	2.9	2.9	1.6	40.6
Stop Del/Veh (s)	43.9	0.1	144.5	138.5	15.5	11.5	18.0	50.5

14: Galileo Galilei Way & Broadway /Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.3	0.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Denied Del/Veh (s)	5.0	6.0	20.0	0.1	0.2	0.0	0.0	0.0	0.0	0.2	1.2	0.7
Total Delay (hr)	4.4	3.5	0.7	0.6	0.9	0.3	0.7	6.7	3.4	1.6	3.6	4.9
Total Del/Veh (s)	81.3	44.7	54.6	41.4	17.6	38.7	64.0	57.3	114.4	154.8	43.3	97.2
Stop Delay (hr)	4.0	2.9	0.6	0.6	0.8	0.3	0.6	5.4	3.2	1.5	3.0	4.6
Stop Del/Veh (s)	74.0	37.2	49.6	39.2	14.3	38.9	55.9	46.7	106.3	149.2	35.7	91.7

14: Galileo Galilei Way & Broadway /Broadway Performance by movement

Movement	All
Denied Delay (hr)	1.1
Denied Del/Veh (s)	2.2
Total Delay (hr)	31.3
Total Del/Veh (s)	60.0
Stop Delay (hr)	27.6
Stop Del/Veh (s)	52.8

15: Broadway & North Garage West Driveway Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	0.5	0.0	0.0	0.5
Denied Del/Veh (s)	4.1	0.0	0.0	2.2
Total Delay (hr)	2.1	0.1	0.0	2.2
Total Del/Veh (s)	16.4	1.4	0.6	9.3
Stop Delay (hr)	1.8	0.0	0.0	1.8
Stop Del/Veh (s)	14.3	0.1	0.1	7.8

16: Broadway & North Garage East Driveway Performance by movement

Movement	EBT	WBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.1	0.0	0.0	0.0
Total Delay (hr)	1.6	0.2	0.0	0.2	2.0
Total Del/Veh (s)	14.1	1.9	0.4	4.8	6.1
Stop Delay (hr)	1.3	0.0	0.0	0.1	1.5
Stop Del/Veh (s)	11.7	0.2	0.1	3.9	4.6

17: Ames St & Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	1.1	0.5	0.0	0.0	0.0	0.0	0.0	1.6
Denied Del/Veh (s)	10.2	21.8	0.1	0.0	0.1	0.0	0.0	5.1
Total Delay (hr)	3.2	0.6	1.4	1.8	1.0	0.0	3.0	11.0
Total Del/Veh (s)	30.1	27.2	35.8	25.7	46.3	4.6	60.4	34.6
Stop Delay (hr)	2.8	0.6	1.2	1.4	0.9	0.0	2.8	9.6
Stop Del/Veh (s)	26.4	25.7	30.4	20.0	41.9	2.4	55.9	30.3

18: Main St/Third St & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.3
Denied Del/Veh (s)	0.0	0.0	0.0	3.5	0.5	0.0	0.0	0.1	0.7
Total Delay (hr)	5.4	2.7	0.2	2.0	1.2	1.7	1.3	1.0	15.4
Total Del/Veh (s)	113.0	30.0	30.4	26.6	35.4	34.1	17.9	28.9	37.7
Stop Delay (hr)	5.1	2.3	0.2	1.7	1.2	1.3	1.0	0.7	13.4
Stop Del/Veh (s)	106.6	25.2	26.1	23.0	33.7	26.7	13.2	22.7	32.8

19: Memorial Drive Ramp & Main St/Longfellow Bridge Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Delay (hr)	0.0	0.0	282.4	49.2	2.4	151.7	485.7
Denied Del/Veh (s)	0.0	0.0	1043.7	1054.5	33.2	2053.4	739.0
Total Delay (hr)	0.2	0.1	51.4	7.6	7.5	12.4	79.2
Total Del/Veh (s)	1.5	2.3	398.5	356.7	107.6	3720.0	188.7
Stop Delay (hr)	0.0	0.0	54.3	8.1	7.7	12.4	82.6
Stop Del/Veh (s)	0.2	0.4	421.5	378.5	110.8	3720.0	196.8

20: Vassar St/Galileo Galilei Way & Main St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	2.3	2.6	0.4	0.0	0.0	0.0	0.8	0.4	0.0	0.0	0.0	6.5
Denied Del/Veh (s)	32.9	33.2	32.2	0.0	0.0	0.0	10.5	12.5	0.1	0.0	0.0	14.6
Total Delay (hr)	4.1	2.7	0.4	0.5	1.6	0.3	5.1	1.6	1.1	1.6	1.7	20.8
Total Del/Veh (s)	59.4	35.0	34.3	42.5	36.2	37.7	64.0	49.3	80.9	28.0	42.8	46.6
Stop Delay (hr)	3.9	2.3	0.4	0.5	1.4	0.3	4.6	1.5	1.0	1.2	1.5	18.5
Stop Del/Veh (s)	55.8	30.6	32.6	37.9	31.4	35.1	56.7	46.6	74.2	20.7	36.3	41.4

21: Ames St & Main St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0	0.0	10.0	22.2	9.8	0.0	0.0	0.0
Denied Del/Veh (s)	0.8	0.1	0.9	0.1	0.1	0.1	348.0	326.0	371.6	0.4	0.6	0.2
Total Delay (hr)	0.6	2.0	0.9	0.8	0.6	0.2	7.3	17.7	6.8	0.7	0.9	0.7
Total Del/Veh (s)	30.8	27.0	29.0	32.6	20.6	31.7	300.9	305.4	298.4	59.3	28.3	34.5
Stop Delay (hr)	0.5	1.4	0.7	0.7	0.5	0.2	7.3	17.8	6.9	0.7	0.8	0.6
Stop Del/Veh (s)	24.5	19.1	23.9	28.7	16.9	29.0	303.6	306.3	301.7	55.8	25.3	31.3

21: Ames St & Main St Performance by movement

Movement	All
Denied Delay (hr)	42.0
Denied Del/Veh (s)	113.3
Total Delay (hr)	39.3
Total Del/Veh (s)	110.5
Stop Delay (hr)	38.1
Stop Del/Veh (s)	107.4

22: Main St & Broadway Performance by movement

Movement	EBT	WBT	NER	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Delay (hr)	0.1	44.6	0.6	45.3
Total Del/Veh (s)	1.3	348.8	6.6	143.9
Stop Delay (hr)	0.0	44.3	0.5	44.8
Stop Del/Veh (s)	0.2	346.5	5.3	142.3

23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB Performance by movement

Movement	WBL	WBT	WBR	SBT	SBR	All
Denied Delay (hr)	0.0	3.9	1.4	0.0	0.0	5.3
Denied Del/Veh (s)	9.9	12.9	14.5	0.0	0.0	11.2
Total Delay (hr)	0.0	3.5	2.2	0.3	0.8	6.9
Total Del/Veh (s)	8.5	11.7	23.3	5.8	44.8	14.6
Stop Delay (hr)	0.0	2.0	1.8	0.2	0.8	4.9
Stop Del/Veh (s)	4.3	6.8	19.3	4.3	42.8	10.3

24: Memorial Dr EB & Memorial Drive U-Turn WB to EB Performance by movement

Movement	EBT	SBL	All
Denied Delay (hr)	0.4	0.0	0.4
Denied Del/Veh (s)	0.7	0.1	0.7
Total Delay (hr)	8.8	0.2	9.0
Total Del/Veh (s)	16.0	24.1	16.1
Stop Delay (hr)	4.4	0.2	4.7
Stop Del/Veh (s)	8.1	23.0	8.3

25: North First St & O'Brien Highway Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.2	0.0	0.0	46.6	35.9	4.0	86.6
Denied Del/Veh (s)	0.0	0.0	0.4	2.3	0.0	0.0	791.0	833.0	843.7	139.3
Total Delay (hr)	25.7	7.9	0.9	4.6	0.3	1.3	9.4	7.2	0.1	57.6
Total Del/Veh (s)	85.2	265.7	15.1	64.2	28.3	28.4	300.8	317.9	58.3	99.8
Stop Delay (hr)	21.4	7.5	0.7	4.4	0.3	1.2	9.4	7.2	0.1	52.1
Stop Del/Veh (s)	70.9	253.1	10.8	60.8	27.2	26.5	298.4	314.3	57.1	90.4

65: Main St Performance by movement

Movement	EBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Delay (hr)	0.2	0.0	0.0	0.3
Total Del/Veh (s)	2.0	2.3	0.9	1.7
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.2	0.4	0.1	0.2

Total Zone Performance

Denied Delay (hr)	1832.0
Denied Del/Veh (s)	375.2
Total Delay (hr)	1126.1
Total Del/Veh (s)	833.8
Stop Delay (hr)	1053.6
Stop Del/Veh (s)	780.1

Intersection: 1: Third St & O'Brien Highway

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	T	R	T	TR	L	LTR	LTR
Maximum Queue (ft)	1262	1271	1264	125	127	109	336	57
Average Queue (ft)	996	1019	999	45	35	38	121	20
95th Queue (ft)	1647	1648	1647	100	94	110	303	49
Link Distance (ft)	1220	1220	1220	788	788		430	82
Upstream Blk Time (%)	32	60	51				5	0
Queuing Penalty (veh)	0	0	0				14	0
Storage Bay Dist (ft)						85		
Storage Blk Time (%)						0	21	
Queuing Penalty (veh)						0	17	

Intersection: 2: Third St & Cambridge St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	950	740	410	114	452
Average Queue (ft)	911	613	110	52	343
95th Queue (ft)	1002	893	368	129	573
Link Distance (ft)	892	724	1992		430
Upstream Blk Time (%)	94	24			10
Queuing Penalty (veh)	0	108			69
Storage Bay Dist (ft)				90	
Storage Blk Time (%)				4	43
Queuing Penalty (veh)				25	32

Intersection: 3: First St/North First St & Cambridge St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	195	697	158	161	1761	200	96	116
Average Queue (ft)	164	370	90	85	913	104	49	75
95th Queue (ft)	251	749	193	192	1864	264	104	124
Link Distance (ft)		724	148	148	1965		69	69
Upstream Blk Time (%)		4	7	17	7		15	42
Queuing Penalty (veh)		21	24	59	32		22	62
Storage Bay Dist (ft)	170					175		
Storage Blk Time (%)	41	22			82	1		
Queuing Penalty (veh)	121	38			95	2		

Intersection: 4: Cambridge St/East Street & O'Brien Highway

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	T	L	LT	T	R	LT	TR
Maximum Queue (ft)	181	183	188	541	795	804	166	69	86
Average Queue (ft)	60	92	137	340	475	491	89	23	22
95th Queue (ft)	152	187	243	654	855	847	189	56	65
Link Distance (ft)	168	168	168		775	775	148	279	279
Upstream Blk Time (%)	0	2	26		11	9	8		
Queuing Penalty (veh)	1	8	106		71	60	28		
Storage Bay Dist (ft)				375					
Storage Blk Time (%)				22	29				
Queuing Penalty (veh)				150	95				

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	164	557	684	720	425	915	1634	1626	175	390	760	988
Average Queue (ft)	76	222	469	499	246	909	1600	1590	76	202	214	334
95th Queue (ft)	149	620	870	915	592	989	1624	1619	192	444	664	781
Link Distance (ft)		775	775	775			1573	1573			1908	1908
Upstream Blk Time (%)		1	2	6			91	50				
Queuing Penalty (veh)		4	13	32			0	0				
Storage Bay Dist (ft)	200				400	890			150	600		
Storage Blk Time (%)		0		34	0	90	34	18	1	6	0	
Queuing Penalty (veh)		1		170	2	347	192	59	2	10	0	

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Movement	NB	SB	SB	SB
Directions Served	R	L	LT	TR
Maximum Queue (ft)	1382	225	1661	1663
Average Queue (ft)	876	163	1631	1632
95th Queue (ft)	1435	304	1656	1658
Link Distance (ft)	1908		1602	1602
Upstream Blk Time (%)			91	96
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	57	
Queuing Penalty (veh)		2	67	

Queuing and Blocking Report
2024 Future AM

06/23/2021

Intersection: 6: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1259	208	405	232	80	220
Average Queue (ft)	1228	145	79	144	42	153
95th Queue (ft)	1264	229	337	235	90	237
Link Distance (ft)	1202	197	758			193
Upstream Blk Time (%)	97	4	1			11
Queuing Penalty (veh)	0	12	0			0
Storage Bay Dist (ft)				210	30	
Storage Blk Time (%)			0	9	35	48
Queuing Penalty (veh)			0	4	109	23

Intersection: 7: Technology Square/Hampshire Street & Broadway

Movement	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	T	R	L	TR	L	TR
Maximum Queue (ft)	215	120	246	88	53	154	351	58
Average Queue (ft)	197	59	67	27	11	41	265	34
95th Queue (ft)	226	122	199	65	36	130	391	67
Link Distance (ft)	197		370	370	412	412	300	
Upstream Blk Time (%)	26		0				42	
Queuing Penalty (veh)	136		0				0	
Storage Bay Dist (ft)		100						50
Storage Blk Time (%)		8	3				73	7
Queuing Penalty (veh)		22	2				58	17

Intersection: 8: Galileo Galilei Way & Binney St & Fulkerson St

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	607	234	125	478	125	577
Average Queue (ft)	339	193	103	197	80	224
95th Queue (ft)	589	270	158	487	151	557
Link Distance (ft)	640	219		848		917
Upstream Blk Time (%)	0	14		4		4
Queuing Penalty (veh)	0	91		0		0
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		23	25		6	37
Queuing Penalty (veh)		46	108		9	44

Intersection: 9: North Garage West Driveway & Binney St

Movement	EB	WB	NB
Directions Served	T	T	R
Maximum Queue (ft)	51	120	87
Average Queue (ft)	2	49	35
95th Queue (ft)	33	131	71
Link Distance (ft)	219	102	709
Upstream Blk Time (%)	0	11	
Queuing Penalty (veh)	2	70	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: North Garage East Driveway & Binney St

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	60	867
Average Queue (ft)	10	361
95th Queue (ft)	41	848
Link Distance (ft)	102	1077
Upstream Blk Time (%)	0	4
Queuing Penalty (veh)	4	38
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Third St & Binney St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	234	597	225	265	825	785	1164	165	1126
Average Queue (ft)	73	228	83	256	567	474	609	83	716
95th Queue (ft)	176	473	209	317	895	825	1367	209	1595
Link Distance (ft)		1077			1065	1065	1160		1992
Upstream Blk Time (%)		0			2	2	18		3
Queuing Penalty (veh)		2			8	8	103		17
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	0	17	0	67	31		59	2	
Queuing Penalty (veh)	0	29	0	203	82		118	3	

Queuing and Blocking Report
2024 Future AM

06/23/2021

Intersection: 12: First St & Binney St

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	194	510	362	187	176	65	1426	225
Average Queue (ft)	140	162	73	129	115	18	933	220
95th Queue (ft)	221	576	241	197	198	48	1810	254
Link Distance (ft)		1065	1065	160	160	193	1965	
Upstream Blk Time (%)		2		7	9		2	
Queuing Penalty (veh)		5		45	61		10	
Storage Bay Dist (ft)	170							200
Storage Blk Time (%)	26	4					9	86
Queuing Penalty (veh)	27	8					19	124

Intersection: 13: Land Blvd & Binney St

Movement	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	L	UL	L	T	T	T	T	T	R
Maximum Queue (ft)	164	166	325	350	1067	1068	104	196	218	505
Average Queue (ft)	72	91	322	349	992	928	36	95	109	140
95th Queue (ft)	145	168	334	352	1282	1343	91	172	187	337
Link Distance (ft)	160	160			1048	1048		1908	1908	1908
Upstream Blk Time (%)	2	3			43	9				
Queuing Penalty (veh)	2	4			0	0				
Storage Bay Dist (ft)			300	300			200			
Storage Blk Time (%)			44	40		0				
Queuing Penalty (veh)			106	95		0				

Intersection: 14: Galileo Galilei Way & Broadway /Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	392	100	127	171	112	274	661	275	221	607	349
Average Queue (ft)	110	251	39	41	72	24	53	352	171	79	268	171
95th Queue (ft)	160	430	98	100	139	75	180	711	315	201	575	346
Link Distance (ft)		370			237	237		757			640	
Upstream Blk Time (%)		12						4			9	
Queuing Penalty (veh)		80						25			56	
Storage Bay Dist (ft)	100		75	285			250		250	200		325
Storage Blk Time (%)	41	26	2				0	22	7	12	9	5
Queuing Penalty (veh)	170	85	14				0	32	30	75	25	21

Intersection: 15: Broadway & North Garage West Driveway

Movement	EB
Directions Served	T
Maximum Queue (ft)	208
Average Queue (ft)	87
95th Queue (ft)	240
Link Distance (ft)	237
Upstream Blk Time (%)	12
Queuing Penalty (veh)	62
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 16: Broadway & North Garage East Driveway

Movement	EB	WB	SB
Directions Served	T	T	R
Maximum Queue (ft)	108	10	76
Average Queue (ft)	82	0	39
95th Queue (ft)	130	7	61
Link Distance (ft)	96	131	762
Upstream Blk Time (%)	27		
Queuing Penalty (veh)	133		
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Ames St & Broadway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	184	131	185	422	384	125
Average Queue (ft)	141	74	80	152	143	105
95th Queue (ft)	171	146	168	374	346	147
Link Distance (ft)	131			887	496	
Upstream Blk Time (%)	41	0		0	3	
Queuing Penalty (veh)	203	0		4	9	
Storage Bay Dist (ft)		150	160			100
Storage Blk Time (%)	41	0	3	4	6	25
Queuing Penalty (veh)	41	1	13	12	14	21

Intersection: 18: Main St/Third St & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	311	587	139	128	71	391	205
Average Queue (ft)	168	193	59	101	61	179	113
95th Queue (ft)	359	693	117	124	79	313	231
Link Distance (ft)		887		70		1160	
Upstream Blk Time (%)		8		67	14		
Queuing Penalty (veh)		51		709	0		
Storage Bay Dist (ft)	340		200		350		180
Storage Blk Time (%)	14			67	14	9	1
Queuing Penalty (veh)	33			246	93	16	4

Intersection: 19: Memorial Drive Ramp & Main St/Longfellow Bridge

Movement	EB	WB	WB	NB	SB
Directions Served	TR	T	R	R	R
Maximum Queue (ft)	54	1622	125	360	286
Average Queue (ft)	6	1592	99	230	286
95th Queue (ft)	29	1617	182	407	299
Link Distance (ft)	1071	1565		334	290
Upstream Blk Time (%)		99		25	100
Queuing Penalty (veh)		0		0	0
Storage Bay Dist (ft)			100		
Storage Blk Time (%)		92	0		
Queuing Penalty (veh)		159	1		

Intersection: 20: Vassar St/Galileo Galilei Way & Main St

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	T	R	L	T	R
Maximum Queue (ft)	250	251	144	301	486	258	182	426	204
Average Queue (ft)	192	175	50	132	213	87	74	124	111
95th Queue (ft)	268	278	120	260	510	217	171	282	210
Link Distance (ft)		197		417	672			757	
Upstream Blk Time (%)	29	17			8			0	
Queuing Penalty (veh)	0	0			0			0	
Storage Bay Dist (ft)	225		120			250	200		180
Storage Blk Time (%)	29	17	0	17	10	0	2	4	3
Queuing Penalty (veh)	91	43	0	11	12	0	10	10	8

Queuing and Blocking Report
2024 Future AM

06/23/2021

Intersection: 21: Ames St & Main St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	407	348	1020	416	125
Average Queue (ft)	229	127	875	128	49
95th Queue (ft)	416	264	1159	346	124
Link Distance (ft)	417	772	1177	496	
Upstream Blk Time (%)	1		7	1	
Queuing Penalty (veh)	5		22	5	
Storage Bay Dist (ft)					100
Storage Blk Time (%)				16	2
Queuing Penalty (veh)				20	4

Intersection: 22: Main St & Broadway

Movement	EB	WB	NE
Directions Served	T	T	R
Maximum Queue (ft)	6	1192	142
Average Queue (ft)	0	1163	70
95th Queue (ft)	4	1187	119
Link Distance (ft)	70	1071	226
Upstream Blk Time (%)		96	
Queuing Penalty (veh)		1130	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB

Movement	WB	WB	SB
Directions Served	LT	TR	TR
Maximum Queue (ft)	338	381	150
Average Queue (ft)	170	200	71
95th Queue (ft)	350	400	131
Link Distance (ft)	436	436	1177
Upstream Blk Time (%)	2	6	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

2024 Future AM

06/23/2021

Intersection: 24: Memorial Dr EB & Memorial Drive U-Turn WB to EB

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	606	583	63
Average Queue (ft)	270	268	18
95th Queue (ft)	494	488	48
Link Distance (ft)	1187	1187	97
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: North First St & O'Brien Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	L	TR	LT	R
Maximum Queue (ft)	833	820	175	132	116	231	66	76	412	387
Average Queue (ft)	644	692	153	47	46	169	19	70	382	257
95th Queue (ft)	1023	959	226	104	96	276	50	88	400	537
Link Distance (ft)	788	788		168	168	168	69	69	368	368
Upstream Blk Time (%)	25	28				34	1	38	96	43
Queuing Penalty (veh)	198	225				82	2	59	0	0
Storage Bay Dist (ft)			150							
Storage Blk Time (%)		37	44							
Queuing Penalty (veh)		50	222							

Intersection: 65: Main St

Movement	SB
Directions Served	R
Maximum Queue (ft)	11
Average Queue (ft)	0
95th Queue (ft)	8
Link Distance (ft)	103
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Zone Summary

Zone wide Queuing Penalty: 8684

Intersection: 1: Third St & O'Brien Highway

Phase	2	3	4	6	8	9
Movement(s) Served	EBTL	SBTL	NBTL	WBT	Ped	EBWB
Maximum Green (s)	26.0	5.5	18.0	26.0	20.0	19.0
Minimum Green (s)	10.0	5.0	6.0	10.0	4.0	10.0
Recall	C-Min	Max	None	C-Min	Ped	None
Avg. Green (s)	28.9	5.5	17.3	28.9	30.3	17.9
g/C Ratio	NA	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	0	3
Cycles @ Minimum (%)	0	0	0	0	0	3
Cycles Maxed Out (%)	100	100	87	100	100	56
Cycles with Peds (%)	0	0	0	28	100	46

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: First St/North First St & Cambridge St

Phase	1	2	3	4	6	8
Movement(s) Served	WBL	EBTL	Ped	NBTL	WBT	SBTL
Maximum Green (s)	31.5	27.0	6.5	16.0	64.5	16.0
Minimum Green (s)	6.0	10.0	5.0	6.0	10.0	6.0
Recall	C-Min	Min	Max	None	C-Min	None
Avg. Green (s)	28.3	30.9	6.5	16.4	64.8	16.4
g/C Ratio	NA	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0	0
Cycles @ Minimum (%)	3	0	0	0	0	0
Cycles Maxed Out (%)	100	94	100	100	100	100
Cycles with Peds (%)	0	25	0	84	75	69

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 4: Cambridge St/East Street & O'Brien Highway

Phase	1	2	4
Movement(s) Served	WBTL	EBT	SBTL
Maximum Green (s)	27.0	44.0	19.0
Minimum Green (s)	10.0	10.0	6.0
Recall	Min	C-Min	Min
Avg. Green (s)	27.4	49.6	14.3
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	6
Cycles Maxed Out (%)	97	100	13
Cycles with Peds (%)	81	84	88

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Phase	1	2	4	5	6	8	9
Movement(s) Served	WBL	EBT	SBTL	EBL	WBT	NBTL	WBTL
Maximum Green (s)	7.0	23.0	37.0	10.0	15.0	15.0	6.0
Minimum Green (s)	6.0	10.0	8.0	6.0	10.0	8.0	4.0
Recall	C-Max	Max	None	None	C-Max	None	None
Avg. Green (s)	22.0	23.0	37.0	9.3	36.7	15.0	0.0
g/C Ratio	NA	NA	NA	-0.01	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	7	0	0	100
Cycles @ Minimum (%)	0	0	0	3	0	0	0
Cycles Maxed Out (%)	100	100	100	63	100	100	0
Cycles with Peds (%)	0	57	90	0	33	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Actuated Signals, Observed Splits
2024 Future AM

06/23/2021

Intersection: 8: Galileo Galilei Way & Binney St & Fulkerson St

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	19.0	11.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	40.5	17.4	10.9	11.8	25.3
g/C Ratio	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	10	0
Cycles @ Minimum (%)	0	0	5	5	0
Cycles Maxed Out (%)	100	63	89	54	100
Cycles with Peds (%)	0	100	100	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Third St & Binney St

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	10.0	20.0	36.0	7.0	23.0	36.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	10.1	20.2	36.0	6.7	25.6	36.0
g/C Ratio	NA	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	0	13	0	0
Cycles @ Minimum (%)	0	98	0	21	0	0
Cycles Maxed Out (%)	100	100	100	59	100	100
Cycles with Peds (%)	0	80	100	0	93	87

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 12: First St & Binney St

Phase	1	2	4	6	8
Movement(s) Served	WBL	EBTL	NBTL	WBTL	SBTL
Maximum Green (s)	7.0	64.0	22.0	80.0	22.0
Minimum Green (s)	6.0	4.0	4.0	4.0	4.0
Recall	Max	C-Max	Max	C-Max	Max
Avg. Green (s)	7.0	64.0	22.0	80.0	22.0
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	100	100	100	100
Cycles with Peds (%)	0	90	90	93	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 13: Land Blvd & Binney St

Phase	1	2	3	4	5	6
Movement(s) Served	NBL	SBT	NBSB	EBL	Ped	NBT
Maximum Green (s)	32.0	11.0	27.0	30.0	35.0	11.0
Minimum Green (s)	8.0	8.0	8.0	8.0	4.0	8.0
Recall	None	C-Max	None	Max	None	C-Max
Avg. Green (s)	32.9	29.6	15.6	30.0	0.0	66.2
g/C Ratio	NA	NA	-0.01	NA	-0.01	NA
Cycles Skipped (%)	0	0	31	0	100	0
Cycles @ Minimum (%)	0	0	7	0	0	0
Cycles Maxed Out (%)	100	100	0	100	0	100
Cycles with Peds (%)	0	0	24	43	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 14: Galileo Galilei Way & Broadway /Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	28.0	8.0	25.0	13.0	23.0	10.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	7.8	29.4	7.3	27.8	12.8	25.3	8.4	26.6
g/C Ratio	NA	NA	-0.01	NA	-0.01	NA	-0.01	NA
Cycles Skipped (%)	0	0	18	0	3	0	15	0
Cycles @ Minimum (%)	5	0	23	0	0	0	15	0
Cycles Maxed Out (%)	85	100	36	100	87	100	36	100
Cycles with Peds (%)	0	77	0	80	0	79	0	85

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 17: Ames St & Broadway

Phase	1	2	3
Movement(s) Served	EBWB	NBL	WBL
Maximum Green (s)	30.0	18.0	23.0
Minimum Green (s)	10.0	10.0	10.0
Recall	C-Max	Max	Max
Avg. Green (s)	30.0	18.0	23.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	100	100	100
Cycles with Peds (%)	95	79	78

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 20: Vassar St/Galileo Galilei Way & Main St

Phase	1	2	4	5	6	7	8
Movement(s) Served	WBL	EBT	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	17.0	26.0	35.0	17.0	26.0	7.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	Ped	None	C-Max	None	Ped
Avg. Green (s)	14.2	33.8	32.0	20.0	27.4	6.8	23.0
g/C Ratio	-0.01	NA	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	3	0	0	0	0	22	0
Cycles @ Minimum (%)	6	0	0	0	0	11	0
Cycles Maxed Out (%)	28	100	44	81	100	64	56
Cycles with Peds (%)	0	100	100	0	100	0	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 21: Ames St & Main St

Phase	1	2	3
Movement(s) Served	EBWB	Ped	NBSB
Maximum Green (s)	24.5	15.0	28.0
Minimum Green (s)	15.0	8.0	15.0
Recall	C-Max	None	None
Avg. Green (s)	48.5	0.0	28.0
g/C Ratio	NA	-0.01	NA
Cycles Skipped (%)	0	100	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	100	0	100
Cycles with Peds (%)	100	0	98

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB

Phase	2	3	4	6
Movement(s) Served	EBT	SBT	Ped	WBTL
Maximum Green (s)	51.0	17.5	20.0	51.0
Minimum Green (s)	10.0	10.0	8.0	10.0
Recall	C-Max	None	None	C-Max
Avg. Green (s)	76.7	12.8	13.9	76.7
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	3	8	54	3
Cycles @ Minimum (%)	0	25	0	0
Cycles Maxed Out (%)	97	8	0	97
Cycles with Peds (%)	0	22	43	82

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 25: North First St & O'Brien Highway

Phase	2	3	4	6	8
Movement(s) Served	WBT	EBWB	SBTL	EBT	NBTL
Maximum Green (s)	39.0	20.5	33.0	39.0	33.0
Minimum Green (s)	10.0	6.0	6.0	10.0	6.0
Recall	C-Min	Max	Max	C-Min	Max
Avg. Green (s)	29.4	29.8	33.0	29.4	33.0
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	18	0	0	18	0
Cycles Maxed Out (%)	100	100	100	100	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	4:45	4:45	4:45	4:45	4:45	4:45
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	75	75	75	75	75	75
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	20944	20044	20899	20640	19441	20395
Vehs Exited	20401	19466	20111	19873	18627	19696
Starting Vehs	1747	1857	1635	1620	1668	1702
Ending Vehs	2290	2435	2423	2387	2482	2396
Travel Distance (mi)	12772	12200	12613	12448	11631	12333
Travel Time (hr)	4740.9	5228.8	4833.6	5053.3	5134.2	4998.2
Total Delay (hr)	4281.4	4790.5	4380.3	4605.7	4717.5	4555.1
Total Stops	47162	46351	49018	46376	41875	46158
Fuel Used (gal)	1395.3	1488.6	1409.5	1454.7	1453.1	1440.3

Interval #0 Information Seeding

Start Time	4:45
End Time	5:00
Total Time (min)	15
Volumes adjusted by Growth Factors.	
No data recorded this interval.	

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60
Volumes adjusted by Growth Factors.	

Run Number	1	2	3	4	5	Avg
Vehs Entered	20944	20044	20899	20640	19441	20395
Vehs Exited	20401	19466	20111	19873	18627	19696
Starting Vehs	1747	1857	1635	1620	1668	1702
Ending Vehs	2290	2435	2423	2387	2482	2396
Travel Distance (mi)	12772	12200	12613	12448	11631	12333
Travel Time (hr)	4740.9	5228.8	4833.6	5053.3	5134.2	4998.2
Total Delay (hr)	4281.4	4790.5	4380.3	4605.7	4717.5	4555.1
Total Stops	47162	46351	49018	46376	41875	46158
Fuel Used (gal)	1395.3	1488.6	1409.5	1454.7	1453.1	1440.3

1: Third St & O'Brien Highway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.1	0.0	0.0	0.0	56.6	0.1	2.2	0.0	0.0	59.1
Denied Del/Veh (s)	0.4	0.2	0.3	0.2	0.0	375.4	93.4	276.5	0.1	0.1	72.6
Total Delay (hr)	0.2	4.3	1.1	4.1	0.0	14.9	0.1	0.9	0.1	0.0	25.7
Total Del/Veh (s)	27.9	15.7	11.4	14.7	11.4	119.6	58.6	119.9	48.6	15.2	32.3
Stop Delay (hr)	0.2	3.0	0.9	2.3	0.0	13.8	0.1	0.8	0.1	0.0	21.1
Stop Del/Veh (s)	23.1	10.8	8.8	8.3	7.8	111.2	54.9	113.0	47.6	15.3	26.7

2: Third St & Cambridge St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	21.2	69.3	5.8	14.5	79.6	37.7	0.0	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	804.2	834.4	840.7	842.2	845.3	863.7	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay (hr)	8.3	24.8	1.8	1.1	5.7	2.7	0.7	50.4	1.8	0.1	1.2	0.3
Total Del/Veh (s)	483.5	472.7	428.3	97.9	98.4	105.6	415.1	395.4	443.4	32.3	15.8	16.5
Stop Delay (hr)	8.4	25.1	1.8	1.1	5.5	2.7	0.7	51.1	1.9	0.1	0.8	0.3
Stop Del/Veh (s)	490.3	478.4	435.8	96.3	95.3	105.3	419.5	400.5	451.8	27.7	11.0	13.5

2: Third St & Cambridge St Performance by movement

Movement	All
Denied Delay (hr)	228.1
Denied Del/Veh (s)	462.2
Total Delay (hr)	99.0
Total Del/Veh (s)	248.3
Stop Delay (hr)	99.5
Stop Del/Veh (s)	249.6

3: First St/North First St & Cambridge St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBT	SBR	All
Denied Delay (hr)	56.0	26.2	4.3	0.0	0.0	19.6	74.2	113.8	0.0	0.0	294.1
Denied Del/Veh (s)	645.8	646.9	673.2	0.0	0.0	841.4	902.5	766.9	0.7	0.4	586.6
Total Delay (hr)	11.0	5.1	0.8	0.7	0.3	3.7	14.3	25.9	0.4	0.4	62.5
Total Del/Veh (s)	179.7	181.9	180.5	16.6	6.8	279.3	287.5	273.0	27.3	26.4	170.6
Stop Delay (hr)	10.7	4.9	0.8	0.6	0.2	3.4	13.2	23.7	0.3	0.4	58.2
Stop Del/Veh (s)	174.6	175.9	177.1	14.7	4.8	256.0	264.7	250.7	25.0	25.4	159.0

4: Cambridge St/East Street & O'Brien Highway Performance by movement

Movement	EBT	WBL	WBT	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	0.2	0.0	0.0	0.0	0.7	0.0	0.0	0.0	0.9
Denied Del/Veh (s)	1.4	0.1	0.0	0.0	5.4	0.1	0.1	0.1	1.5
Total Delay (hr)	13.6	2.3	7.7	0.0	3.0	0.2	0.2	0.2	27.2
Total Del/Veh (s)	86.2	28.7	35.3	4.9	25.0	60.9	43.5	15.9	45.0
Stop Delay (hr)	12.8	1.8	5.6	0.0	2.9	0.2	0.2	0.2	23.6
Stop Del/Veh (s)	81.4	22.1	25.7	4.0	23.7	59.2	40.5	15.3	39.1

5: Land Blvd/Charlestown Ave & O'Brien Highway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	4.1	4.7	1.6	0.2	0.1	0.2	0.0	0.0	0.0	13.7	46.7	25.1
Denied Del/Veh (s)	37.5	37.7	31.8	2.0	0.7	2.0	0.8	0.1	0.1	413.2	418.6	396.4
Total Delay (hr)	38.9	6.1	0.3	9.6	9.9	3.9	2.5	8.6	5.2	9.7	41.4	51.8
Total Del/Veh (s)	332.5	50.3	6.3	112.3	51.7	36.6	44.3	46.6	61.1	384.7	467.0	946.2
Stop Delay (hr)	37.3	5.1	0.0	8.9	8.1	2.9	2.2	7.2	4.6	9.3	40.0	52.5
Stop Del/Veh (s)	319.4	41.9	0.4	103.5	42.4	27.5	38.9	38.7	53.8	367.8	451.3	958.6

5: Land Blvd/Charlestown Ave & O'Brien Highway Performance by movement

Movement	All
Denied Delay (hr)	96.4
Denied Del/Veh (s)	81.6
Total Delay (hr)	187.9
Total Del/Veh (s)	161.2
Stop Delay (hr)	178.1
Stop Del/Veh (s)	152.8

6: Portland Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.5	1.9	0.2	0.0	0.1	0.0	0.4	2.0	0.2	0.0	0.0	0.0
Denied Del/Veh (s)	21.7	27.4	17.9	0.3	0.9	0.3	24.3	18.4	25.1	4.2	0.4	0.2
Total Delay (hr)	3.9	13.3	1.7	0.1	3.0	0.2	0.8	5.2	0.5	0.3	0.8	0.5
Total Del/Veh (s)	193.3	196.7	167.4	31.1	29.0	24.4	44.6	48.9	62.6	94.6	21.6	23.6
Stop Delay (hr)	3.9	13.0	1.7	0.1	2.4	0.1	0.7	4.5	0.5	0.3	0.6	0.5
Stop Del/Veh (s)	191.3	193.2	166.0	26.1	22.7	20.5	40.2	42.1	58.5	92.2	18.1	22.3

6: Portland Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	5.3
Denied Del/Veh (s)	13.1
Total Delay (hr)	30.2
Total Del/Veh (s)	75.0
Stop Delay (hr)	28.3
Stop Del/Veh (s)	70.1

7: Technology Square/Hampshire Street & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.0	0.1	0.0	0.1	1.4	0.2	5.7	11.4	5.9	2.4	0.4	0.2
Denied Del/Veh (s)	0.0	1.4	0.0	73.3	16.6	3.7	215.1	247.1	213.1	65.3	83.0	60.2
Total Delay (hr)	0.0	3.5	0.1	0.1	10.4	0.6	1.8	9.6	5.9	4.3	0.4	0.3
Total Del/Veh (s)	64.6	50.1	49.3	72.8	117.5	11.3	80.2	241.9	251.9	130.1	112.1	132.4
Stop Delay (hr)	0.0	3.2	0.1	0.1	9.6	0.5	1.8	9.5	5.9	4.2	0.4	0.3
Stop Del/Veh (s)	61.7	45.1	46.9	63.5	108.3	9.4	76.9	239.2	252.2	127.5	108.5	130.5

7: Technology Square/Hampshire Street & Broadway Performance by movement

Movement	All
Denied Delay (hr)	27.6
Denied Del/Veh (s)	78.7
Total Delay (hr)	37.1
Total Del/Veh (s)	109.8
Stop Delay (hr)	35.5
Stop Del/Veh (s)	105.2

8: Galileo Galilei Way & Binney St & Fulkerson St Performance by movement

Movement	EBT	WBT	WBR	WBR2	SBR	SBR2	SEL2	SEL	SER	All
Denied Delay (hr)	0.1	7.0	0.1	0.4	0.1	0.0	81.4	40.6	62.9	192.6
Denied Del/Veh (s)	0.6	68.6	3.2	38.4	3.1	15.1	1028.3	986.8	1020.4	391.4
Total Delay (hr)	6.8	4.0	1.4	0.6	7.2	0.6	14.7	7.7	12.9	55.9
Total Del/Veh (s)	46.6	41.1	68.9	68.8	229.6	188.2	386.6	394.1	421.2	141.7
Stop Delay (hr)	5.3	3.5	1.3	0.6	7.2	0.6	14.6	7.6	12.8	53.6
Stop Del/Veh (s)	36.2	36.7	65.3	65.3	227.9	186.7	384.2	392.3	420.2	135.9

9: North Garage West Driveway & Binney St Performance by movement

Movement	EBT	WBT	NBR	All
Denied Delay (hr)	0.2	0.0	9.1	9.2
Denied Del/Veh (s)	1.0	0.0	86.9	23.1
Total Delay (hr)	1.2	1.6	8.7	11.5
Total Del/Veh (s)	6.5	14.3	88.2	29.0
Stop Delay (hr)	0.6	1.3	9.0	11.0
Stop Del/Veh (s)	3.4	12.1	91.4	27.7

10: North Garage East Driveway & Binney St Performance by movement

Movement	EBT	EBR	WBL	WBT	All
Denied Delay (hr)	0.0	0.0	0.0	0.3	0.3
Denied Del/Veh (s)	0.0	0.0	2.7	2.5	0.8
Total Delay (hr)	1.0	0.0	0.4	8.3	9.8
Total Del/Veh (s)	3.9	2.5	78.6	66.0	24.8
Stop Delay (hr)	0.6	0.0	0.4	7.6	8.6
Stop Del/Veh (s)	2.4	1.8	72.4	60.1	21.9

11: Third St & Binney St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	5.1	42.7	5.3	0.0	0.0	0.0	2.5	4.9	3.2	0.0	0.1	0.0
Denied Del/Veh (s)	69.2	255.5	122.9	0.0	0.0	0.0	119.5	87.0	68.1	0.0	1.2	0.0
Total Delay (hr)	13.2	12.6	4.5	2.2	17.0	1.9	6.1	15.2	10.8	1.5	8.8	2.4
Total Del/Veh (s)	178.3	84.1	105.3	92.2	159.6	168.9	292.0	277.3	238.0	190.5	148.0	160.8
Stop Delay (hr)	11.5	9.7	3.6	2.0	16.6	1.9	5.9	14.5	10.4	1.4	8.3	2.3
Stop Del/Veh (s)	156.1	65.1	84.8	85.3	156.0	168.3	282.0	265.7	227.2	181.9	138.4	154.4

11: Third St & Binney St Performance by movement

Movement	All
Denied Delay (hr)	63.7
Denied Del/Veh (s)	102.1
Total Delay (hr)	96.1
Total Del/Veh (s)	157.5
Stop Delay (hr)	88.1
Stop Del/Veh (s)	144.4

12: First St & Binney St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	21.2	21.4
Denied Del/Veh (s)	1.1	0.3	0.0	0.0	0.8	0.0	0.1	0.1	0.1	236.4	284.6	350.2
Total Delay (hr)	4.4	1.3	0.3	0.3	2.5	1.8	0.0	0.1	0.1	0.3	20.0	18.3
Total Del/Veh (s)	67.7	16.4	18.4	30.0	27.4	31.0	44.4	37.5	32.4	316.1	294.4	336.8
Stop Delay (hr)	4.0	1.0	0.3	0.3	2.3	1.7	0.0	0.1	0.1	0.3	18.6	17.4
Stop Del/Veh (s)	61.4	12.8	16.0	28.0	24.7	29.7	42.8	34.7	32.0	300.6	274.9	319.8

12: First St & Binney St Performance by movement

Movement	All
Denied Delay (hr)	43.0
Denied Del/Veh (s)	93.4
Total Delay (hr)	49.5
Total Del/Veh (s)	109.3
Stop Delay (hr)	46.1
Stop Del/Veh (s)	101.9

13: Land Blvd & Binney St Performance by movement

Movement	EBL	EBR	NBU	NBL	NBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.4	0.3	0.0	0.0	0.8
Denied Del/Veh (s)	0.0	0.0	3.7	3.4	1.5	0.0	0.0	1.3
Total Delay (hr)	1.4	0.0	0.6	9.7	1.9	7.5	1.3	22.4
Total Del/Veh (s)	22.0	20.0	50.5	78.3	9.7	42.4	36.4	36.7
Stop Delay (hr)	1.2	0.0	0.5	8.8	1.3	6.0	1.2	19.0
Stop Del/Veh (s)	19.7	18.5	44.6	71.2	6.4	33.7	32.4	31.1

14: Galileo Galilei Way & Broadway /Broadway Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.3	0.5	0.2	23.6	18.9	8.2	0.0	0.0	0.0	0.1	0.5	0.6
Denied Del/Veh (s)	8.5	6.1	32.3	509.5	210.2	781.2	0.7	0.3	1.0	10.6	5.7	9.8
Total Delay (hr)	3.2	4.8	0.6	6.3	7.5	0.3	1.1	7.3	2.0	0.7	6.5	11.5
Total Del/Veh (s)	92.5	58.5	92.9	171.8	90.3	41.9	69.0	69.4	93.7	84.0	74.5	200.5
Stop Delay (hr)	3.0	4.3	0.6	6.2	7.1	0.3	0.9	6.0	1.8	0.7	5.6	11.2
Stop Del/Veh (s)	85.9	51.7	88.6	168.7	86.2	41.2	59.4	57.6	85.6	75.9	64.4	194.5

14: Galileo Galilei Way & Broadway /Broadway Performance by movement

Movement	All
Denied Delay (hr)	53.0
Denied Del/Veh (s)	94.6
Total Delay (hr)	51.9
Total Del/Veh (s)	95.0
Stop Delay (hr)	47.7
Stop Del/Veh (s)	87.4

15: Broadway & North Garage West Driveway Performance by movement

Movement	EBT	WBT	WBR	All
Denied Delay (hr)	1.1	0.0	0.0	1.1
Denied Del/Veh (s)	8.7	0.0	0.0	4.0
Total Delay (hr)	2.7	2.4	0.4	5.5
Total Del/Veh (s)	22.0	20.5	15.5	20.7
Stop Delay (hr)	2.3	2.0	0.4	4.8
Stop Del/Veh (s)	19.2	17.3	14.1	17.8

16: Broadway & North Garage East Driveway Performance by movement

Movement	EBT	WBT	SBR	All
Denied Delay (hr)	0.0	2.4	169.5	171.9
Denied Del/Veh (s)	0.0	19.8	1268.3	473.1
Total Delay (hr)	1.8	2.4	18.9	23.0
Total Del/Veh (s)	16.3	19.9	392.3	83.1
Stop Delay (hr)	1.5	2.0	19.3	22.8
Stop Del/Veh (s)	14.0	16.6	401.5	82.4

17: Ames St & Broadway Performance by movement

Movement	EBT	EBR	WBL	WBT	NBL	NBT	NBR	All
Denied Delay (hr)	2.2	0.5	2.6	4.9	0.5	0.0	0.1	10.7
Denied Del/Veh (s)	20.2	40.2	50.5	63.7	19.2	0.0	2.1	34.1
Total Delay (hr)	3.6	0.2	5.5	10.0	2.5	0.0	2.7	24.5
Total Del/Veh (s)	32.9	16.6	109.8	132.9	96.2	14.0	71.6	78.8
Stop Delay (hr)	3.3	0.2	5.0	9.2	2.4	0.0	2.6	22.6
Stop Del/Veh (s)	29.7	15.3	100.0	123.2	91.6	10.4	66.6	72.7

18: Main St/Third St & Broadway Performance by movement

Movement	EBL	EBT	EBR	WBT	WBR	SBL	SBT	SBR	All
Denied Delay (hr)	10.6	10.7	0.8	0.2	0.0	64.0	10.2	11.5	108.1
Denied Del/Veh (s)	136.5	123.2	91.4	2.5	0.6	438.1	443.3	434.0	223.4
Total Delay (hr)	13.0	4.8	0.5	2.3	1.3	18.6	3.0	2.9	46.2
Total Del/Veh (s)	179.1	58.8	56.5	30.1	32.6	156.7	161.7	136.4	106.2
Stop Delay (hr)	12.1	3.9	0.4	2.0	1.2	16.6	2.6	2.6	41.5
Stop Del/Veh (s)	167.0	48.6	48.4	26.3	30.9	140.1	143.6	121.5	95.3

19: Memorial Drive Ramp & Main St/Longfellow Bridge Performance by movement

Movement	EBT	EBR	WBT	WBR	NBR	SBR	All
Denied Delay (hr)	0.0	0.0	1.6	0.5	135.7	10.2	148.0
Denied Del/Veh (s)	0.1	0.2	13.1	20.2	842.4	359.0	228.5
Total Delay (hr)	0.6	0.1	10.1	1.6	14.1	6.1	32.7
Total Del/Veh (s)	2.4	3.3	86.2	72.0	163.8	359.6	58.3
Stop Delay (hr)	0.0	0.0	9.9	1.5	15.0	6.1	32.6
Stop Del/Veh (s)	0.1	0.4	84.8	70.4	173.5	359.1	58.1

20: Vassar St/Galileo Galilei Way & Main St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBT	NBR	SBL	SBT	SBR	All
Denied Delay (hr)	47.3	56.9	23.7	0.0	0.0	0.0	6.7	1.6	0.0	0.2	0.1	136.6
Denied Del/Veh (s)	767.1	787.7	820.5	1.0	0.3	1.5	66.1	59.0	7.4	2.3	2.3	268.2
Total Delay (hr)	2.1	5.6	1.9	1.4	3.5	1.0	10.7	5.4	2.3	2.9	3.4	40.1
Total Del/Veh (s)	63.3	143.2	123.0	64.9	60.6	66.9	113.2	209.2	389.5	41.8	62.8	93.3
Stop Delay (hr)	2.0	5.5	1.9	1.2	3.1	0.9	9.6	5.3	2.2	2.3	3.0	37.2
Stop Del/Veh (s)	60.5	140.7	123.1	59.2	54.2	62.8	102.2	204.7	383.4	33.6	55.4	86.6

21: Ames St & Main St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Delay (hr)	0.1	0.2	0.2	0.0	0.5	0.2	90.2	108.1	24.0	0.0	0.1	0.1
Denied Del/Veh (s)	12.2	3.8	17.7	4.9	18.7	30.4	1249.5	1186.8	1182.4	1.6	2.6	2.7
Total Delay (hr)	2.0	8.1	2.2	1.4	3.2	0.9	13.8	17.0	3.4	0.4	1.2	1.6
Total Del/Veh (s)	178.7	167.6	177.3	152.8	110.6	124.2	439.4	413.4	399.7	37.3	34.2	39.9
Stop Delay (hr)	1.9	7.8	2.2	1.3	3.1	0.9	13.9	17.1	3.5	0.4	1.0	1.5
Stop Del/Veh (s)	172.9	160.4	173.1	149.9	106.6	122.2	442.8	415.7	404.3	32.5	28.9	36.1

21: Ames St & Main St Performance by movement

Movement	All
Denied Delay (hr)	223.9
Denied Del/Veh (s)	589.5
Total Delay (hr)	55.2
Total Del/Veh (s)	194.4
Stop Delay (hr)	54.4
Stop Del/Veh (s)	191.7

22: Main St & Broadway Performance by movement

Movement	EBT	WBT	NER	All
Denied Delay (hr)	0.0	5.0	0.0	5.0
Denied Del/Veh (s)	0.0	39.4	0.0	12.8
Total Delay (hr)	0.2	35.1	0.7	36.0
Total Del/Veh (s)	0.8	272.6	9.7	91.4
Stop Delay (hr)	0.0	34.7	0.6	35.4
Stop Del/Veh (s)	0.1	269.3	8.6	89.8

23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB Performance by movement

Movement	WBL	WBT	WBR	SBT	SBR	All
Denied Delay (hr)	0.7	42.9	7.2	0.0	0.0	50.7
Denied Del/Veh (s)	102.2	109.2	102.2	0.1	0.1	93.5
Total Delay (hr)	0.3	18.9	5.1	0.8	2.0	27.2
Total Del/Veh (s)	43.4	53.2	79.5	33.1	41.1	54.4
Stop Delay (hr)	0.2	14.5	4.5	0.7	1.8	21.6
Stop Del/Veh (s)	32.5	40.7	68.9	26.9	36.2	43.1

24: Memorial Dr EB & Memorial Drive U-Turn WB to EB Performance by movement

Movement	EBT	SBL	All
Denied Delay (hr)	0.2	0.0	0.2
Denied Del/Veh (s)	0.5	0.0	0.5
Total Delay (hr)	21.0	0.3	21.3
Total Del/Veh (s)	44.8	14.3	43.3
Stop Delay (hr)	15.3	0.3	15.6
Stop Del/Veh (s)	32.7	13.0	31.7

25: North First St & O'Brien Highway Performance by movement

Movement	EBT	EBR	WBT	WBR	NBL	NBT	SBL	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.1	0.0	0.0	185.8	134.0	14.6	334.5
Denied Del/Veh (s)	0.0	0.0	0.1	0.9	0.0	0.0	1509.8	1512.7	1459.3	395.0
Total Delay (hr)	8.9	0.6	2.2	2.9	0.9	0.9	10.5	6.7	0.1	33.8
Total Del/Veh (s)	32.8	52.6	12.0	48.3	25.6	13.4	417.0	377.0	77.6	50.1
Stop Delay (hr)	7.8	0.5	1.2	2.7	0.9	0.8	10.5	6.7	0.1	31.3
Stop Del/Veh (s)	28.7	48.1	6.6	45.6	24.3	12.0	416.7	376.0	76.4	46.3

65: Main St Performance by movement

Movement	EBT	SBT	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Delay (hr)	0.2	0.0	0.0	0.2
Total Del/Veh (s)	1.9	1.5	0.6	1.5
Stop Delay (hr)	0.0	0.0	0.0	0.0
Stop Del/Veh (s)	0.1	0.2	0.0	0.1

Total Zone Performance

Denied Delay (hr)	2264.8
Denied Del/Veh (s)	412.6
Total Delay (hr)	1112.3
Total Del/Veh (s)	1218.2
Stop Delay (hr)	1038.2
Stop Del/Veh (s)	1137.1

Queuing and Blocking Report
2024 Future PM

06/23/2021

Intersection: 1: Third St & O'Brien Highway

Movement	EB	EB	EB	WB	WB	NB	NB	SB
Directions Served	LT	T	R	T	TR	L	LTR	LTR
Maximum Queue (ft)	292	270	255	349	337	110	452	43
Average Queue (ft)	156	149	95	150	131	107	444	14
95th Queue (ft)	257	251	186	291	281	119	453	42
Link Distance (ft)	1220	1220	1220	788	788		434	82
Upstream Blk Time (%)							39	
Queuing Penalty (veh)							271	
Storage Bay Dist (ft)						85		
Storage Blk Time (%)						34	76	
Queuing Penalty (veh)						149	298	

Intersection: 2: Third St & Cambridge St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	L	TR
Maximum Queue (ft)	951	324	2008	114	283
Average Queue (ft)	918	294	1433	20	145
95th Queue (ft)	942	319	2311	78	243
Link Distance (ft)	892	263	1996		434
Upstream Blk Time (%)	99	92	4		
Queuing Penalty (veh)	0	0	23		
Storage Bay Dist (ft)				90	
Storage Blk Time (%)				0	16
Queuing Penalty (veh)				0	2

Intersection: 3: First St/North First St & Cambridge St

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	LT	R	LT	R
Maximum Queue (ft)	195	396	161	146	1872	200	86	84
Average Queue (ft)	193	369	81	53	1408	199	31	29
95th Queue (ft)	212	389	154	128	1828	208	75	75
Link Distance (ft)		349	148	148	1965		69	69
Upstream Blk Time (%)		87	1	0	1		3	4
Queuing Penalty (veh)		0	2	1	6		5	7
Storage Bay Dist (ft)	170					175		
Storage Blk Time (%)	71	27			35	44		
Queuing Penalty (veh)	111	80			210	183		

Intersection: 4: Cambridge St/East Street & O'Brien Highway

Movement	EB	EB	EB	WB	WB	WB	NB	SB	SB
Directions Served	T	T	T	L	LT	T	R	LT	TR
Maximum Queue (ft)	200	195	203	210	418	414	177	57	86
Average Queue (ft)	177	158	148	73	242	258	152	17	31
95th Queue (ft)	218	210	212	163	373	390	193	44	66
Link Distance (ft)	168	168	168		775	775	148	279	279
Upstream Blk Time (%)	64	16	10				31		
Queuing Penalty (veh)	189	49	30				227		
Storage Bay Dist (ft)				375					
Storage Blk Time (%)					1				
Queuing Penalty (veh)					1				

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Movement	EB	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	R	L	T	T	R	L	T	T
Maximum Queue (ft)	300	825	838	804	85	558	540	563	175	279	331	342
Average Queue (ft)	298	776	711	415	3	360	295	343	165	133	209	216
95th Queue (ft)	303	852	1038	892	60	597	493	546	208	232	299	306
Link Distance (ft)		775	775	775			1573	1573			1908	1908
Upstream Blk Time (%)		40	20	1								
Queuing Penalty (veh)		221	108	7								
Storage Bay Dist (ft)	200				400	890			150	600		
Storage Blk Time (%)	85	93		0				28	12			
Queuing Penalty (veh)	289	315		0				103	40			

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Movement	NB	SB	SB	SB
Directions Served	R	L	LT	TR
Maximum Queue (ft)	472	225	1658	1654
Average Queue (ft)	241	119	1515	1524
95th Queue (ft)	406	262	1910	1881
Link Distance (ft)	1908		1602	1602
Upstream Blk Time (%)			72	74
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)		200		
Storage Blk Time (%)		0	53	
Queuing Penalty (veh)		1	32	

Intersection: 6: Portland Street & Broadway

Movement	EB	WB	NB	NB	SB	SB
Directions Served	LTR	LTR	L	TR	L	TR
Maximum Queue (ft)	1054	216	576	235	63	187
Average Queue (ft)	545	196	163	191	12	97
95th Queue (ft)	1147	266	500	265	40	163
Link Distance (ft)	1202	197	758			193
Upstream Blk Time (%)	12	22	4			1
Queuing Penalty (veh)	0	147	0			0
Storage Bay Dist (ft)				210	30	
Storage Blk Time (%)			0	18	22	48
Queuing Penalty (veh)			0	12	43	6

Intersection: 7: Technology Square/Hampshire Street & Broadway

Movement	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	LTR	L	T	R	L	TR	L	TR
Maximum Queue (ft)	213	99	403	424	449	456	299	53
Average Queue (ft)	171	9	336	165	300	397	169	19
95th Queue (ft)	240	59	497	446	583	518	346	57
Link Distance (ft)	197		370	370	412	412	300	
Upstream Blk Time (%)	20		12	4	36	71	27	
Queuing Penalty (veh)	60		50	16	0	0	0	
Storage Bay Dist (ft)		100						50
Storage Blk Time (%)		0	75				57	3
Queuing Penalty (veh)		0	5				13	4

Intersection: 8: Galileo Galilei Way & Binney St & Fulkerson St

Movement	EB	WB	WB	SB	SE	SE
Directions Served	T	T	R>	R>	<	LR
Maximum Queue (ft)	608	240	125	579	125	980
Average Queue (ft)	330	201	98	224	94	947
95th Queue (ft)	616	278	165	553	176	976
Link Distance (ft)	640	219		848		917
Upstream Blk Time (%)	3	32		0		100
Queuing Penalty (veh)	21	189		0		0
Storage Bay Dist (ft)			100		100	
Storage Blk Time (%)		48	16		20	80
Queuing Penalty (veh)		70	70		70	213

Intersection: 9: North Garage West Driveway & Binney St

Movement	EB	WB	NB
Directions Served	T	T	R
Maximum Queue (ft)	195	121	528
Average Queue (ft)	46	66	278
95th Queue (ft)	179	152	542
Link Distance (ft)	219	102	709
Upstream Blk Time (%)	3	27	0
Queuing Penalty (veh)	24	157	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 10: North Garage East Driveway & Binney St

Movement	EB	WB
Directions Served	TR	LT
Maximum Queue (ft)	98	787
Average Queue (ft)	40	283
95th Queue (ft)	126	879
Link Distance (ft)	102	1077
Upstream Blk Time (%)	9	6
Queuing Penalty (veh)	114	37
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 11: Third St & Binney St

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB
Directions Served	L	T	R	L	T	TR	LT	R	LTR
Maximum Queue (ft)	235	1077	225	265	560	556	1181	165	1065
Average Queue (ft)	231	913	122	145	320	331	947	125	395
95th Queue (ft)	262	1184	262	314	661	655	1415	237	942
Link Distance (ft)		1077			1065	1065	1161		1996
Upstream Blk Time (%)		9			3	3	15		0
Queuing Penalty (veh)		101			9	10	86		1
Storage Bay Dist (ft)	200		200	240				140	
Storage Blk Time (%)	58	17	1	1	40		76	2	
Queuing Penalty (veh)	450	95	9	2	45		168	7	

Intersection: 12: First St & Binney St

Movement	EB	EB	EB	WB	WB	NB	SB	SB
Directions Served	L	T	TR	LT	TR	LTR	LT	R
Maximum Queue (ft)	194	541	374	183	181	59	1366	225
Average Queue (ft)	157	186	88	137	157	16	1126	220
95th Queue (ft)	239	539	257	199	200	49	1308	246
Link Distance (ft)		1065	1065	154	154	193	1965	
Upstream Blk Time (%)		1	0	11	23			
Queuing Penalty (veh)		3	0	33	72			
Storage Bay Dist (ft)	170							200
Storage Blk Time (%)	28	3					23	64
Queuing Penalty (veh)	42	10					64	216

Intersection: 13: Land Blvd & Binney St

Movement	EB	EB	NB	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	LR	UL	L	T	T	T	T	T	R
Maximum Queue (ft)	143	158	324	348	569	470	108	308	307	216
Average Queue (ft)	59	74	198	237	130	105	32	213	226	85
95th Queue (ft)	123	144	328	350	399	327	82	295	302	179
Link Distance (ft)	154	154			1043	1043		1908	1908	1908
Upstream Blk Time (%)	0	1			1	0				
Queuing Penalty (veh)	0	2			0	0				
Storage Bay Dist (ft)			300	300			200			
Storage Blk Time (%)			0	8						
Queuing Penalty (veh)			0	18						

Intersection: 14: Galileo Galilei Way & Broadway /Broadway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	R	L	T	R
Maximum Queue (ft)	124	391	100	237	284	77	275	694	275	224	658	350
Average Queue (ft)	95	270	31	211	255	10	91	358	133	55	491	286
95th Queue (ft)	162	460	93	286	276	46	256	747	303	168	834	453
Link Distance (ft)		370			237	237		757				640
Upstream Blk Time (%)		20		8	61			3				23
Queuing Penalty (veh)		103		0	249			19				178
Storage Bay Dist (ft)	100		75	285			250		250	200		325
Storage Blk Time (%)	22	39	8	8	61		0	27	1	0	23	41
Queuing Penalty (veh)	80	70	39	37	173		0	49	6	0	86	211

Intersection: 15: Broadway & North Garage West Driveway

Movement	EB	WB
Directions Served	T	TR
Maximum Queue (ft)	251	115
Average Queue (ft)	96	99
95th Queue (ft)	277	108
Link Distance (ft)	237	96
Upstream Blk Time (%)	10	55
Queuing Penalty (veh)	50	546
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 16: Broadway & North Garage East Driveway

Movement	EB	WB	SB
Directions Served	T	T	R
Maximum Queue (ft)	102	171	621
Average Queue (ft)	63	128	466
95th Queue (ft)	133	184	580
Link Distance (ft)	96	131	762
Upstream Blk Time (%)	31	24	
Queuing Penalty (veh)	153	123	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 17: Ames St & Broadway

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	R	L	T	L	R
Maximum Queue (ft)	180	131	185	779	473	125
Average Queue (ft)	133	45	147	462	211	87
95th Queue (ft)	185	120	247	840	469	155
Link Distance (ft)	131			887	496	
Upstream Blk Time (%)	46	0		6	7	
Queuing Penalty (veh)	229	0		28	26	
Storage Bay Dist (ft)		150	160			100
Storage Blk Time (%)	46	0	7	57	26	17
Queuing Penalty (veh)	28	1	26	133	71	27

Intersection: 18: Main St/Third St & Broadway

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	TR	T	R	LT	R
Maximum Queue (ft)	365	906	157	140	82	1107	205
Average Queue (ft)	314	511	53	108	67	805	127
95th Queue (ft)	456	1086	119	133	98	1024	278
Link Distance (ft)		887		78		1161	
Upstream Blk Time (%)		10		65	9	0	
Queuing Penalty (veh)		72		361	0	2	
Storage Bay Dist (ft)	340		200		350		180
Storage Blk Time (%)	47	0	0	65	9	68	3
Queuing Penalty (veh)	226	1	0	123	33	77	19

Intersection: 19: Memorial Drive Ramp & Main St/Longfellow Bridge

Movement	EB	EB	WB	WB	NB	SB
Directions Served	T	TR	T	R	R	R
Maximum Queue (ft)	10	91	1199	125	385	302
Average Queue (ft)	0	10	339	35	352	158
95th Queue (ft)	7	49	1160	126	366	359
Link Distance (ft)	1071	1071	1565		334	290
Upstream Blk Time (%)			4		100	42
Queuing Penalty (veh)			0		0	0
Storage Bay Dist (ft)				100		
Storage Blk Time (%)			36	0		
Queuing Penalty (veh)			31	0		

Intersection: 20: Vassar St/Galileo Galilei Way & Main St

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	T	R	L	T	R
Maximum Queue (ft)	238	251	145	430	718	275	224	482	205
Average Queue (ft)	111	217	96	250	439	193	89	227	133
95th Queue (ft)	242	272	179	450	830	358	204	533	240
Link Distance (ft)		197		417	672			757	
Upstream Blk Time (%)	10	88		4	26			8	
Queuing Penalty (veh)	0	0		22	0			62	
Storage Bay Dist (ft)	225		120			250	200		180
Storage Blk Time (%)	10	88	4	45	30	17	12	6	6
Queuing Penalty (veh)	35	199	17	47	30	63	85	21	26

Queuing and Blocking Report
2024 Future PM

06/23/2021

Intersection: 21: Ames St & Main St

Movement	EB	WB	NB	SB	SB
Directions Served	LTR	LTR	LTR	LT	R
Maximum Queue (ft)	436	496	1141	352	125
Average Queue (ft)	412	249	895	145	84
95th Queue (ft)	504	512	1219	331	152
Link Distance (ft)	417	772	1177	496	
Upstream Blk Time (%)	36		13	1	
Queuing Penalty (veh)	137		32	2	
Storage Bay Dist (ft)					100
Storage Blk Time (%)				15	10
Queuing Penalty (veh)				28	19

Intersection: 22: Main St & Broadway

Movement	EB	WB	NE
Directions Served	T	T	R
Maximum Queue (ft)	18	1182	174
Average Queue (ft)	1	947	73
95th Queue (ft)	7	1427	135
Link Distance (ft)	78	1071	236
Upstream Blk Time (%)		50	
Queuing Penalty (veh)		274	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB

Movement	WB	WB	SB
Directions Served	LT	TR	TR
Maximum Queue (ft)	476	482	345
Average Queue (ft)	450	450	176
95th Queue (ft)	478	487	279
Link Distance (ft)	436	436	1177
Upstream Blk Time (%)	46	60	
Queuing Penalty (veh)	0	0	
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Queuing and Blocking Report

2024 Future PM

06/23/2021

Intersection: 24: Memorial Dr EB & Memorial Drive U-Turn WB to EB

Movement	EB	EB	SB
Directions Served	T	T	L
Maximum Queue (ft)	925	893	74
Average Queue (ft)	488	475	24
95th Queue (ft)	839	806	62
Link Distance (ft)	1187	1187	97
Upstream Blk Time (%)	0	0	0
Queuing Penalty (veh)	0	0	0
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 25: North First St & O'Brien Highway

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB
Directions Served	T	T	R	T	T	R	L	TR	LT	R
Maximum Queue (ft)	492	544	175	209	214	223	104	83	399	383
Average Queue (ft)	177	185	42	117	126	147	63	61	376	205
95th Queue (ft)	468	501	130	190	195	223	102	96	395	502
Link Distance (ft)	788	788		168	168	168	69	69	368	368
Upstream Blk Time (%)	1	1		1	1	13	20	20	99	33
Queuing Penalty (veh)	3	5		3	4	39	64	62	0	0
Storage Bay Dist (ft)			150							
Storage Blk Time (%)		18	0							
Queuing Penalty (veh)		8	0							

Intersection: 65: Main St

Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 10699

Intersection: 1: Third St & O'Brien Highway

Phase	2	3	4	6	8	9
Movement(s) Served	EBTL	SBTL	NBTL	WBT	Ped	EBWB
Maximum Green (s)	23.0	5.5	21.0	23.0	20.0	19.0
Minimum Green (s)	10.0	5.0	6.0	10.0	4.0	10.0
Recall	C-Min	Max	Min	C-Min	None	Ped
Avg. Green (s)	28.7	5.5	16.3	28.7	29.4	18.1
g/C Ratio	NA	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0	0
Cycles Maxed Out (%)	100	100	26	100	100	8
Cycles with Peds (%)	0	0	0	25	23	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: First St/North First St & Cambridge St

Phase	1	2	3	4	6	8
Movement(s) Served	WBL	EBTL	Ped	NBTL	WBT	SBTL
Maximum Green (s)	19.5	26.0	6.5	19.0	51.5	19.0
Minimum Green (s)	10.0	4.0	4.0	12.0	12.0	12.0
Recall	None	C-Min	Max	None	None	None
Avg. Green (s)	21.4	26.9	6.5	17.4	53.6	17.4
g/C Ratio	NA	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	14	0	14
Cycles Maxed Out (%)	88	100	100	63	100	63
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 4: Cambridge St/East Street & O'Brien Highway

Phase	1	2	4
Movement(s) Served	WBTL	EBT	SBTL
Maximum Green (s)	37.0	24.0	14.0
Minimum Green (s)	10.0	10.0	6.0
Recall	C-Min	Min	Min
Avg. Green (s)	38.0	23.8	13.5
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	6
Cycles Maxed Out (%)	100	94	92
Cycles with Peds (%)	89	86	92

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Land Blvd/Charlestown Ave & O'Brien Highway

Phase	1	2	4	5	6	8	9
Movement(s) Served	WBL	EBT	SBTL	EBL	WBT	NBTL	WBTL
Maximum Green (s)	7.0	23.0	21.0	13.0	17.0	31.0	6.0
Minimum Green (s)	6.0	10.0	8.0	6.0	10.0	8.0	4.0
Recall	C-Max	Max	None	None	C-Max	None	None
Avg. Green (s)	22.6	23.0	21.0	13.0	32.6	30.4	0.0
g/C Ratio	NA	NA	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	0	0	100
Cycles @ Minimum (%)	0	0	0	0	0	0	0
Cycles Maxed Out (%)	100	100	100	100	100	80	0
Cycles with Peds (%)	0	67	93	0	59	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Actuated Signals, Observed Splits
2024 Future PM

06/23/2021

Intersection: 8: Galileo Galilei Way & Binney St & Fulkerson St

Phase	2	3	4	5	6
Movement(s) Served	EBWB	SBR	SEL	WBR	WBT
Maximum Green (s)	38.0	15.0	15.0	12.0	22.0
Minimum Green (s)	20.0	10.0	10.0	6.0	20.0
Recall	C-Max	Ped	Ped	None	C-Max
Avg. Green (s)	39.2	13.8	15.0	10.7	27.1
g/C Ratio	NA	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	16	0
Cycles @ Minimum (%)	0	0	0	8	0
Cycles Maxed Out (%)	100	61	100	32	100
Cycles with Peds (%)	0	100	100	0	97

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 11: Third St & Binney St

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBT	NBTL	EBL	WBT	SBTL
Maximum Green (s)	13.0	23.0	30.0	16.0	20.0	30.0
Minimum Green (s)	6.0	20.0	25.0	6.0	20.0	25.0
Recall	None	C-Max	Max	None	C-Max	Max
Avg. Green (s)	10.1	28.9	30.0	15.9	20.1	30.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	13	0	0	0	0	0
Cycles @ Minimum (%)	13	0	0	0	95	0
Cycles Maxed Out (%)	28	100	100	95	100	100
Cycles with Peds (%)	0	82	100	0	93	90

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 12: First St & Binney St

Phase	1	2	4	6	8
Movement(s) Served	WBL	EBTL	NBTL	WBTL	SBTL
Maximum Green (s)	7.0	58.0	28.0	70.0	28.0
Minimum Green (s)	6.0	4.0	4.0	4.0	4.0
Recall	Max	C-Max	Max	C-Max	Max
Avg. Green (s)	7.0	58.0	28.0	74.0	28.0
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	100	100	100	100
Cycles with Peds (%)	0	87	86	93	100

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 13: Land Blvd & Binney St

Phase	1	2	3	4	5	6
Movement(s) Served	NBL	SBT	NBSB	EBL	Ped	NBT
Maximum Green (s)	32.0	10.0	27.0	31.0	35.0	10.0
Minimum Green (s)	8.0	8.0	8.0	8.0	4.0	8.0
Recall	None	C-Max	None	Max	None	C-Max
Avg. Green (s)	28.5	26.6	17.9	31.0	0.0	60.0
g/C Ratio	NA	NA	-0.01	NA	-0.01	NA
Cycles Skipped (%)	0	0	14	0	100	0
Cycles @ Minimum (%)	0	0	14	0	0	0
Cycles Maxed Out (%)	60	100	0	100	0	100
Cycles with Peds (%)	0	0	52	33	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 14: Galileo Galilei Way & Broadway /Broadway

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	WBL	EBT	NBL	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	8.0	28.0	8.0	25.0	13.0	23.0	10.0	24.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	None	Max	None	C-Max	None	Max
Avg. Green (s)	7.9	29.8	7.4	27.0	13.2	25.8	8.0	27.9
g/C Ratio	NA	NA	-0.01	NA	-0.01	NA	-0.01	NA
Cycles Skipped (%)	0	0	15	0	5	0	26	0
Cycles @ Minimum (%)	0	0	21	0	0	0	21	0
Cycles Maxed Out (%)	93	100	41	100	95	100	21	100
Cycles with Peds (%)	0	74	0	75	0	77	0	85

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 17: Ames St & Broadway

Phase	1	2	3
Movement(s) Served	EBWB	NBL	WBL
Maximum Green (s)	30.0	18.0	23.0
Minimum Green (s)	10.0	10.0	10.0
Recall	C-Max	Max	Max
Avg. Green (s)	30.0	18.0	23.0
g/C Ratio	NA	NA	NA
Cycles Skipped (%)	0	0	0
Cycles @ Minimum (%)	0	0	0
Cycles Maxed Out (%)	100	100	100
Cycles with Peds (%)	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 20: Vassar St/Galileo Galilei Way & Main St

Phase	1	2	4	5	6	7	8
Movement(s) Served	WBL	EBT	SBT	EBL	WBT	SBL	NBT
Maximum Green (s)	12.0	30.0	36.0	19.0	23.0	7.0	25.0
Minimum Green (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Recall	None	C-Max	Ped	None	C-Max	None	Ped
Avg. Green (s)	14.1	31.4	34.1	19.4	27.6	7.0	24.4
g/C Ratio	NA	NA	NA	-0.01	NA	-0.01	NA
Cycles Skipped (%)	0	0	0	6	0	17	0
Cycles @ Minimum (%)	0	0	0	0	0	3	0
Cycles Maxed Out (%)	81	100	61	56	100	74	75
Cycles with Peds (%)	0	100	100	0	100	0	100

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 23: Memorial Drive U-Turn WB to EB/Ames St & Memorial Dr WB

Phase	2	3	4	6
Movement(s) Served	EBT	SBT	Ped	WBTL
Maximum Green (s)	39.0	31.5	15.0	39.0
Minimum Green (s)	10.0	10.0	8.0	10.0
Recall	C-Max	None	None	C-Max
Avg. Green (s)	53.9	22.8	14.4	53.9
g/C Ratio	NA	NA	-0.01	NA
Cycles Skipped (%)	0	0	29	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	100	22	0	100
Cycles with Peds (%)	0	56	71	80

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 25: North First St & O'Brien Highway

Phase	2	3	4	6	8
Movement(s) Served	WBT EBWB	SBTL	EBT	NBTL	
Maximum Green (s)	34.0	18.5	30.0	34.0	30.0
Minimum Green (s)	10.0	6.0	6.0	10.0	6.0
Recall	C-Min	Max	Max	C-Min	Max
Avg. Green (s)	32.3	20.6	30.0	32.3	30.0
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	100	100	100	100
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Time of Day Parking Occupancy

Office/ R&D Parking Occupancy

Retail Parking Occupancy

Residential Parking Occupancy

Office/ R&D Parking Occupancy

	Blue Garage		Yellow Garage		Green Garage		Total	
Start Time	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied	Spaces Occupied	Percent Occupied

Total Spaces	1136		732		650		2518	
5:00 AM	135	12%	100	11%	156	19%	391	16%
6:00 AM	274	23%	161	18%	201	24%	636	25%
7:00 AM	501	43%	262	30%	290	35%	1053	42%
8:00 AM	757	65%	430	49%	396	48%	1583	63%
9:00 AM	931	80%	612	69%	520	63%	2063	82%
10:00 AM	995	85%	693	78%	594	72%	2282	91%
11:00 AM	1009	86%	712	80%	623	76%	2344	93%
12:00 PM	1003	86%	715	81%	618	75%	2336	93%
1:00 PM	964	82%	692	78%	609	74%	2265	90%
2:00 PM	885	76%	644	73%	576	70%	2105	84%
3:00 PM	741	63%	546	62%	519	63%	1806	72%
4:00 PM	501	43%	404	46%	408	50%	1313	52%
5:00 PM	292	25%	273	31%	276	33%	841	33%
6:00 PM	170	15%	190	21%	209	25%	569	23%
7:00 PM	95	8%	130	15%	167	20%	392	16%
8:00 PM	74	6%	101	11%	142	17%	317	13%
9:00 PM	61	5%	78	9%	130	16%	269	11%
10:00 PM	51	4%	66	7%	121	15%	238	9%
11:00 PM	46	4%	57	6%	120	15%	223	9%
12:00 AM	50	4%	58	7%	126	15%	234	9%
1:00 AM	50	4%	57	6%	126	15%	233	9%
2:00 AM	50	4%	57	6%	126	15%	233	9%
3:00 AM	51	4%	60	7%	127	15%	238	9%
4:00 AM	56	5%	66	7%	128	16%	250	10%

Retail Parking Occupancy

	Parking Capacity	Retail KSF	Parking Capacity Ratio
50/60 Hampshire	8	8.606	0.93
300 Third Street	2	2.215	0.90
610 Main Street	7	8.682	0.81
75/125 Binney	2	2.159	0.93
215 First Street	3	33.898	0.09
50/60 Binney Street	0	2.097	0.00
Cambridge Center	0	46.524	0.00
Kendall Square	0	33.187	0.00
1 Rogers	23	13.314	1.73
Technology Square	9	62.266	0.14
TOTAL	54	212.948	0.25

*Data from latest PTDM Report available.

Total Parking Capacity for all the retail in the Kendall square area.
Capacity Ratio = (Total Parking Capacity)/(Total Retail KSF)

Residential Parking Occupancy

Time of Day	2017 North Point			249 Third Street Lot			285/303 Third Street			Sierra&Tango			Twenty 20		
	Nov-17			Sep-14			Sep-14			14-May-18			14-May-18		
	Occupancy	% Occupancy	Demand Ratio	Occupany	% Occupancy	Demand Ratio	Occupany	% Occupancy	Demand Ratio	Occupancy	% Occupancy	Demand Ratio	Occupany	% Occupancy	Demand Ratio
12:00 AM										184	99.5%	0.56	102	94.4%	0.31
1:00 AM										184	99.5%	0.56	102	94.4%	0.31
2:00 AM				Demand Ratio = (Occupancy)/(Leased Units)						185	100.0%	0.56	102	94.4%	0.31
3:00 AM										184	99.5%	0.56	101	93.5%	0.31
4:00 AM	240	99.2%	0.48							184	99.5%	0.56	102	94.4%	0.31
5:00 AM	241	99.6%	0.48							178	96.2%	0.54	103	95.4%	0.32
6:00 AM	242	100.0%	0.49	101	100.0%	0.54	258	100.0%	0.54	163	88.1%	0.50	102	94.4%	0.31
7:00 AM	242	100.0%	0.49							139	75.1%	0.42	84	77.8%	0.26
8:00 AM	227	93.8%	0.46							120	64.9%	0.36	77	71.3%	0.24
9:00 AM	203	83.9%	0.41							109	58.9%	0.33	70	64.8%	0.21
10:00 AM	189	78.1%	0.38							109	58.9%	0.33	63	58.3%	0.19
11:00 AM	175	72.3%	0.35							110	59.5%	0.33	54	50.0%	0.17
12:00 PM	166	68.6%	0.33	75	74.3%	0.40	186	72.1%	0.39	105	56.8%	0.32	53	49.1%	0.16
1:00 PM	150	62.0%	0.30							103	55.7%	0.31	48	44.4%	0.15
2:00 PM	147	60.7%	0.30							107	57.8%	0.33	49	45.4%	0.15
3:00 PM	136	56.2%	0.27							115	62.2%	0.35	50	46.3%	0.15
4:00 PM	148	61.2%	0.30							125	67.6%	0.38	52	48.1%	0.16
5:00 PM	149	61.6%	0.30	79	78.2%	0.42	219	84.9%	0.45	129	69.7%	0.39	67	62.0%	0.21
6:00 PM	157	64.9%	0.32							140	75.7%	0.43	76	70.4%	0.23
7:00 PM	172	71.1%	0.35							153	82.7%	0.47	90	83.3%	0.28
8:00 PM	177	73.1%	0.36							163	88.1%	0.50	96	88.9%	0.29
9:00 PM	190	78.5%	0.38							172	93.0%	0.52	103	95.4%	0.32
10:00 PM	206	85.1%	0.41	93	92.1%	0.50	257	99.6%	0.53	178	96.2%	0.54	108	100.0%	0.33
11:00 PM	217	89.7%	0.44							182	98.4%	0.55	108	100.0%	0.33
MAX			0.49			0.54301075			0.53526971			0.56231			0.3312883

Parking Supply Ratio = (Garage Capacity)/(Total Units)			Max Demand Ratio = (Max Parking Demand)/(Leased Units)		
Garage Capacity	Leased Parking Spaces	Total Units	Leased Units	Parking Supply Ratio	Max Parking Demand Ratio
North Point	434	521	498	0.83	0.49
195 Binney Street	194	186	186	1.04	0.54
285/303 Third Street	527	482	482	1.09	0.54
1/2 Earhart	329	329	329	1.00	0.56
Twenty 20	184	355	326	0.52	0.33
					0.49
					Capacity Based on Max Demand = (Max Demand Ratio) x (Leased Units)
					assumed 100% occupied
					assumed 100% occupied
					includes each garage plus Lot U

Time of Day Average Occupancy

97.0%
97.0%
97.2%
96.5%
97.7%
97.1%
96.5%
84.3%
76.7%
69.2%
65.1%
60.6%
64.2%
54.0%
54.7%
54.9%
59.0%
71.3%
70.3%
79.0%
83.4%
89.0%
94.6%
96.0%

Average of all % Occupancies

Table 1.C.3 On-Site Parking Supply and Demand - Weekday

Location/User	Total Spaces	Demand (spaces)			
		Morning (6-7 a.m.)	Midday (12-1 p.m.)	Afternoon (5-6 p.m.)	Evening (10-11 p.m.)
249 Third Street Lot					
195 Binney Residents	74	52	29	40	51
Rogers Street					
195 Binney Residents	14	6	9	6	2
195 Binney Parking Garage					
195 Binney Residents	106	43	37	33	40
285/303 Third Street Garage	527	-	-	-	-
285/303 Third Street Residents	-	258	186	219	254
Alexandria	-	3	134	53	4
Total	721	362	395	351	351
% Occupancy		50%	55%	49%	49%

*Data from 349 Third Street project - Provided by Adam

Transit Analysis

MBTA Red Line Analysis

MBTA Green Line Analysis

MBTA Bus Analysis

MBTA Red Line Analysis

MBTA RED LINE ANALYSIS

KSURP 2021 TIS Update

	STEP 1: Existing Capacity	STEP 2: 2021 Existing Ridership	STEP 3: Existing V/C
1. Existing Capacity	100%	100%	100%
2. 2021 Existing Ridership	100%	100%	100%
3. Existing V/C	100%	100%	100%

RED LINE

Red Line @ Kendall Station	Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)	
	Inbound (Southbound to Ashmont/Braintree)	13	0.900	6	167	11,723
	Outbound (Northbound to Alewife)	13	0.900	6	167	11,723

* Schedule frequency assuming 4.5 minute headways, $60/4.5 = 13$ trains
 ** MBTA average 2019 on-time performance for Red Line from MBTA Dashboard website
 *** MBTA blue book 14th edition policy capacity & crush capacity

MBTA Fall 2019 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
9,228	473	1,892	7,809	3,595	2,222	205	5,612
5,605	118	2,679	3,044	7,607	1,649	609	8,648

Source: MBTA Fall 2019 data

AM Peak Hr	PM Peak Hour	Ridership	Ridership	AM V/C	PM V/C	AM Peak Hour	PM Peak Hour
---------------	-----------------	-----------	-----------	--------	--------	--------------	--------------

STEP 4 (Continued): 2021 Build Condition

STEP 4:

Red Line @ Kendall Station

Project-Generated Trips RED LINE			
AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
21	143	195	15
5	203	145	45
27	347	340	60

2021 RIDERSHIP + Project-Generated Transit 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
9,371	495	2,035	7,831	3,611	2,417	221	5,807		0.80	0.67	0.31	0.50
5,808	123	2,882	3,049	7,653	1,794	654	8,792	0.50	0.26	0.65	0.75	
adding project trips to existing loads - not incorporating boardings & alightings directly												

check:

ENTER = enter Project Site, Alighting the Red Line

STEP 5: 2024 No-Build Grown Ridership

2024 Future Condition growth from 2019 Condition

Years5

Red Line @ Kendall Station

1.9%

Red Line @ Alewife

Rate:***

Inbound (Soutbound to Ashmont/Braintree)

1.10

Outbound (Northbound to Alewife)

Based on the Boston Metropolitan Planning Organization/Central Transportation Planning Staff study of the impact of planned large developments in the Boston metropolitan area: B. Kaplan, W. Kuttner, and S. Peterson, Core-Capacity Constraints: Accommodating Growth on Greater Boston’s Congested Roads and Crowded Transit System, Central Transportation Planning Staff (“CTPS”), 2016.

Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)
13	0.900	6	167	11,723
13	0.900	6	167	11,723

2024 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
10,133	520	2,077	8,576	3,948	2,440	225	6,163	0.86	0.73	0.34	0.53
6,155	129	2,942	3,343	8,354	1,811	668	9,496	0.53	0.29	0.71	0.81

MBTA RED LINE ANALYSIS

KSURP 2021 TIS Update

STEP 6 (Continued): 2024 Grown + Background Project Ridership + Project Trips

STEP 6:

Red Line @ Kendall Station

Inbound (Soutbound to Ashmont/Braintree)

Outbound (Northbound to Alewife)

Background Trips RED LINE			
AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
347	709	832	427
89	1044	1006	233

2024 MBTA RIDERSHIP + Background Project Transit Trips + 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	
10,986	888	2,930	8,944	4,390	3,468	668	7,190		0.94	0.76	0.37	0.61	
7,402	224	4,189	3,437	8,632	2,962	947	10,647		0.63	0.29	0.74	0.91	

check: 436 1753 1838 660

MBTA RED LINE ANALYSIS

KSURP 2021 TIS Update

STEP 7: 2024 Grown + Background Project Ridership + Project Trips + Increased Red Line Capacity											Remaining Red Line Capacity											
Red Line @ Kendall Station	Red Line @ Alewife	Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Red Line Train	MBTA Policy Capacity (# Pax/Car)***	MBTA Policy Capacity (# Pax/Peak Hour)	MBTA CAPACITY AND MBTA RIDERSHIP				Total Pax				Pax / Train				Pax / Car			
							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	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting	Entering	Exiting
Inbound (Soutbound to Ashmont/Braintree)	Inbound (Soutbound to Ashmont/Braintree)	20	0.900	6	175	18,900	0.58	0.47	0.23	0.38	2352	3893	8113	5916	181	299	624	455	30	50	104	76
Outbound (Northbound to Alewife)	Outbound (Northbound to Alewife)	20	0.900	6	175	18,900	0.39	0.18	0.46	0.56	5915	8674	4071	2931	455	667	313	225	76	111	52	38

MBTA Green Line Analysis

MBTA GREEN LINE ANALYSIS

KSURP 2021 TIS Update

	STEP 1: Existing Capacity	STEP 2: Existing Ridership	STEP 3: Existing V/C
--	---------------------------	----------------------------	----------------------

GREEN LINE	Green Line @ Lechmere Station				
		Frequency (# Trains/Peak Hour)*	OTP Factor (on time performance)**	# Cars / Green Line Train	MBTA Policy Capacity (# Pax/Car)***
	Westbound (to Heath Street)	10	0.804	2	1,624
	Eastbound (to Lechemere)	10	0.804	2	1,624

* Schedule frequency assuming 6 minute headways, 60/6 = 10 trains
** On-time performance for Green Line E Branch from MBTA Dashboard website (average 2019)
*** MBTA blue book 14th edition policy capacity & crush capacity

Growth to 2019 Existing Conditions

Years 1
1.3%

Rate:***

Growth	1.01
--------	------

Based on the Boston Metropolitan Planning Organization/Central Transportation Planning Staff study of the impact of planned large developments in the Boston metropolitan area: B. Kaplan, W. Kuttner, and S. Peterson, Core-Capacity Constraints: Accommodating Growth on Greater Boston’s Congested Roads and Crowded Transit System, Central Transportation Planning Staff (“CTPS”), 2016.

MBTA 2019 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	768	0	768	0	728	0	728	0.00	0.47	0.00	0.45
523	0	523	0	583	0	583	0	0.32	0.00	0.36	0.00

Source: MBTA September 2018 data - adjusted to 2019 existing conditions year

AM Peak PM Peak
Hr Hour
Ridership Ridership AM V/C PM V/C

STEP 4 (Continued): 2019 Build Condition

STEP 4:

Project-Generated Trips GREEN LINE

AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
3	0	40	0
0	41	0	7

check:

3407

Green Line @ Lechmere Station

Westbound (to Heath Street)

Eastbound (to Lechemere)

2019 MBTA RIDERSHIP + Project-Generated Transit 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
0	771	0	771	0	768	0	768		0.00	0.47	0.00	0.47
564	0	564	0	590	0	590	0		0.35	0.00	0.36	0.00

adding project trips to existing loads - not incorporating boardings & alightings directly

EXIT = exit Project Site, Board the Green Line

STEP 5: 2024 No-Build Grown Ridership

2024 Future Condition growth from 2019 MBTA data					2024 Grown MBTA Data								MBTA CAPACITY AND MBTA RIDERSHIP								
Years5					AM Peak Hour				PM Peak Hour				AM Peak Hour		PM Peak Hour						
Green Line @ Lechmere Station	Rate:***1.5%				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	Enter V/C	Exit V/C	Enter V/C	Exit V/C
	Westbound (to Heath Street)				10	0.804	6	167	8,056	0	829	0	829	0	786	0	786	0.00	0.51	0.00	0.48
	Eastbound (to Lechemere)				10	0.804	6	167	8,056	564	0	564	0	629	0	629	0	0.35	0.00	0.39	0.00
Based on the Boston Metropolitan Planning Organization/Central Transportation Planning Staff study of the impact of planned large developments in the Boston metropolitan area: B. Kaplan, W. Kuttner, and S. Peterson, Core-Capacity Constraints: Accommodating Growth on Greater Boston’s Congested Roads and Crowded Transit System, Central Transportation Planning Staff (“CTPS”), 2016.																					

STEP 6 (Continued): 2024 Grown + Background Project Ridership + Project Trips

STEP 6:

Background Trips GREEN LINE

AM Peak Hour		PM Peak Hour	
OUT (Boardings)	IN (Alightings)	OUT (Boardings)	IN (Alightings)
0	489	0	111
87	0	473	0

Green Line @ Lechmere Station

Westbound (to Heath Street)

Eastbound (to Lechemere)

check:

87

489

473

111

2024 MBTA RIDERSHIP + Background Project Transit Trips + 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
0	832	489	832	0	826	111	826		0.00	0.51	0.00	0.51
605	0	605	0	637	0	637	0		0.37	0.00	0.39	0.00

MBTA Bus Analysis

BUS LINES

Bus Routes @ Kendall Square

	AM Frequency (# Buses/Peak Hour)	PM Frequency (# Buses/Peak Hour)	Average Peak Hour Frequency	On-Time Performance	MBTA Policy Capacity (# Pax/Bus)***	AM Peak MBTA Policy Capacity (# Pax/Peak Hour)	PM Peak MBTA Policy Capacity (# Pax/Peak Hour)	Average Peak Hour MBTA Policy Capacity (# Pax/Peak Hour)
64 Inbound	3.00	2.00	2.50	0.55	50.4	83	55	69
64 Outbound	2.00	2.00	2.00	0.55	50.4	55	55	55
85 Inbound	2.00	1.00	1.50	0.58	50.4	58	29	44
85 Outbound	1.00	1.00	1.00	0.58	50.4	29	29	29
CT2 Inbound	3.00	3.00	3.00	0.74	54.6	121	121	121
CT2 Outbound	3.00	2.00	2.50	0.74	54.6	121	81	101

NOTES:

1. MBTA scheduled arrival time at specified analysis bus stop

2. On-time performance for average of 2019

3. Peak Max Capacity Based on bus fleets for each route as of January 2021.

All Routes Inbound TOTAL

All Routes Outbound TOTAL

MBTA Route

64 Inbound
64 Outbound
85 Inbound
85 Outbound
CT2 Inbound
CT2 Outbound

Bus Stop Location

Broadway @ Galileo Way
Ames St @ Broadway
Broadway @ Galileo Way
Ames St @ Broadway
Ames St @ Main
Ames St @ Broadway

Towards

Kendall/MIT
Oak Square
Kendall/MIT
Spring Hill
Ruggles
Sullivan

Baseline 2021											
AM Peak Hour				PM Peak Hour				AM Peak Hour (distribution %)		PM Peak Hour (distribution %)	
Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Load Entering	Boardings (Trips OUT)	Alightings (Trips IN)	Load Exiting	Boardings (Trips OUT)	Alightings (Trips IN)	Boardings (Trips OUT)	Alightings (Trips IN)
42	0	19	23	10	0	1	9	0.5%	20.8%	0.5%	7.6%
7	0	0	7	36	7	0	42	0.9%	0.0%	11.8%	0.7%
73	1	24	51	4	0	0	4	6.0%	26.3%	0.0%	0.0%
3	0	0	3	20	4	0	24	0.0%	0.0%	7.3%	0.0%
111	18	25	103	41	29	3	66	82.8%	27.7%	51.7%	23.4%
53	2	23	33	61	16	10	67	9.8%	25.2%	28.7%	68.3%
	22	90			55	15		89%	75%	52%	31%
	22	90			55	15		11%	25%	48%	69%
								100%	100%	100%	100%

Source: MBTA Fall 2019 Data
Transit peak hours: AM Peak = 8:00-9:00 AM, PM Peak = 5:00-6:00 PM

AM Peak Hour			PM Peak Hour		
Enter V/C	Exit	V/C	Enter V/C	Exit	V/C
0.50	0.28		0.18	0.17	
0.13	0.13		0.64	0.76	
1.25	0.87		0.15	0.15	
0.10	0.10		0.68	0.82	
0.91	0.85		0.34	0.54	
0.44	0.27		0.76	0.83	

Project Trips BUSES				
AM Peak Hour			PM Peak Hou	
OUT (Boardings)	IN (Alightings)	TOTAL	OUT (Boardings)	IN (Alightings)
0	26	26	1	2
0	0	0	15	0
1	33	34	0	0
0	0	0	9	0
9	35	44	63	6
1	31	32	35	16
check: 11	125	136	123	24

Project Trips				
AM Peak Hour			PM Peak Hou	
ENTER	EXIT	TOTAL	ENTER	EXIT
125	11	136	24	123
347	27	373	60	340
41	3	44	7	40
513	41	554	91	503
From PTDM Data				

Total Project Trips					
AM Peak Hour			PM Peak Hour		
ENTER	EXIT	TOTAL	ENTER	EXIT	TOTAL
119	5	123	9	114	123
384	9	393	55	375	430
0	0	0	0	0	0
0	0	0	0	0	0
9	27	36	27	14	41
513	41	554	91	503	595

	Baseline 2021 + Project Trips (2021 Build)											
ir	AM Peak Hour				PM Peak Hour							
TOTAL	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
3	68	0.1	45	23	12	2.3	3	11	0.82	0.28	0.22	0.20
15	7	0.2	0	7	36	6.5	0	42	0.13	0.13	0.64	0.76
0	106	2.3	57	52	4	0.0	0	4	1.81	0.88	0.15	0.15
9	3	0.0	0	3	20	4.0	0	24	0.10	0.10	0.68	0.82
69	146	26.8	60	112	47	34.5	9	72	1.20	0.93	0.39	0.59
51	84	3.1	54	34	77	31.8	26	83	0.69	0.28	0.95	1.03
147												

ir
TOTAL
147
401
48

595 based on Empirical Trip Gen for Full Build

Transit Distribution			
Red Line	Green Line Bus		Total
73%	8%	19%	100.00%
66%	8%	26%	100.00%
72%	8%	20%	100.00%
72%	8%	20%	100.00%
63%	8%	29%	100.00%

2024 Future Condition growth from 2021 Condition	
Years	5
Rate:	0.7%
Growth	1.03

MBTA 2024 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	AM Peak Hour		PM Peak Hour	
								Enter V/C	Exit V/C	Enter V/C	Exit V/C
43	0	19	24	10	0	1	9	0.52	0.29	0.18	0.16
7	0	0	7	37	7	0	44	0.13	0.13	0.67	0.79
75	1	24	52	5	0	0	5	1.28	0.89	0.17	0.17
3	0	0	3	21	4	0	25	0.10	0.10	0.72	0.86
114	18	26	106	42	29	4	67	0.94	0.87	0.35	0.55
55	2	23	34	63	16	10	69	0.45	0.28	0.78	0.85

Background Project Trips BUSES					
AM Peak Hour			PM Peak Hour		
OUT (Boardings)	IN (Alightings)	TOTAL	OUT (Boardings)	IN (Alightings)	TOTAL
0	1	1	1	0	1
8	0	8	29	0	29
0	43	43	0	6	6
6	0	6	17	37	54
31	107	138	126	60	186
0	0	0	0	0	0
14	44	58	47	43	90

Baseline 2021 + Project Trips + Background Growth + Background Project Trips (2024 Future)											
AM Peak Hour				PM Peak Hour							
	Boardings (Trips OUT)	Alightings (Trips IN)			Boardings (Trips OUT)	Alightings (Trips IN)			Enter V/C	Exit V/C	
Load Entering			Load Exiting	Load Entering			Load Exiting				
70	0	46	24	12	2	3	11		0.84	0.29	0.22
7	8	0	15	37	51	0	88		0.13	0.27	0.67
151	2	100	53	11	0	6	5		2.58	0.91	0.38
3	6	0	9	58	30	37	51		0.10	0.31	1.98
256	58	168	146	108	218	70	256		2.11	1.20	0.89
86	3	54	35	79	51	26	104		0.71	0.29	0.98