Memorandum

To: Mr. Geoff Whitehouse
MME Newton Retail, LLC
10115 Jefferson Blvd
Culver, CA 90232

Date: November 9, 2020

Project #: 14559.00

From: Randall C. Hart, Principal
Matthew Duranleau, EIT

Re: Traffic Impact and Access Memorandum
Proposed Recreational Marijuana Dispensary
232 Boylston Street
Newton, Massachusetts

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VHB has conducted a traffic assessment to determine the suitability and potential impacts of a recreational marijuana dispensary (the Project) at 232 Boylston Street (Route 9) in Newton, Massachusetts (the Site). Specifically, the Project involves the conversion of an existing jewelry store into a recreational marijuana dispensary.

This memorandum includes an evaluation of the existing traffic operations and safety; assessment of future conditions without the Project; an estimate of projected traffic volumes for the Project; and its potential impact on future traffic operations in the area.

## Site Location and Proposed Development

The Site is located at 232 Boylston Street (Route 9) in Newton, Massachusetts. The Site currently includes one building of approximately 5,484 square feet (sf) formerly occupied by the Shreve, Crump & Low jewelry store. The Project includes renovations to the building that will reduce the gross square footage of the proposed recreational marijuana dispensary to approximately 4,825 sf. The Site is located adjacent to the Capital Grille restaurant to the west and the mixed-use Chestnut Hill Square development to the east and south and is connected internally to these two parcels via a driveway on the south side of the Site.

Under Existing conditions, the Site is accessed via an entrance-only driveway to the west of the building on Route 9 eastbound that is shared with the Capital Grille, as well as a full-access driveway to the east that is shared with Chestnut Hill Square. The east driveway only provides access into the Site from Route 9 eastbound while the west driveway provides access into the Site from Route 9 eastbound and westbound and egress from the Site to Route 9 eastbound only. To exit the Site onto Route 9 westbound, vehicles need to turn right onto Route 9 eastbound and use the U-turn underpass at Hammond Pond Parkway approximately ¼-mile east of the Site to reach Route 9 westbound. Under the proposed redevelopment, the access configuration will remain the same as existing conditions.

A total of 16 parking spaces are provided under existing conditions, consisting of 14 customer spaces and 2 employee spaces. To maximize the efficiency of operations on-Site, some modifications to the striped parking will be made to include 19 parking spaces, 10 of which will be managed parking spaces and the 9 remaining will be open to customers to self-park. All employees will be required to park off site and will either rideshare/taxi to the proposed facility. The location of remote parking is still be evaluated.

Figure 1 shows the Project Site in relation to the surrounding area.



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vhb

**Figure 1**

Site Location Map
232 Boylston Street
Newton, Massachusetts

0 50 100 Feet

## Existing Conditions

The following section provides a summary of the local intersection and roadway conditions in the immediate vicinity of the Site. Based on an understanding of the current traffic operations in the region, a study area comprised of the following intersections and their approach roadways were selected for review:

- Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway
- Route 9 Eastbound at West Site Driveway

Figure 2 shows the observed existing geometry and traffic control at each study area intersection.

The existing conditions analysis consists of an inventory of the traffic control, roadway, driveway, and intersection geometry in the study area, the collection of daily and peak hour traffic volumes, a summary of public transit options in the area, and a review of recent crash history.

### Study Area Roadways

*Boylston Street (Route 9)*

In this study area, Boylston Street (Route 9) is a six-lane roadway running in an east-west direction. To the west Route 9 connects to Newton Highlands and I-95, and to the east it connects to Hammond Pond Parkway and Boston. Sidewalks are provided along both sides of Route 9 in the study area. On-street parking is not permitted. MBTA bus route 60 travels along Route 9 in the study area. Route 9 falls under MassDOT jurisdiction and is classified as an urban principal arterial. There is a posted speed limit of 40 mph. Land use along Route 9 is primarily commercial and residential.

### Study Area Intersections

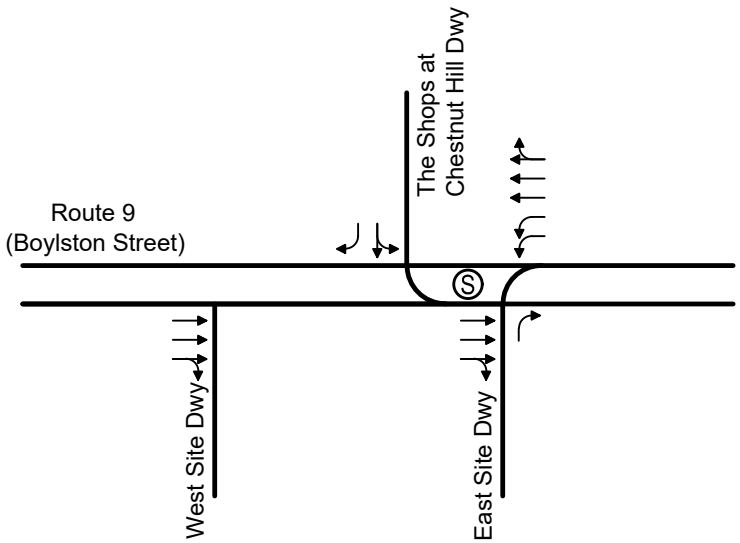
*Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway*

The east Site driveway intersects Route 9 from the south and The Shops at Chestnut Hill driveway intersects Route 9 from the north to form a four-way signalized intersection. The Route 9 eastbound approach consists of two through lanes and a shared through/right-turn lane. The Route 9 westbound approach consists of two left-turn lanes, two through lanes, and a shared through/right-turn lane. The east Site driveway northbound approach consists of a right-turn lane and left-turns onto Route 9 westbound are prohibited from this approach. The Shops at Chestnut Hill driveway southbound approach consists of a left-turn lane and a right-turn lane. Sidewalks are provided on all approaches and crosswalks are located across the westbound, northbound, and southbound approaches. Land use around the intersection is mainly commercial, as both the northbound and southbound legs are driveways to shopping plazas.

*Route 9 Eastbound at West Site Driveway*

The west Site driveway intersects Route 9 eastbound from the south to form a three-legged unsignalized intersection. The Route 9 eastbound approach consists of two through lanes and a shared through/right-turn lane. The west Site driveway is one-way away from the intersection and consists of one receiving lane. Sidewalks are provided along Route 9 and a crosswalk is provided across the west Site driveway. Land use at the intersection is mainly commercial.

Ⓢ Signalized Intersection




Not to Scale

**Figure 2**

Lane Geometry and Traffic Control
232 Boylston Street
Newton, Massachusetts

### Traffic Volumes

To assess the existing operational conditions at the study area intersections, a review of existing condition traffic volumes was conducted. Automatic traffic recorder (ATR) counts were conducted in June 2019 on Route 9 Eastbound in the vicinity of the Site and adjusted to reflect 2020 conditions. The counts were originally conducted in 2019 adjusting them by one year to 2020 results in conditions that are pre-covid, and therefore normal conditions. The average daily traffic volume data are summarized below in Table 1 and included in the Attachments to this document.

## Table 1 2020 Existing Traffic Volume Summary

| | Weekday Daily | Weekday Morning Peak Hour | | Weekday Evening Peak Hour | | Saturday Daily [a] | Saturday Midday Peak Hour | |
|---|---|---|---|---|---|---|---|---|
| **Location** | **Vol (vpd) [a]** | **Vol (vph) [b]** | **K Factor [c]** | **Vol (vph)** | **K Factor** | **Vol (vpd)** | **Vol (vph)** | **K Factor** |
| Route 9 Eastbound, west of West Site Driveway | 33,100 | 2,165 | 6.6% | 2,235 | 6.8% | 27,000 | 1,825 | 6.8% |

Source: Automatic Traffic Recorder (ATR) counts conducted by VHB on 6/6/19 and 6/8/19 and adjusted to reflect 2020 conditions.
a Daily traffic expressed in vehicles per day.
b Peak hour volumes expressed in vehicles per hour.
c Percent of daily traffic, which occurs during the peak hour.
Note: Peak hours do not necessarily coincide with the peak hours of the individual intersection turning movement counts.

As shown in Table 1, during a typical weekday, Route 9 eastbound carries approximately 33,100 vehicles per day with approximately 2,165 vehicles during the weekday morning peak hour and approximately 2,235 vehicles during the weekday evening peak hour. During a typical Saturday, Route 9 eastbound carries approximately 27,000 vehicles per day with approximately 1,825 vehicles during the Saturday midday peak hour.

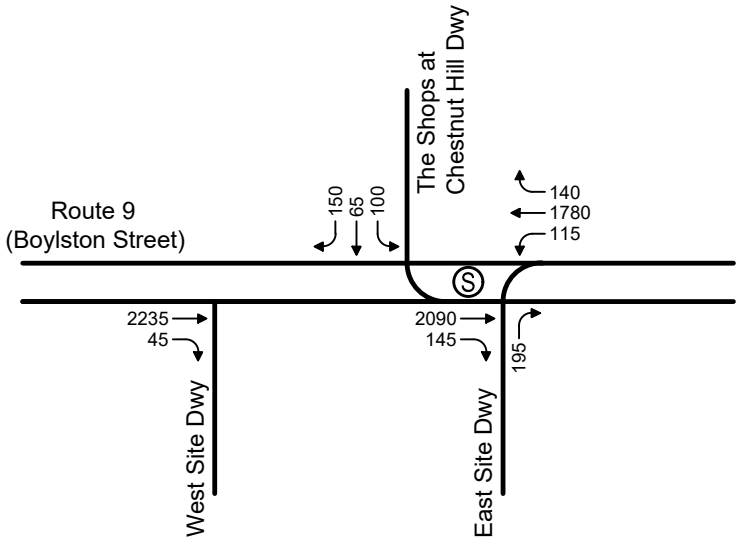
In addition to daily traffic volumes, peak hour turning movement counts (TMCs) were conducted at the study area intersections in June 2019 during the weekday evening peak period from 4:00 PM to 6:00 PM and during the Saturday midday peak period from 11:00 AM to 2:00 PM. These time periods were considered following the standard practice of evaluating the combined peak period for roadway and development traffic. Based on a review of the count data, the weekday evening and Saturday midday peak hours of vehicular activity were determined to be 5:00 PM to 6:00 PM and 1:00 PM to 2:00 PM, respectively. The traffic volume count data was adjusted to reflect 2020 conditions and is included in the Attachments to this memorandum.

#### *Seasonal Variation*

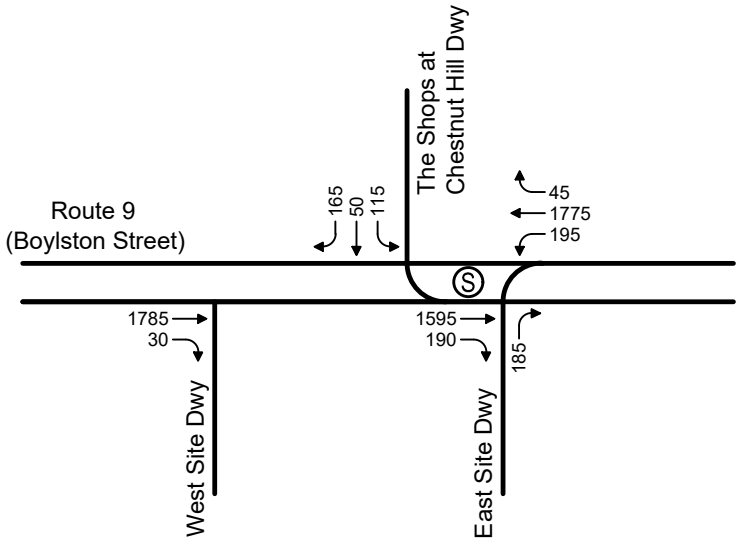
The traffic data collected for the study area was obtained during the month of June. To quantify the seasonal variation of traffic volumes in the area, historic traffic data available from MassDOT were reviewed. Specifically, 2018 monthly traffic volumes were reviewed at MassDOT permanent counting stations along I-90 and I-95 in Newton and Weston. Multiple count stations were reviewed in order to get an accurate representation of seasonal traffic volumes in the region. Based on the review, traffic volumes in June are slightly higher than average month conditions. To present a conservative analysis, the observed traffic volumes were not adjusted downward. The seasonal adjustment factors are included in the Attachments to this memorandum.

The resulting 2020 Existing traffic volume networks for the weekday evening and Saturday midday peak hours are shown in Figure 3.

Weekday Evening Peak Hour
Ⓢ Signalized Intersection




Saturday Midday Peak Hour
Ⓢ Signalized Intersection




Not to Scale

2020 Existing Conditions
Traffic Volumes
232 Boylston Street
Newton, Massachusetts

**Figure 3**

**Public Transportation**

Public transportation in Newton is provided by the Massachusetts Bay Transportation Authority (MBTA). MTBA bus route 60 travels along Route 9 and provides access to the Site. The nearest bus stop to the Site is located on Route 9 Eastbound approximately 300 feet west of the Site. Route 60 travels between The Mall at Chestnut Hill (renamed The Shops at Chestnut Hill) in Newton and Kenmore Station in Boston. Connections are provided to the Green Line at Kenmore Station. Service is provided approximately every 30-40 minutes during peak hours.

The Site is also served by the D branch of the MBTA's Green Line. The D branch of the Green Line connects Newton with Brookline and Boston and travels from Riverside in Newton to Government Center in Downtown Boston. The nearest stop to the Site on the D branch of the Green Line is Chestnut Hill, an approximately one mile of walking from the Site via Route 9 and Hammond Street. Service is provided approximately every 6-8 minutes during peak hours.

Public transportation route maps and schedules are provided in the Attachments to this memorandum. While public transportation is provided near the Site, to present a conservative analysis, no credit was taken for customers or employees arriving and departing via public transportation.

**Crash Summary**

A detailed crash analysis was conducted to identify potential vehicle accident trends and/or roadway deficiencies in the traffic study area. The most current vehicle accident data for the traffic study area intersections were obtained from MassDOT for the years 2013 to 2017. The MassDOT database is comprised of crash data from the Massachusetts Registry of Motor Vehicles (RMV) Division primarily for use in traffic studies and safety evaluations. Data files are provided for an entire city or town for an entire year, though it is possible that some crash records may be omitted either due to individual crashes not being reported, or the city crash records not being provided in a compatible format for RMV use.

Crash rates are calculated based on the number of accidents at an intersection and the volume of traffic traveling through that intersection on a daily basis. Rates that exceed MassDOT's average for accidents at intersections in the MassDOT district in which the town or city is located could indicate safety or geometric issues for a particular intersection. For our study area, the calculated crash rates for the study area intersections were compared to MassDOT's District 6 (the MassDOT district for Newton) average. In District 6, the average crash rate is 0.71 for signalized intersections and 0.52 for unsignalized intersections. These rates imply that, on average, 0.71 accidents occurred per million vehicles entering signalized intersections throughout District 6 and 0.52 accidents occurred per million vehicles entering unsignalized intersections in District 6. It should be noted that the location for some accidents cannot be precisely determined from the database.

A summary of the study intersections vehicle accident history based on the available RMV data is presented in Table 2 and the detailed crash data is provided in the Attachments to this memorandum.

## Table 2 Vehicular Crash Data (2013-2017)

| | Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway | Route 9 Eastbound at West Site Driveway |
|---|---|---|
| Signalized? | Yes | No |
| MassDOT Average Crash Rate | 0.71 | 0.52 |
| Calculated Crash Rate | 0.25 | 0.02 |
| Exceeds Average? | No | No |
| **Year** | | |
| 2013 | 4 | 1 |
| 2014 | 5 | 0 |
| 2015 | 5 | 0 |
| 2016 | 3 | 0 |
| 2017 | 7 | 0 |
| Total | 24 | 1 |
| **Collision Type** | | |
| Angle | 9 | 0 |
| Head-On | 0 | 0 |
| Rear-End | 8 | 0 |
| Rear-to-Rear | 1 | 0 |
| Sideswipe, opposite direction | 0 | 0 |
| Sideswipe, same direction | 4 | 0 |
| Single Vehicle Crash | 2 | 1 |
| Unknown/Not Reported | 0 | 0 |
| **Severity** | | |
| Fatal Injury | 0 | 0 |
| Non-Fatal Injury | 7 | 1 |
| Property Damage Only | 16 | 0 |
| Unknown/Not Reported | 1 | 0 |
| **Time of day** | | |
| Weekday, 7:00 AM - 9:00 AM | 1 | 1 |
| Weekday, 4:00 – 6:00 PM | 2 | 0 |
| Saturday, 11:00 AM – 2:00 PM | 1 | 0 |
| Weekday, other time | 13 | 0 |
| Weekend, other time | 7 | 0 |
| **Pavement Conditions** | | |
| Dry | 20 | 1 |
| Wet | 3 | 0 |
| Ice | 1 | 0 |
| Unknown/Not Reported | 0 | 0 |
| **Non-Motorist (Bike, Pedestrian)** | 2 | 1 |

Source: Crash data was obtained from MassDOT Crash Portal, accessed October 2020.

As shown in Table 2, none of the study area intersections have a calculated crash rate higher than the MassDOT average crash rate for District 6. The intersection of Route 9 Eastbound at West Site Driveway experienced one reported crash over the five-year period, and the intersection of Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway experienced 24 reported crashes over the five-year period. It should be noted that crashes involving parked vehicles were not included at the intersection of Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway, as it was assumed these crashes occurred in a parking lot because on-street parking is not permitted. The majority of crashes in the study area were rear-end and angle collisions on dry pavement resulting in property damage only. No fatal crashes were reported at either of the study area intersections. A total of three crashes occurred that involved bicyclists or pedestrians over the five-year period at the study area intersections.

#### *Highway Safety Improvement Program*

In addition to calculating the crash rate, study area intersections should also be reviewed in the MassDOT's Highway Safety Improvement Program (HSIP) database. An HSIP-eligible cluster is one in which the total number of "equivalent property damage only"[1] crashes in the area is within the top 5% of all clusters in that region. Being HSIP-eligible makes the location eligible for FHWA and MassDOT funds to address the identified safety issues at these locations. As part of this effort, VHB reviewed this database and found that neither of the study area intersections are listed as an HSIP-eligible cluster based on the 2015-2017 HSIP cluster listing.

## Future Conditions

To determine the impacts of the Site-generated traffic volumes in the vicinity of the Site, future traffic conditions were evaluated. A seven-year horizon (2027) was used for the evaluation consistent with MassDOT TIA requirements.

Traffic growth on area roadways is a function of the expected land development, environmental activity, and changes in demographics. A frequently used procedure is to identify estimated traffic generated by planned developments that would be expected to affect the Project study area roadways. An alternative procedure is to estimate an annual percentage increase and apply that increase to study area traffic volumes. For this evaluation, both procedures were used. The following summarizes this traffic forecasting process.

### Historic Growth

Traffic studies conducted in the City of Newton and historic count data were reviewed to establish a rate at which traffic volumes can be expected to grow. Specifically, traffic volumes presented in the traffic study for the adjacent Chestnut Hill Square development were reviewed to see how traffic has changed in the study area over the past ten years[2]. A comparison of the 2020 Existing traffic volume networks and the previously published traffic volumes from 2009 indicate that traffic Route 9 in the study area has decreased or approximately stayed the same over the past ten years. However, to present a conservative analysis, a 0.5-percent per year growth rate has been used to develop the 2027 No-Build and Build conditions. A comparison of the 2020 Existing traffic volumes and the 2009 historic traffic volumes are included in the Attachments to this memorandum.

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1 Equivalent property damage only" is a method of combining the number of crashes with the severity of the crashes based on a weighted scale. Crashes involving property damage only are reported at a minimal level of importance, while collisions involving personal injury (or fatalities) are weighted more heavily.

2 Chestnut Hill Square – EEA No. 12928, Supplemental Traffic Impact Assessment, Newton, Massachusetts; August 12, 2010; prepared by Vanasse & Associates, Inc.

**Site Specific Growth**

In addition to the historic traffic growth, VHB contacted representatives of the City of Newton to identify any other development projects planned within the vicinity of the Site. Based on these discussions, there is one planned development project that could affect traffic volumes in the vicinity of the Site:

- 392-404 Langley Road: Proposed residential development consisting of 20 units.

The associated traffic volumes from this project were added to the 2027 No-Build traffic volume networks and are included in the Attachments to this report.

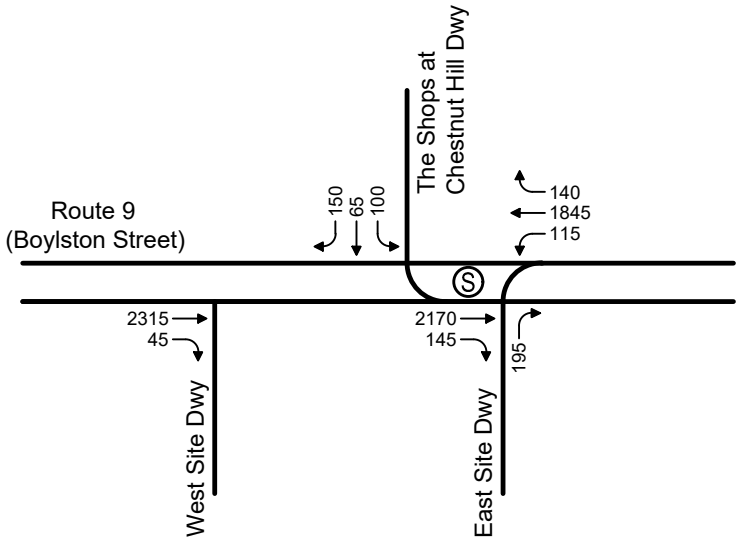
**Background Transportation Projects**

In assessing future traffic conditions, proposed roadway improvements within the study area were considered. Based on discussions with the City of Newton, there are no projects in the study area that would affect traffic volumes within the seven-year horizon.

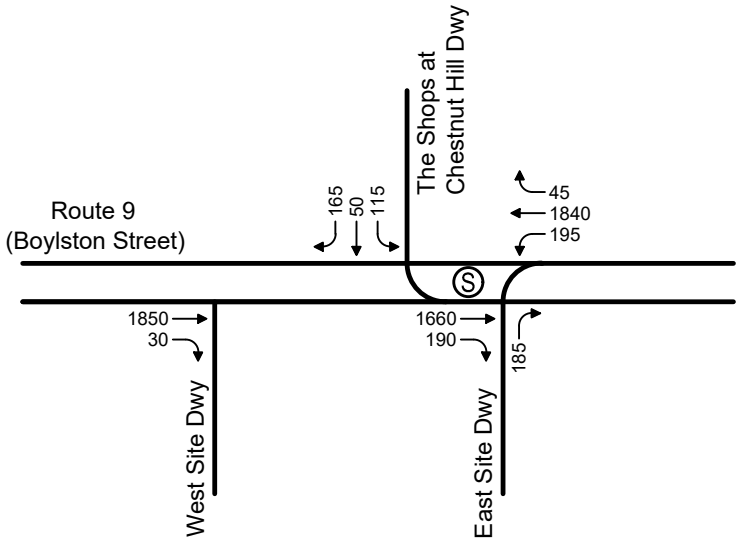
**No-Build Traffic Volumes**

The 2027 No-Build traffic volumes were generated by consideration of the above described factors. Figure 4 illustrates the resulting 2027 No-Build condition traffic volumes for the weekday evening and Saturday midday peak hours.

Weekday Evening Peak Hour
Ⓢ Signalized Intersection




Saturday Midday Peak Hour
Ⓢ Signalized Intersection




Not to Scale

2027 No-Build Conditions
Traffic Volumes
232 Boylston Street
Newton, Massachusetts

**Figure 4**

## Trip Generation

The rate at which any development generates traffic is dependent upon the size, location, and concentration of surrounding developments. As previously discussed, the proposed Project will include the redevelopment of an approximately 5,484 sf building currently housing a jewelry store into a 4,825-sf recreational marijuana dispensary. VHB used trip generation data provided in the *Trip Generation Manual*[3] published by the Institute of Transportation Engineers (ITE) to estimate the number of proposed Site-generated trips. Trip generation worksheets are included in the Attachments to this report.

### *Shared Trips*

Some of the traffic to be generated by the proposed redevelopment will be contained on-Site as "internal" or "shared vehicle" trips with customers that are visiting both the dispensary and the retail, restaurant and supermarket uses in Chestnut Hill Square. While these shared trips represent new traffic to the individual uses, they would not show up as new vehicle trips on the surrounding roadway network.

As described in the ITE Trip Generation Handbook[4] "because of the complementary nature of these land uses, some trips are made among the on-Site uses. This capture of trips internal to the Site has the net effect of reducing vehicle trip generation between the overall development Site and the external street system (compared to the total number of trips generated by comparable land uses developed individually on stand-alone sites). An internal capture rate can generally be defined as the percentage of total person trips generated by a Site that are made entirely within the Site. The trip origin, destination, and travel path are all within the Site."

Based on the methodology outlined in the ITE Trip Generation Handbook, internal capture rates were applied to the proposed Site-generated vehicle trips to account for shared trips between the proposed dispensary and the adjacent retail, restaurants, and supermarket in the Chestnut Hill Square development. Internal capture worksheets are included in the Attachments to this report.

### *Net New Project Generated Trips*

To estimate the net new Project-generated vehicle trips to the Site, shared trip rates were applied as discussed above and subtracted from the ITE unadjusted Site-generated trips. Table 3 summarizes the net new Project-generated trips.

3 Trip Generation Manual, 10th Edition, Institute of Transportation Engineers, Washington D.C., 2017.
4 Trip Generation Handbook, 3rd Edition, Institute of Transportation Engineers, Washington, D.C., 2017.

## Table 3 Net New Trip Generation Summary

| Time Period | Movement | Unadjusted Site-Generated Vehicle Trips [a] | Shared Trips [b] | Net New Site-Generated Vehicle Trips |
|---|---|---|---|---|
| Weekday Daily | Total | 1,220 | -354 | 866 |
| Weekday Evening | Enter | 53 | - 11 | 42 |
| Peak Hour | Exit | 53 | -11 | 42 |
| | Total | 106 | - 22 | 84 |
| Saturday Daily | Total | 1,252 | - 363 | 889 |
| Saturday Midday | Enter | 88 | - 18 | 70 |
| Peak Hour | Exit | 88 | - 18 | 70 |
| | Total | 176 | - 36 | 140 |

a Based on ITE land use code 882 (Marijuana Dispensary) for 4,825 sf using average rates.
b Internal capture rates applied based on ITE Trip Generation Handbook.

As shown in Table 3, the proposed Project is expected to result in approximately 84 new vehicle trips (42 entering / 42 exiting) during the weekday evening peak hour and approximately 140 new vehicle trips (70 entering / 70 exiting) during the Saturday midday peak hour. It should be noted that the trip generation projection for marijuana dispensary is based on national ITE data and does not represent data specific to Massachusetts or to Newton. The project will implement appointment only operations at the onset of the project and as a result the generated will be significantly less than that outlined in the table.

In addition, no credit was applied to the existing trips that the Site currently generates. To present a conservative analysis, no reduction was applied to the net new Site-generated trips to account for the traffic that is currently generated by the jewelry store. To also present a conservative analysis, no credit was applied for the Site's proximity to public transportation, even though some customers and employees may arrive/depart the Site via the bus or the Green Line.

**Trip Distribution**

The directional distribution of traffic approaching and departing the Site is a function of several variables. These include population densities, existing travel patterns, and the efficiency of the roadways leading to and from the Site. The trip distribution of the Site traffic used in this analysis is based on existing travel patterns within the study area. The trip distribution patterns for the Project, based on existing traffic conditions, are presented in Table 4 and illustrated in Figure 5.


0 50 100 Feet

**Figure 5**

Trip Distribution
232 Boylston Street
Newton, Massachusetts

## Table 4 Trip Distribution

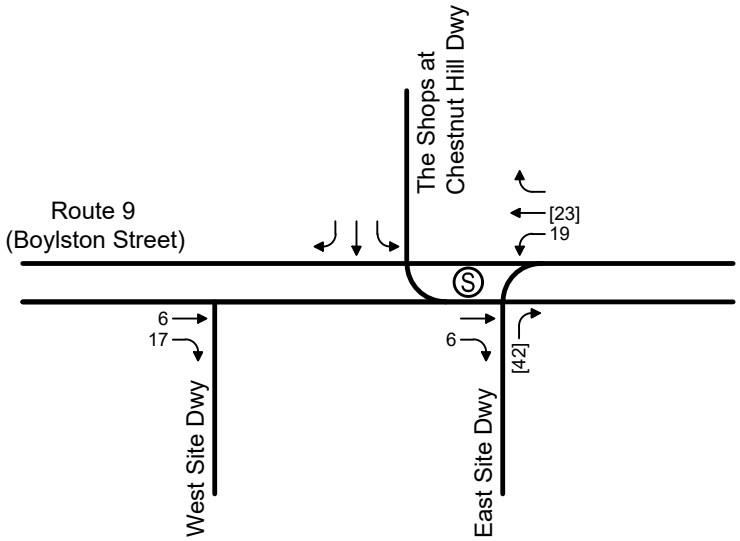
| Roadway | Direction (From/To) | Trip Distribution |
|---|---|---|
| Route 9 (Boylston Street) | East | 45% |
| Route 9 (Boylston Street) | West | 55% |
| **Total** | | **100%** |

As stated previously, vehicles entering the Site from Route 9 eastbound may use the east or west driveways while vehicles entering the Site from Route 9 westbound can only access the Site via the east driveway. All vehicles exiting the Site must use the east driveway to turn right onto Route 9 eastbound, and vehicles destined for Route 9 westbound must use the U-turn at the Hammond Pond Parkway underpass approximately ¼-mile east of the Site.

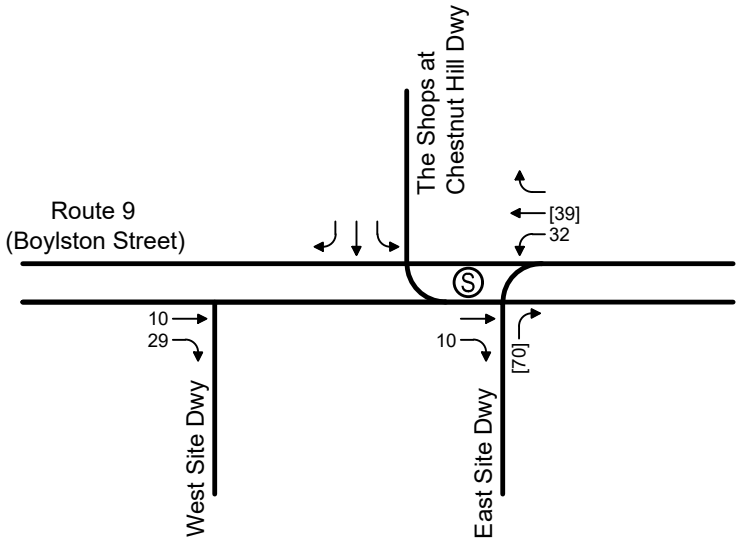
**Build Traffic Volumes**

The Project-related traffic volumes are assigned to the study area roadway network based on the trip distribution patterns shown in Table 4 and added to the 2027 No-Build peak hour traffic volume networks to develop the 2027 Build weekday evening and Saturday midday peak hour traffic volume networks. The Site-generated trips and the 2027 Build traffic volumes are shown in Figures 6 and 7 respectively for the weekday evening and Saturday midday peak hours.

Weekday Evening Peak Hour
Ⓢ Signalized Intersection
XX = Entering Trips
[XX] = Exiting Trips




Saturday Midday Peak Hour
Ⓢ Signalized Intersection
XX = Entering Trips
[XX] = Exiting Trips

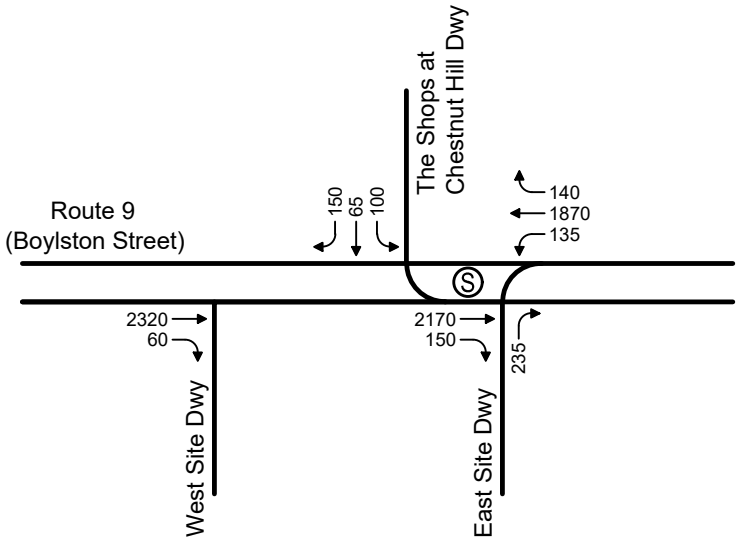



Not to Scale

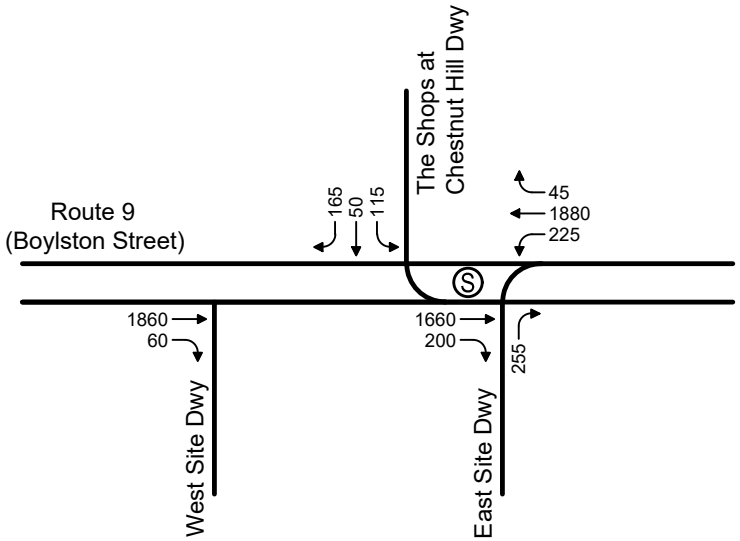
**Figure 6**

Site-Generated Traffic Volumes
232 Boylston Street
Newton, Massachusetts

Weekday Evening Peak Hour
Ⓢ Signalized Intersection




Saturday Midday Peak Hour
Ⓢ Signalized Intersection




Not to Scale

2027 Build Conditions
Traffic Volumes
232 Boylston Street
Newton, Massachusetts

**Figure 7**

## Traffic Operations Analysis

To assess quality of flow, intersection capacity analyses were conducted with respect to 2020 Existing, 2027 No-Build, and 2027 Build traffic volume conditions. Capacity analyses provide an indication of how well the roadway facilities serve the traffic demands placed upon them. Roadway operating conditions are classified by calculated levels-of-service.

### Level-Of-Service Criteria

Level-of-service (LOS) is the term used to denote the different operating conditions which occur for a given roadway segment or intersection under various traffic volume loads. It is a qualitative measure of a number of factors including roadway geometrics, speed, travel delay and freedom to maneuver. Level-of-service provides an index to the operational qualities of a roadway segment or an intersection. Level-of-service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing congested operating conditions.

For this study, capacity analyses were completed for the signalized Route 9 at East Site Driveway / Shops at Chestnut Hill Driveway intersection using Synchro traffic analysis software. For signalized intersections, the analysis considers the operation of each lane or lane group entering the intersection and the LOS designation is for overall conditions at the intersection.

A capacity analysis was not completed for the unsignalized Route 9 Eastbound at West Site Driveway intersection because it does not have any conflicting movements. For unsignalized intersections, the analysis typically assumes that traffic on the mainline is not affected by traffic on the side streets and the LOS is only determined for left turns from the main street and all movements from the minor street.

The evaluation criteria used to analyze the signalized study area intersection in this traffic study is based on the percentile-delay method (SYNCHRO results).

### Intersection Capacity Analysis

Levels-of-service analyses were conducted for the 2020 Existing, 2027 No-Build, and 2027 Build conditions for the signalized study area intersection. Table 5 summarizes the capacity analyses for the signalized intersection. The capacity analyses worksheets are included in the Attachments to this memorandum.

## Table 5 Signalized Intersection Capacity Analysis

| Location / Movement | 2020 Existing Conditions | | | | | 2027 No-Build Conditions | | | | | 2027 Build Conditions | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | v/c [a] | Del [b] | LOS [c] | 50 Q [d] | 95 Q [e] | v/c | Del | LOS | 50 Q | 95 Q | v/c | Del | LOS | 50 Q | 95 Q |
| **Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway** | | | | | | | | | | | | | | | |
| *Weekday Evening* | | | | | | | | | | | | | | | |
| EB T/R | 0.80 | 23 | C | 447 | 601 | 0.87 | 25.2 | C | 519 | #758 | 0.90 | 28 | C | 559 | #768 |
| WB L | 0.31 | 46 | D | 42 | 66 | 0.33 | 46.4 | D | 43 | 67 | 0.34 | 45 | D | 49 | 76 |
| WB T/R | 0.55 | 7 | A | 200 | 232 | 0.57 | 7.0 | A | 215 | 249 | 0.58 | 7 | A | 220 | 254 |
| NB R | 0.77 | 39 | D | 72 | 140 | 0.75 | 36.8 | D | 64 | 137 | 0.82 | 45 | D | 95 | 180 |
| SB L | 0.86 | 82 | F | 128 | #247 | 0.85 | 80.6 | F | 125 | #241 | 0.85 | 81 | F | 125 | #241 |
| SB T/R | 0.49 | 21 | C | 36 | 102 | 0.48 | 20.4 | C | 33 | 98 | 0.48 | 20 | C | 33 | 98 |
| **Total** | | **20** | **B** | | | | **21** | **C** | | | | **23** | **C** | | |
| *Saturday Midday* | | | | | | | | | | | | | | | |
| EB T/R | 0.68 | 19 | B | 347 | 426 | 0.70 | 19 | B | 366 | 453 | 0.73 | 21 | C | 393 | 470 |
| WB L | 0.59 | 53 | D | 78 | 108 | 0.56 | 52 | D | 75 | 106 | 0.52 | 47 | D | 82 | 119 |
| WB T/R | 0.55 | 7 | A | 225 | 214 | 0.54 | 7 | A | 222 | 220 | 0.55 | 7 | A | 210 | 227 |
| NB R | 0.70 | 33 | C | 54 | 126 | 0.71 | 33 | C | 56 | 128 | 0.85 | 49 | D | 110 | #219 |
| SB L | 0.80 | 72 | E | 122 | #249 | 0.80 | 74 | E | 120 | #246 | 0.83 | 78 | E | 123 | #246 |
| SB T/R | 0.52 | 23 | C | 44 | 117 | 0.52 | 23 | C | 42 | 116 | 0.53 | 24 | C | 44 | 116 |
| **Total** | | **18** | **B** | | | | **18** | **B** | | | | **20** | **C** | | |

a Volume to capacity ratio.
b Average total delay, in seconds per vehicle.
c Level-of-service.
d 50th percentile queue, in feet.
e 95th percentile queue, in feet.
# 95th percentile volume exceeds capacity, queue may be longer.

As shown in Table 5, between the 2027 No-Build conditions and the 2027 Build conditions, the overall level-of-service at the intersection of Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway is expected to maintain LOS C during the weekday evening peak hour and degrade to LOS C during the Saturday midday peak hour. While degradation in LOS is expected during the Saturday midday peak, it should be noted that the increase in delay is minor, approximately two seconds, and the increase in the queue is minimal for each movement/approach. LOS C is considered to be an acceptable level of service.

Between the 2020 existing conditions and the 2027 No-Build conditions, overall level-of-service is expected to deteriorate from LOS B to LOS C during the weekday evening peak hour and maintain LOS B during the Saturday midday peak hour. At the northbound Site Driveway approach to the intersection, the right-turn only movement is expected to maintain LOS D during the weekday evening peak hour and deteriorate from LOS C to LOS D during the Saturday midday peak hour. The 95$^{th}$-percentile queues on the northbound Site Driveway approach are expected to be between eight and nine vehicle lengths under the 2027 Build conditions with the Project in place.

As stated previously, the trip generation estimates are conservative and do not take into account the existing trips generated on-Site or the effect of customers or employees taking public transit to the Site. Therefore, the results presented above represent a conservative assessment and the actual operations may be better than what is summarized in the table.

## Conclusion

VHB has conducted a traffic assessment to determine the suitability and potential impacts of a recreational marijuana dispensary at 232 Boylston Street (Route 9) in Newton, Massachusetts. Specifically, the Project will include the conversion of an existing jewelry store into a recreational marijuana dispensary of approximately 4,825 sf.

Under existing conditions, the Site is accessed via an entrance-only driveway to the west of the Site on Route 9 eastbound as well as a full-access driveway to the east shared with Chestnut Hill Square. While the East Site Driveway provides access into the Site from both Route 9 eastbound and westbound, exiting traffic is restricted to right-turns only onto Route 9 eastbound and vehicles destined for Route 9 westbound must use the U-turn at the Hammond Pond Parkway underpass approximately ¼-mile east of the Site. Under the proposed redevelopment, the access configuration will remain the same as Existing conditions.

A total of 16 parking spaces are provided under Existing conditions, consisting of 14 customer spaces and 2 employee spaces. To maximize the efficiency of operations on-Site, some modifications to the striped parking will be made to include 19 parking spaces, 10 of which will be managed parking spaces and 9 remaining will be open to customers in general. All employees will be required to park off site and will either rideshare/taxi or shuttle to the proposed facility. The location of remote parking is still be evaluated.

The proposed Project is expected to generate approximately 84 new vehicle trips (42 entering / 42 exiting) during the weekday evening peak hour and approximately 140 new vehicle trips (70 entering / 70 exiting) during the Saturday midday peak hour. Based on the intersection capacity analysis, it is expected that the Project will have a minimal impact upon intersection operations within the study area. The project will implement appointment only operations at the onset of the project and as a result the generated will be significantly less than that outlined in the table.

# Attachments

- Traffic Volume Data
- Seasonal Adjustment Factors
- Public Transportation
- Vehicular Crash Data
- Historic Traffic Growth
- Planned/Approved Developments
- Trip Generation
- Intersection Capacity Analyses


*Map Credit: Google.com*

| | | | | |
|---|---|---|---|---|
| BOSTON TRAFFIC DATA | BTD ID: 393_071_VHB | Newton, MA | # of TMC's: 02 | Client: Vanasse Hangen Brustlin, Inc. |
| | | Collected on June 6 & 8, 2019 | # of ATR's: 01 | Contact: Matthew Duranleau |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

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## *HEAVY VEHICLES*

| | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 11 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 0 | 0 | 18 | 1 | 0 | 0 | 6 | 2 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 1 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 3 | 1 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 6 | 1 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 0 | 0 | 1 | 5 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 8 | 1 | 0 | 0 | 8 | 1 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 0 | 0 | 7 | 1 | 0 | 0 | 6 | 1 |

| **PM PEAK HOUR** 4:00 PM to 5:00 PM | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| | **0** | **0** | **0** | **0** | **0** | **10** | **0** | **7** | **0** | **0** | **38** | **2** | **0** | **0** | **23** | **4** |
| ***PHF*** | **0.00** | | | | **0.85** | | | | **0.53** | | | | **0.61** | | | |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

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***PEDESTRIANS & BICYCLES***

| | 250 Boylston Street Driveway Northbound | | | | | Chestnut Hill Mall Driveway Southbound | | | | | Route 9 Eastbound | | | | | Route 9 Westbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | |
| 4:00 PM | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 3 | |
| 4:15 PM | 0 | 0 | 0 | 4 | | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 7 | |
| 4:30 PM | 0 | 0 | 0 | 5 | | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 5 | |
| 4:45 PM | 0 | 0 | 0 | 2 | | 0 | 0 | 0 | 2 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 4 | |
| 5:00 PM | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 3 | |
| 5:15 PM | 0 | 0 | 0 | 2 | | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 7 | |
| 5:30 PM | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 5 | |
| 5:45 PM | 0 | 0 | 0 | 3 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 2 | |

| **PM PEAK HOUR**[1] | 250 Boylston Street Driveway Northbound | | | | | Chestnut Hill Mall Driveway Southbound | | | | | Route 9 Eastbound | | | | | Route 9 Westbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5:00 PM | | | | | | | | | | | | | | | | | | | | |
| to | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | |
| 6:00 PM | 0 | 0 | 0 | 9 | | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 17 | |

[1] *Peak hours corresponds to vehicular peak hours.*

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

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## *PASSENGER CARS & HEAVY VEHICLES COMBINED*

| | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 11:00 AM | 0 | 0 | 0 | 49 | 0 | 20 | 12 | 36 | 0 | 0 | 40 | 365 | 0 | 40 | 470 | 17 |
| 11:15 AM | 0 | 0 | 0 | 48 | 0 | 30 | 13 | 20 | 0 | 0 | 49 | 388 | 0 | 45 | 442 | 24 |
| 11:30 AM | 0 | 0 | 0 | 51 | 0 | 36 | 14 | 32 | 0 | 0 | 51 | 416 | 0 | 36 | 458 | 27 |
| 11:45 AM | 0 | 0 | 0 | 53 | 0 | 37 | 12 | 29 | 0 | 0 | 46 | 340 | 0 | 48 | 443 | 19 |
| 12:00 PM | 0 | 0 | 0 | 60 | 0 | 33 | 12 | 42 | 0 | 0 | 55 | 437 | 0 | 40 | 389 | 17 |
| 12:15 PM | 0 | 0 | 0 | 41 | 0 | 41 | 11 | 35 | 0 | 0 | 53 | 384 | 0 | 45 | 409 | 13 |
| 12:30 PM | 0 | 0 | 0 | 50 | 0 | 40 | 14 | 30 | 0 | 0 | 50 | 341 | 0 | 35 | 405 | 7 |
| 12:45 PM | 0 | 0 | 0 | 55 | 0 | 39 | 13 | 42 | 0 | 0 | 43 | 386 | 0 | 43 | 373 | 8 |
| 1:00 PM | 0 | 0 | 0 | 49 | 0 | 35 | 12 | 32 | 0 | 0 | 23 | 411 | 0 | 45 | 385 | 19 |
| 1:15 PM | 0 | 0 | 0 | 48 | 0 | 26 | 11 | 36 | 0 | 0 | 47 | 372 | 0 | 60 | 438 | 10 |
| 1:30 PM | 0 | 0 | 0 | 43 | 0 | 29 | 14 | 46 | 0 | 0 | 53 | 387 | 0 | 45 | 430 | 5 |
| 1:45 PM | 0 | 0 | 0 | 43 | 0 | 26 | 12 | 53 | 0 | 0 | 67 | 416 | 0 | 44 | 515 | 10 |

| **MID PEAK HOUR** | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1:00 PM | | | | | | | | | | | | | | | | |
| to | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 2:00 PM | **0** | **0** | **0** | **183** | **0** | **116** | **49** | **167** | **0** | **0** | **190** | **1586** | **0** | **194** | **1768** | **44** |
| ***PHF*** | **0.93** | | | | **0.91** | | | | **0.92** | | | | **0.88** | | | |
| ***HV %*** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.9%** | **0.0%** | **0.6%** | **0.0%** | **0.0%** | **6.8%** | **0.0%** | **0.0%** | **1.0%** | **1.5%** | **2.3%** |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

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## *HEAVY VEHICLES*

| | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 11:00 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 2 | 8 | 0 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 7 | 0 | 0 | 1 | 9 | 1 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 4 | 4 | 0 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 8 | 0 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 0 | 0 | 10 | 0 |
| 12:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 5 | 0 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 7 | 0 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 9 | 1 |
| 1:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 11 | 0 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 |
| 1:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 4 | 0 |

| **MID PEAK HOUR** 11:00 AM to 12:00 PM | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| | **0** | **0** | **0** | **1** | **0** | **2** | **0** | **1** | **0** | **0** | **24** | **1** | **0** | **7** | **28** | **1** |
| ***PHF*** | **0.25** | | | | **0.38** | | | | **0.89** | | | | **0.82** | | | |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

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## *PEDESTRIANS & BICYCLES*

| | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED |
| 11:00 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 11:45 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 12:00 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 PM | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 |
| 1:15 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 1:30 PM | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 1:45 PM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |

| **MID PEAK HOUR** 1:00 PM to 2:00 PM | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED |
| | 0 | 0 | 0 | 14 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 |

*NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.*

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

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## *PASSENGER CARS & HEAVY VEHICLES COMBINED*

| | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 496 | 6 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 464 | 4 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 504 | 8 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 474 | 7 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 559 | 14 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 541 | 4 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 553 | 11 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 573 | 16 | 0 | 0 | 0 | 0 |

| **PM PEAK HOUR** 5:00 PM to 6:00 PM | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| | **0** | **0** | **0** | **1** | **0** | **0** | **0** | **0** | **0** | **0** | **2226** | **45** | **0** | **0** | **0** | **0** |
| ***PHF*** | **0.25** | | | | **0.00** | | | | **0.96** | | | | **0.00** | | | |
| ***HV %*** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **1.3%** | **2.2%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

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Office: 978-746-1259
DataRequest@BostonTrafficData.com
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## *HEAVY VEHICLES*

| | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 4:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 19 | 1 | 0 | 0 | 0 | 0 |
| 4:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 |
| 5:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 1 | 0 | 0 | 0 | 0 |
| 5:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 5:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 |

| **PM PEAK HOUR** | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4:00 PM to | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 5:00 PM | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **40** | **3** | **0** | **0** | **0** | **0** |
| ***PHF*** | **0.00** | | | | **0.00** | | | | **0.54** | | | | **0.00** | | | |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 1 |
| Location: | Newton, MA |
| Street 1: | Route 9 at 250 Boylston St Driveway |
| Street 2: | Chestnut Hill Mall Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

## *PASSENGER CARS & HEAVY VEHICLES COMBINED*

| | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 4:00 PM | 0 | 0 | 0 | 36 | 0 | 34 | 6 | 44 | 0 | 0 | 459 | 37 | 0 | 34 | 473 | 34 |
| 4:15 PM | 0 | 0 | 0 | 48 | 0 | 23 | 10 | 43 | 0 | 0 | 438 | 26 | 0 | 46 | 451 | 28 |
| 4:30 PM | 0 | 0 | 0 | 42 | 0 | 16 | 18 | 42 | 0 | 0 | 476 | 28 | 0 | 22 | 472 | 26 |
| 4:45 PM | 0 | 0 | 0 | 57 | 0 | 23 | 13 | 39 | 0 | 0 | 453 | 21 | 0 | 25 | 480 | 29 |
| 5:00 PM | 0 | 0 | 0 | 44 | 0 | 17 | 14 | 41 | 0 | 0 | 528 | 31 | 0 | 30 | 478 | 34 |
| 5:15 PM | 0 | 0 | 0 | 56 | 0 | 26 | 21 | 39 | 0 | 0 | 511 | 30 | 0 | 22 | 453 | 32 |
| 5:30 PM | 0 | 0 | 0 | 44 | 0 | 31 | 17 | 40 | 0 | 0 | 519 | 34 | 0 | 36 | 423 | 28 |
| 5:45 PM | 0 | 0 | 0 | 50 | 0 | 27 | 11 | 32 | 0 | 0 | 524 | 50 | 0 | 28 | 418 | 45 |

| **PM PEAK HOUR** 5:00 PM to 6:00 PM | 250 Boylston Street Driveway Northbound | | | | Chestnut Hill Mall Driveway Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| | **0** | **0** | **0** | **194** | **0** | **101** | **63** | **152** | **0** | **0** | **2082** | **145** | **0** | **116** | **1772** | **139** |
| ***PHF*** | **0.87** | | | | **0.90** | | | | **0.97** | | | | **0.93** | | | |
| ***HV %*** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **8.9%** | **0.0%** | **1.3%** | **0.0%** | **0.0%** | **1.3%** | **2.1%** | **0.0%** | **0.9%** | **1.4%** | **2.2%** |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/6/2019 |
| Day of Week: | Thursday |
| Weather: | Partly Sunny, 70°F |

BOSTON TRAFFIC DATA
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***PEDESTRIANS & BICYCLES***

| | Capital Grille Driveway Northbound | | | | | Southbound | | | | | Route 9 Eastbound | | | | | Route 9 Westbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | |
| 4:00 PM | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| 4:15 PM | 0 | 0 | 0 | 1 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| 4:30 PM | 0 | 0 | 0 | 4 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| 4:45 PM | 0 | 0 | 0 | 2 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| 5:00 PM | 0 | 0 | 0 | 1 | | 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 | |
| 5:30 PM | 0 | 0 | 0 | 5 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| 5:45 PM | 0 | 0 | 0 | 2 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |

| **PM PEAK HOUR**[1] | Capital Grille Driveway Northbound | | | | | Southbound | | | | | Route 9 Eastbound | | | | | Route 9 Westbound | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5:00 PM | | | | | | | | | | | | | | | | | | | | |
| to | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | | Left | Thru | Right | PED | |
| 6:00 PM | 0 | 0 | 0 | 8 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |

[1] *Peak hours corresponds to vehicular peak hours.*

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

BOSTON TRAFFIC DATA
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## *PASSENGER CARS & HEAVY VEHICLES COMBINED*

| | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 405 | 5 | 0 | 0 | 0 | 0 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 437 | 6 | 0 | 0 | 0 | 0 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 467 | 6 | 0 | 0 | 0 | 0 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 386 | 2 | 0 | 0 | 0 | 0 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 492 | 4 | 0 | 0 | 0 | 0 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 437 | 4 | 0 | 0 | 0 | 0 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 391 | 8 | 0 | 0 | 0 | 0 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 429 | 3 | 0 | 0 | 0 | 0 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 434 | 6 | 0 | 0 | 0 | 0 |
| 1:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 419 | 7 | 0 | 0 | 0 | 0 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 440 | 12 | 0 | 0 | 0 | 0 |
| 1:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 483 | 6 | 0 | 0 | 0 | 0 |

| **MID PEAK HOUR** | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1:00 PM to | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 2:00 PM | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1776** | **31** | **0** | **0** | **0** | **0** |
| ***PHF*** | **0.00** | | | | **0.00** | | | | **0.92** | | | | **0.00** | | | |
| ***HV %*** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** | **0.7%** | **3.2%** | **0.0%** | **0.0%** | **0.0%** | **0.0%** |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

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## *HEAVY VEHICLES*

| | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 11:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 11:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 0 | 0 | 0 | 0 |
| 1:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 1:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 |

| **MID PEAK HOUR** | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11:00 AM to | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right | U-Turn | Left | Thru | Right |
| 12:00 PM | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **25** | **0** | **0** | **0** | **0** | **0** |
| ***PHF*** | **0.00** | | | | **0.00** | | | | **0.89** | | | | **0.00** | | | |

| | |
|---|---|
| Client: | Matthew Duranleau |
| Project #: | 393_071_VHB |
| BTD #: | Location 2 |
| Location: | Newton, MA |
| Street 1: | Route 9 |
| Street 2: | Capital Grille Driveway |
| Count Date: | 6/8/2019 |
| Day of Week: | Saturday |
| Weather: | Mostly Sunny, 70°F |

BOSTON TRAFFIC DATA
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## *PEDESTRIANS & BICYCLES*

| | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED |
| 11:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:15 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 11:45 AM | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:00 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 12:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:15 PM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| **MID PEAK HOUR** 1:00 PM to 2:00 PM | Capital Grille Driveway Northbound | | | | Southbound | | | | Route 9 Eastbound | | | | Route 9 Westbound | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED | Left | Thru | Right | PED |
| | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*NOTE: Peak hour summaries here correspond to peak hours identified for passenger car and heavy vehicles combined.*

# Volume Report

**Job** 393_071_VHB
**Area** Newton, MA
**Location** Route 9 Eastbound (east of 280 Boylston St Condo Driveway)

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

**Thursday, June 6, 2019**

| Time | EB Vehicles & Trucks | | EB Trucks | | Time | EB Vehicles & Trucks | | EB Trucks | |
|---|---|---|---|---|---|---|---|---|---|
| 0000 | 46 | | 2 | | 1200 | 518 | | 24 | |
| 0015 | 34 | | 0 | | 1215 | 618 | | 23 | |
| 0030 | 33 | | 2 | | 1230 | 626 | | 16 | |
| 0045 | 29 | 142 | 3 | 7 | 1245 | 645 | 2407 | 20 | 83 |
| 0100 | 37 | | 3 | | 1300 | 646 | | 10 | |
| 0115 | 18 | | 0 | | 1315 | 694 | | 31 | |
| 0130 | 20 | | 0 | | 1330 | 400 | | 14 | |
| 0145 | 15 | 90 | 1 | 4 | 1345 | 472 | 2212 | 17 | 72 |
| 0200 | 12 | | 0 | | 1400 | 466 | | 14 | |
| 0215 | 10 | | 1 | | 1415 | 434 | | 11 | |
| 0230 | 8 | | 1 | | 1430 | 463 | | 14 | |
| 0245 | 10 | 40 | 1 | 3 | 1445 | 400 | 1763 | 8 | 47 |
| 0300 | 13 | | 1 | | 1500 | 411 | | 7 | |
| 0315 | 17 | | 1 | | 1515 | 420 | | 9 | |
| 0330 | 20 | | 2 | | 1530 | 452 | | 10 | |
| 0345 | 11 | 61 | 1 | 5 | 1545 | 435 | 1718 | 8 | 34 |
| 0400 | 30 | | 2 | | 1600 | 496 | | 2 | |
| 0415 | 35 | | 2 | | 1615 | 464 | | 7 | |
| 0430 | 48 | | 3 | | 1630 | 493 | | 3 | |
| 0445 | 93 | 206 | 8 | 15 | 1645 | 474 | 1927 | 4 | 16 |
| 0500 | 108 | | 12 | | 1700 | 559 | | 1 | |
| 0515 | 201 | | 7 | | 1715 | 541 | | 4 | |
| 0530 | 324 | | 17 | | 1730 | 553 | | 3 | |
| 0545 | 386 | 1019 | 22 | 58 | 1745 | 573 | 2226 | 3 | 11 |
| 0600 | 450 | | 24 | | 1800 | 516 | | 3 | |
| 0615 | 516 | | 25 | | 1815 | 523 | | 4 | |
| 0630 | 533 | | 23 | | 1830 | 480 | | 2 | |
| 0645 | 491 | 1990 | 20 | 92 | 1845 | 508 | 2027 | 4 | 13 |
| 0700 | 441 | | 23 | | 1900 | 438 | | 3 | |
| 0715 | 527 | | 26 | | 1915 | 413 | | 2 | |
| 0730 | 568 | | 22 | | 1930 | 468 | | 2 | |
| 0745 | 528 | 2064 | 20 | 91 | 1945 | 457 | 1776 | 5 | 12 |
| 0800 | 513 | | 25 | | 2000 | 359 | | 2 | |
| 0815 | 507 | | 19 | | 2015 | 299 | | 4 | |
| 0830 | 580 | | 23 | | 2030 | 278 | | 3 | |
| 0845 | 556 | 2156 | 11 | 78 | 2045 | 218 | 1154 | 3 | 12 |
| 0900 | 478 | | 20 | | 2100 | 213 | | 3 | |
| 0915 | 492 | | 17 | | 2115 | 224 | | 1 | |
| 0930 | 523 | | 25 | | 2130 | 155 | | 1 | |
| 0945 | 504 | 1997 | 25 | 87 | 2145 | 144 | 736 | 0 | 5 |
| 1000 | 545 | | 15 | | 2200 | 191 | | 1 | |
| 1015 | 516 | | 20 | | 2215 | 194 | | 3 | |
| 1030 | 509 | | 20 | | 2230 | 154 | | 1 | |
| 1045 | 533 | 2103 | 19 | 74 | 2245 | 105 | 644 | 1 | 6 |
| 1100 | 478 | | 34 | | 2300 | 156 | | 2 | |
| 1115 | 523 | | 38 | | 2315 | 115 | | 2 | |
| 1130 | 463 | | 22 | | 2330 | 101 | | 0 | |
| 1145 | 493 | 1957 | 35 | 129 | 2345 | 115 | 487 | 1 | 5 |
| | | | | | **Total** | **32902** | | **959** | |

# Volume Report

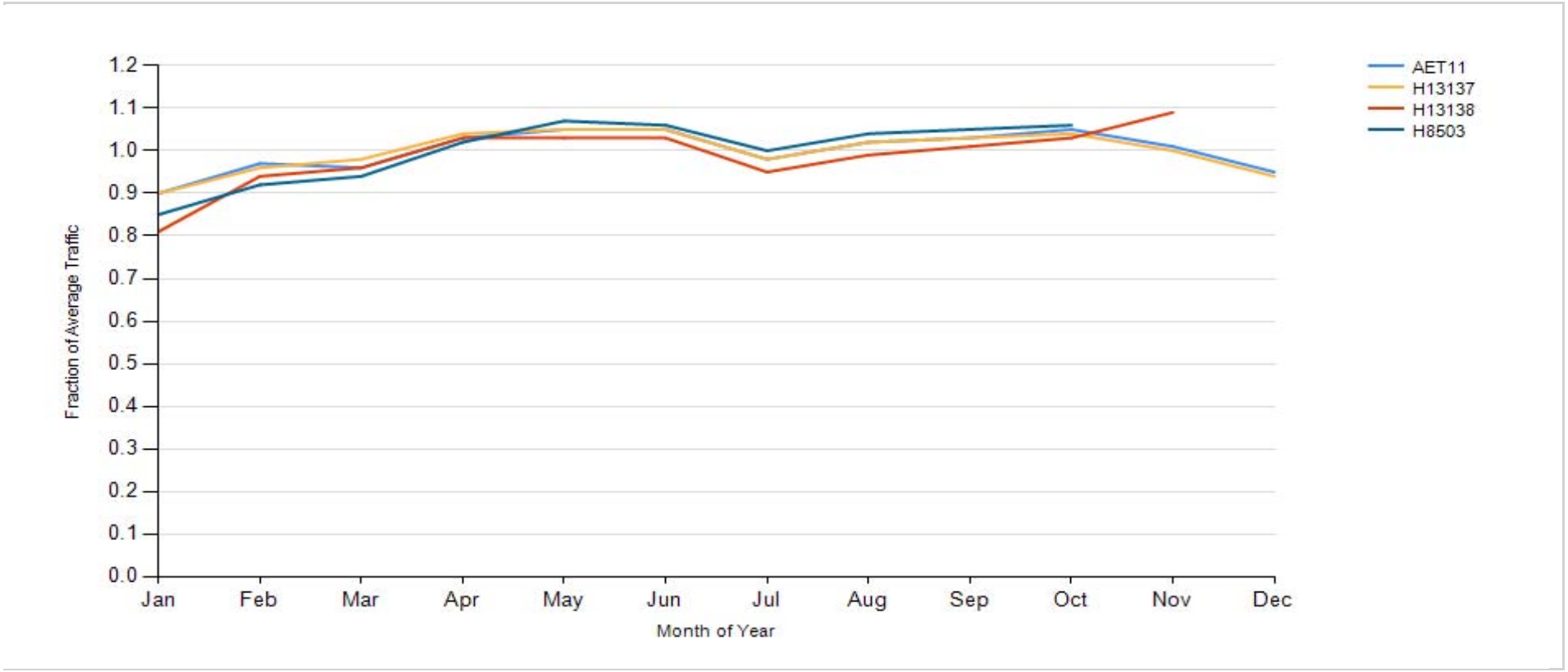
**Job** 393_071_VHB
**Area** Newton, MA
**Location** Route 9 Eastbound (east of 280 Boylston St Condo Driveway)

BOSTON TRAFFIC DATA
PO BOX 1723, Framingham, MA 01701
Office: 978-746-1259
DataRequest@BostonTrafficData.com
www.BostonTrafficData.com

**Saturday, June 8, 2019**

| Time | EB Vehicles & Trucks | | EB Trucks | | Time | EB Vehicles & Trucks | | EB Trucks | |
|---|---|---|---|---|---|---|---|---|---|
| 0000 | 84 | | 3 | | 1200 | 492 | | 8 | |
| 0015 | 55 | | 0 | | 1215 | 437 | | 6 | |
| 0030 | 52 | | 0 | | 1230 | 391 | | 8 | |
| 0045 | 96 | 287 | 3 | 6 | 1245 | 429 | 1749 | 10 | 32 |
| 0100 | 38 | | 1 | | 1300 | 434 | | 4 | |
| 0115 | 40 | | 3 | | 1315 | 419 | | 3 | |
| 0130 | 22 | | 0 | | 1330 | 440 | | 4 | |
| 0145 | 24 | 124 | 0 | 4 | 1345 | 483 | 1776 | 7 | 18 |
| 0200 | 15 | | 0 | | 1400 | 436 | | 2 | |
| 0215 | 24 | | 2 | | 1415 | 405 | | 1 | |
| 0230 | 14 | | 0 | | 1430 | 426 | | 3 | |
| 0245 | 18 | 71 | 2 | 4 | 1445 | 426 | 1693 | 2 | 8 |
| 0300 | 25 | | 0 | | 1500 | 439 | | 3 | |
| 0315 | 20 | | 1 | | 1515 | 468 | | 2 | |
| 0330 | 9 | | 0 | | 1530 | 435 | | 5 | |
| 0345 | 12 | 66 | 0 | 1 | 1545 | 447 | 1789 | 6 | 16 |
| 0400 | 8 | | 2 | | 1600 | 433 | | 2 | |
| 0415 | 18 | | 2 | | 1615 | 429 | | 4 | |
| 0430 | 31 | | 2 | | 1630 | 419 | | 1 | |
| 0445 | 28 | 85 | 2 | 8 | 1645 | 435 | 1716 | 3 | 10 |
| 0500 | 34 | | 2 | | 1700 | 419 | | 4 | |
| 0515 | 56 | | 2 | | 1715 | 463 | | 3 | |
| 0530 | 95 | | 3 | | 1730 | 472 | | 2 | |
| 0545 | 84 | 269 | 2 | 9 | 1745 | 454 | 1808 | 3 | 12 |
| 0600 | 93 | | 4 | | 1800 | 463 | | 4 | |
| 0615 | 162 | | 8 | | 1815 | 445 | | 3 | |
| 0630 | 180 | | 14 | | 1830 | 481 | | 2 | |
| 0645 | 185 | 620 | 11 | 37 | 1845 | 473 | 1862 | 3 | 12 |
| 0700 | 177 | | 14 | | 1900 | 464 | | 2 | |
| 0715 | 244 | | 12 | | 1915 | 489 | | 3 | |
| 0730 | 242 | | 18 | | 1930 | 471 | | 2 | |
| 0745 | 284 | 947 | 18 | 62 | 1945 | 317 | 1741 | 1 | 8 |
| 0800 | 262 | | 22 | | 2000 | 341 | | 1 | |
| 0815 | 283 | | 14 | | 2015 | 322 | | 2 | |
| 0830 | 329 | | 21 | | 2030 | 351 | | 1 | |
| 0845 | 365 | 1239 | 8 | 65 | 2045 | 370 | 1384 | 2 | 6 |
| 0900 | 326 | | 13 | | 2100 | 268 | | 1 | |
| 0915 | 454 | | 11 | | 2115 | 255 | | 3 | |
| 0930 | 431 | | 14 | | 2130 | 213 | | 1 | |
| 0945 | 461 | 1672 | 4 | 42 | 2145 | 251 | 987 | 2 | 7 |
| 1000 | 459 | | 4 | | 2200 | 217 | | 1 | |
| 1015 | 465 | | 3 | | 2215 | 214 | | 1 | |
| 1030 | 440 | | 6 | | 2230 | 209 | | 2 | |
| 1045 | 452 | 1816 | 4 | 17 | 2245 | 198 | 838 | 0 | 4 |
| 1100 | 405 | | 3 | | 2300 | 183 | | 1 | |
| 1115 | 437 | | 9 | | 2315 | 172 | | 0 | |
| 1130 | 467 | | 13 | | 2330 | 158 | | 1 | |
| 1145 | 386 | 1695 | 11 | 36 | 2345 | 152 | 665 | 1 | 3 |
| | | | | | **Total** | **26899** | | **427** | |

**Traffic Pattern by Month for 1/1/2018 - 12/31/2018**
**Criteria: Location ID = 41, 6161, 6345, 4165, 415, H8504, 32, H8503, H8502, H8501, H8500, H8499, H13137, H13138, H13139, H13140, AET11**



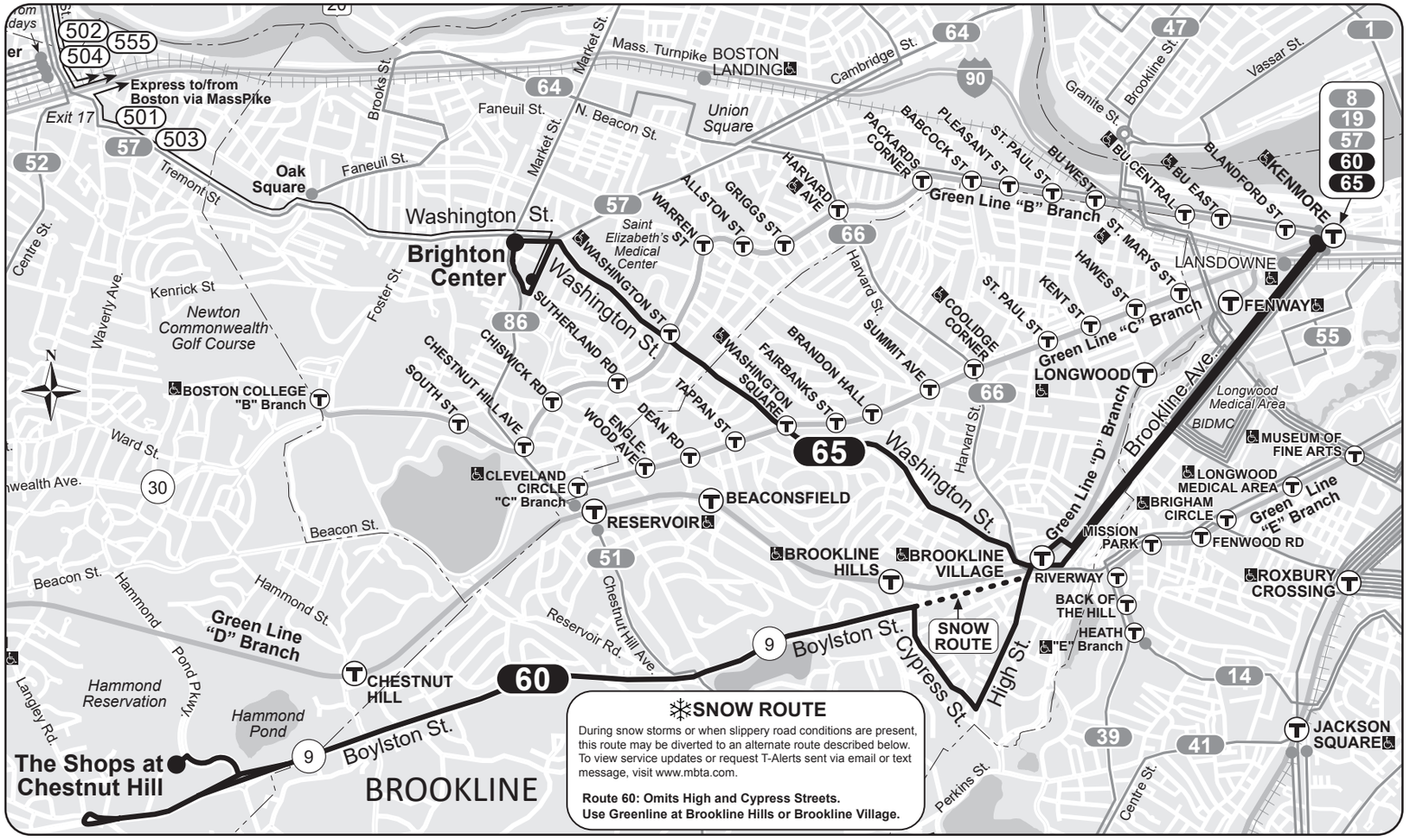

*Source: Massachusetts Department of Transportation Interactive Traffic Data Collection Map

**Traffic Pattern by Month for 1/1/2018 - 12/31/2018**
**Criteria: Location ID = 41, 6161, 6345, 4165, 415, H8504, 32, H8503, H8502, H8501, H8500, H8499, H13137, H13138, H13139, H13140, AET11**

| Station | Municipality | Location | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| AET11 | Newton | I-90, e of Lowell Ave | 0.902 | 0.971 | 0.961 | 1.035 | 1.052 | 1.053 | 0.979 | 1.015 | 1.033 | 1.049 | 1.006 | 0.946 |
| H13137 | Newton | I-90, e of I-95 | 0.899 | 0.958 | 0.978 | 1.040 | 1.054 | 1.048 | 0.981 | 1.019 | 1.033 | 1.043 | 1.004 | 0.940 |
| H13138 | Newton | I-90, e of Chestnut St | 0.807 | 0.944 | 0.962 | 1.027 | 1.027 | 1.027 | 0.953 | 0.992 | 1.006 | 1.032 | 1.093 | |
| H8503 | Weston | I-95, s of Recreation Rd | 0.846 | 0.916 | 0.937 | 1.017 | 1.066 | 1.063 | 0.996 | 1.038 | 1.054 | 1.065 | | |
| **Average of Weighted Factors** | | | **0.864** | **0.947** | **0.960** | **1.030** | **1.050** | **1.048** | **0.977** | **1.016** | **1.032** | **1.047** | **1.034** | **0.943** |

*Source: Massachusetts Department of Transportation Interactive Traffic Data Collection Map

# Route 60 Chestnut Hill - Kenmore Station
# Route 65 Brighton Center - Kenmore Station




Schedule Change

# 60•65

**Effective August 30, 2020**

**60 Chestnut Hill-Kenmore Station**

**65 Brighton Center-Kenmore Station**

**Serving**

- The Shops at Chestnut Hill
- St. Elizabeth's Medical Center
- Brookline Village
- Longwood Medical Area
- Beth Israel Deaconess Medical Center
- Fenway Park
- Green Line


Massachusetts Bay Transportation Authority

massDOT Massachusetts Department of Transportation

**Information 617-222-3200 • 1-800-392-6100**
**(TTY) 617-222-5146 • www.mbta.com**

## 60 Weekday

| Inbound | | | | Outbound | | | |
|---|---|---|---|---|---|---|---|
| Leave Shops at Chestnut Hill | Lv/Arrive Boylston at Tully | Arrive Brookline Village | Arrive Kenmore Station | Leave Kenmore Station | Arrive Brookline Village | Arrive Shops at Chestnut Hill | Arrive Boylston at Tully |
| ..... | 5:12A | 5:20A | 5:29A | ..... | 4:55A | 5:03A | 5:07A |
| ..... | 6:00 | 6:08 | 6:17 | 5:30A | 5:35 | 5:50 | 5:54 |
| ..... | 6:30 | 6:41 | 6:54 | 6:00 | 6:05 | 6:20 | 6:24 |
| ..... | 6:57 | 7:11 | 7:27 | 6:23 | 6:28 | 6:46 | 6:51 |
| ..... | 7:20 | 7:37 | 7:54 | 6:43 | 6:51 | 7:09 | 7:14 |
| ..... | 7:45 | 8:04 | 8:21 | 7:03 | 7:11 | 7:29 | 7:36 |
| ..... | 8:15 | 8:34 | 8:51 | 7:32 | 7:41 | 8:04 | 8:11 |
| ..... | 8:42 | 9:00 | 9:14 | 7:58 | 8:07 | 8:30 | 8:37 |
| ..... | 9:06 | 9:19 | 9:33 | 8:27 | 8:36 | 8:54 | 9:01 |
| ..... | 9:40 | 9:53 | 10:07 | 9:00 | 9:09 | 9:27 | 9:34 |
| ..... | 10:50 | 11:01 | 11:15 | 10:12 | 10:21 | 10:39 | 10:44 |
| | | | | 11:22 | 11:31 | 11:49 | 11:56 |
| ..... | **12:03P** | **12:14P** | **12:28P** | | | | |
| **1:10P** | **1:13** | **1:24** | **1:41** | **12:35P** | **12:44P** | **1:02P** | ..... |
| **2:10** | **2:14** | **2:26** | **2:43** | **1:35** | **1:44** | **2:03** | ..... |
| **2:42** | **2:46** | **2:58** | **3:15** | **2:00** | **2:10** | **2:33** | ..... |
| **3:12** | **3:16** | **3:28** | **3:45** | **2:30** | **2:40** | **3:03** | ..... |
| **3:42** | **3:46** | **3:58** | **4:15** | **3:00** | **3:10** | **3:33** | ..... |
| **4:12** | **4:16** | **4:28** | **4:45** | **3:25** | **3:36** | **4:01** | ..... |
| **4:39** | **4:43** | **4:55** | **5:12** | **3:55** | **4:06** | **4:31** | ..... |
| **5:09** | **5:13** | **5:25** | **5:42** | **4:25** | **4:36** | **5:01** | ..... |
| **5:41** | **5:45** | **5:57** | **6:14** | **4:55** | **5:08** | **5:37** | ..... |
| **6:10** | **6:14** | **6:26** | **6:40** | **5:20** | **5:33** | **6:02** | ..... |
| **6:35** | **6:39** | **6:49** | **7:02** | **5:50** | **6:01** | **6:26** | ..... |
| **7:00** | **7:02** | **7:11** | **7:23** | **6:20** | **6:29** | **6:54** | ..... |
| **7:19** | **7:21** | **7:30** | **7:42** | **6:48** | **6:57** | **7:17** | ..... |
| **7:45** | **7:47** | **7:56** | **8:08** | **7:15** | **7:22** | **7:41** | ..... |
| **8:15** | **8:17** | **8:26** | **8:38** | **7:45** | **7:52** | **8:11** | ..... |
| **8:45** | **8:47** | **8:56** | **9:08** | **8:15** | **8:22** | **8:41** | ..... |
| **9:15** | **9:17** | **9:26** | **9:38** | **8:45** | **8:52** | **9:11** | ..... |
| **10:15** | **10:17** | **10:26** | **10:38** | **9:45** | **9:52** | **10:11** | ..... |
| **11:15** | **11:17** | **11:26** | **11:38** | **10:45** | **10:52** | **11:07** | ..... |
| 12:06A | ..... | 12:18A | ..... | **11:40** | **11:46** | 12:01A | ..... |

## 60 Saturday

| Inbound | | | Outbound | | |
|---|---|---|---|---|---|
| Leave Shops at Chestnut Hill | Arrive Brookline Village | Arrive Kenmore Station | Leave Kenmore Station | Lv/Arrive Brookline Village | Arrive Shops at Chestnut Hill |
| 5:05A | 5:15A | 5:23A | ..... | 4:55A | 5:02A |
| 6:00 | 6:12 | 6:20 | 5:30A | 5:38 | 5:52 |
| 7:00 | 7:13 | 7:24 | 6:30 | 6:38 | 6:52 |
| 7:30 | 7:43 | 7:54 | 7:00 | 7:08 | 7:22 |
| 8:00 | 8:13 | 8:24 | 7:30 | 7:38 | 7:52 |
| 8:30 | 8:43 | 8:54 | 8:00 | 8:08 | 8:24 |
| 9:00 | 9:15 | 9:27 | 8:30 | 8:38 | 8:54 |
| 9:35 | 9:50 | 10:02 | 9:00 | 9:08 | 9:24 |
| 10:10 | 10:25 | 10:38 | 9:35 | 9:43 | 9:59 |
| 10:45 | 11:00 | 11:13 | 10:10 | 10:18 | 10:37 |
| 11:20 | 11:35 | 11:48 | 10:45 | 10:53 | 11:12 |
| 11:55 | **12:10P** | **12:23P** | 11:20 | 11:28 | 11:47 |
| | | | 11:55 | **12:03P** | **12:22P** |
| **12:30P** | **12:45** | **12:58** | | | |
| **1:05** | **1:20** | **1:33** | **12:30P** | **12:38** | **12:57** |
| **1:45** | **2:00** | **2:13** | **1:05** | **1:13** | **1:32** |
| **2:25** | **2:40** | **2:53** | **1:45** | **1:53** | **2:12** |
| **3:05** | **3:20** | **3:33** | **2:25** | **2:33** | **2:52** |
| **3:45** | **4:00** | **4:13** | **3:05** | **3:13** | **3:34** |
| **4:25** | **4:40** | **4:58** | **3:45** | **3:53** | **4:14** |
| **5:05** | **5:21** | **5:39** | **4:25** | **4:33** | **4:54** |
| **5:40** | **5:56** | **6:14** | **5:05** | **5:13** | **5:34** |
| **6:20** | **6:36** | **6:54** | **5:45** | **5:53** | **6:14** |
| **6:55** | **7:11** | **7:29** | **6:20** | **6:28** | **6:49** |
| **7:30** | **7:46** | **8:03** | **7:00** | **7:08** | **7:27** |
| **8:05** | **8:19** | **8:34** | **7:35** | **7:43** | **8:02** |
| **8:40** | **8:54** | **9:09** | **8:10** | **8:17** | **8:34** |
| **9:10** | **9:24** | **9:39** | **8:40** | **8:47** | **9:04** |
| **10:10** | **10:24** | **10:39** | **9:40** | **9:47** | **10:04** |
| **11:10** | **11:24** | **11:39** | **10:40** | **10:47** | **11:04** |
| 12:00M | 12:14A | 12:29A | **11:30** | **11:36** | **11:52** |
| 12:50 | 1:01 | ..... | 12:25A | 12:31A | 12:47A |

## 60 Sunday

| Inbound | | | Outbound | | |
|---|---|---|---|---|---|
| Leave Shops at Chestnut Hill | Arrive Brookline Village | Arrive Kenmore Station | Leave Kenmore Station | Arrive Brookline Village | Arrive Shops at Chestnut Hill |
| 6:30A | 6:42A | 6:52A | 6:00A | 6:06A | 6:23A |
| *Every* | *Hour* | *Until* | *Every* | *Hour* | *Until* |
| 11:30 | 11:44 | 11:54 | 11:00 | 11:06 | 11:23 |
| **12:35P** | **12:52P** | **1:04P** | **12:00N** | **12:08P** | **12:28P** |
| **1:45** | **2:02** | **2:14** | **1:10** | **1:18** | **1:38** |
| **2:55** | **3:12** | **3:24** | **2:20** | **2:28** | **2:48** |
| **4:05** | **4:22** | **4:34** | **3:30** | **3:38** | **3:58** |
| **5:15** | **5:32** | **5:42** | **4:40** | **4:48** | **5:08** |
| **6:25** | **6:42** | **6:52** | **5:50** | **5:58** | **6:18** |
| **7:30** | **7:45** | **7:55** | **7:00** | **7:08** | **7:27** |
| **8:30** | **8:45** | **8:55** | **8:00** | **8:07** | **8:25** |
| **9:30** | **9:45** | **9:55** | **9:00** | **9:07** | **9:25** |

## Route 60
## Chestnut Hill-Kenmore Station

## Route 65
## Brighton Center-Kenmore Station

## No Route 65 service on Sunday

**All buses are accessible to persons with disabilities**

| Fare | Local Bus | Bus + Bus | Rapid Transit | Bus + Rapid Transit |
|---|---|---|---|---|
| CharlieCard | $1.70 | $1.70 | $2.40 | $2.40 |
| CharlieTicket | $2.00 | $2.00 | $2.90 | $4.90 |
| Cash-on-Board | $2.00 | $4.00 | $2.90 | $4.90 |
| Student/Youth* | $0.85 | $0.85 | $1.10 | $1.10 |
| Senior/TAP** | $0.85 | $0.85 | $1.10 | $1.10 |

**VALID PASSES**: LinkPass ($90.00/mo.); Local Bus ($55/mo.); *Student/Youth LinkPass ($30.00/mo.); **Senior/TAP LinkPass ($30/mo.); and express bus, commuter rail, and boat passes.

**FREE FARES**: Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free and if using a guide, the guide rides free.

* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit www.mbta.com/youthpass for details.

** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

Fall 2020 & Winter 2021 Holidays
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

## 65 Weekday

| Inbound | | | Outbound | | |
|---|---|---|---|---|---|
| Leave Brighton Center | Arrive Brookline Village | Arrive Kenmore Station | Leave Kenmore Station | Arrive Brookline Village | Arrive Brighton Center |
| 5:58A | 6:10A | 6:23A | 6:13A | 6:22A | 6:36A |
| 6:10 | 6:22 | 6:35 | 6:51 | 7:00 | 7:18 |
| 6:25 | 6:37 | 6:52 | 7:23 | 7:33 | 7:53 |
| 6:40 | 6:54 | 7:10 | 7:40 | 7:52 | 8:11 |
| 6:48 | 7:03 | 7:19 | 7:56 | 8:06 | 8:24 |
| Every 8 mins or less until | | | 8:13 | 8:23 | 8:41 |
| 7:48 | 8:07 | 8:26 | 8:31 | 8:41 | 8:59 |
| 7:55 | 8:14 | 8:33 | 8:51 | 9:01 | 9:19 |
| 8:03 | 8:22 | 8:41 | 9:11 | 9:21 | 9:38 |
| 8:10 | 8:29 | 8:47 | 9:31 | 9:40 | 9:57 |
| 8:18 | 8:35 | 8:53 | 10:10 | 10:19 | 10:36 |
| 8:25 | 8:41 | 8:59 | 11:15 | 11:24 | 11:43 |
| 8:33 | 8:48 | 9:06 | | | |
| 8:40 | 8:55 | 9:13 | **12:25P** | **12:36P** | **12:55P** |
| 8:50 | 9:05 | 9:23 | **1:35** | **1:46** | **2:05** |
| 9:00 | 9:15 | 9:33 | **2:00** | **2:11** | **2:30** |
| 9:30 | 9:45 | 10:03 | **2:25** | **2:36** | **2:55** |
| 10:40 | 10:52 | 11:09 | **2:45** | **2:56** | **3:15** |
| 11:45 | 11:57 | **12:14P** | **3:15** | **3:26** | **3:45** |
| | | | **3:40** | **3:51** | **4:10** |
| **12:55P** | **1:07P** | **1:24** | **4:00** | **4:11** | **4:32** |
| **2:05** | **2:18** | **2:36** | **4:14** | **4:29** | **4:51** |
| **2:35** | **2:49** | **3:07** | **4:25** | **4:40** | **5:02** |
| **3:00** | **3:14** | **3:32** | **4:36** | **4:51** | **5:13** |
| **3:20** | **3:34** | **3:52** | **4:47** | **5:02** | **5:24** |
| **3:35** | **3:49** | **4:07** | **4:58** | **5:13** | **5:35** |
| **3:57** | **4:11** | **4:29** | **5:09** | **5:24** | **5:46** |
| **4:19** | **4:33** | **4:51** | **5:20** | **5:35** | **5:57** |
| **4:41** | **4:55** | **5:13** | **5:31** | **5:46** | **6:07** |
| **4:52** | **5:06** | **5:24** | **5:42** | **5:57** | **6:16** |
| **5:03** | **5:17** | **5:35** | **5:53** | **6:06** | **6:25** |
| **5:14** | **5:28** | **5:46** | **6:04** | **6:15** | **6:34** |
| **5:25** | **5:39** | **5:57** | **6:15** | **6:26** | **6:45** |
| **5:36** | **5:50** | **6:08** | **6:26** | **6:37** | **6:56** |
| **5:47** | **6:01** | **6:19** | **6:37** | **6:48** | **7:07** |
| **5:58** | **6:12** | **6:30** | **6:50** | **7:01** | **7:20** |
| **6:09** | **6:23** | **6:41** | **7:35** | **7:46** | **8:05** |
| **6:20** | **6:34** | **6:52** | **8:35** | **8:44** | **8:58** |
| **6:42** | **6:56** | **7:14** | | | |
| **7:05** | **7:17** | **7:29** | | | |
| **8:09** | **8:19** | **8:31** | | | |

## 65 Saturday

| Inbound | | | Outbound | | |
|---|---|---|---|---|---|
| Leave Brighton Center | Arrive Brookline Village | Arrive Kenmore Station | Leave Kenmore Station | Arrive Brookline Village | Arrive Brighton Center |
| 6:45A | 6:54A | 7:03A | 7:15A | 7:23A | 7:37A |
| 7:45 | 7:54 | 8:03 | 8:15 | 8:23 | 8:36 |
| 8:45 | 8:55 | 9:04 | 9:15 | 9:23 | 9:36 |
| 9:45 | 9:57 | 10:05 | 10:15 | 10:23 | 10:36 |
| 10:45 | 10:56 | 11:05 | 11:15 | 11:23 | 11:37 |
| 11:45 | 11:57 | **12:06P** | | | |
| | | | **12:15P** | **12:26P** | **12:39P** |
| **12:45P** | **12:57P** | **1:06P** | **1:15** | **1:26** | **1:44** |
| **1:45** | **1:57** | **2:08** | **2:15** | **2:26** | **2:44** |
| **2:45** | **2:57** | **3:08** | **3:15** | **3:24** | **3:42** |
| **3:45** | **3:58** | **4:07** | **4:15** | **4:24** | **4:42** |
| **4:45** | **4:58** | **5:09** | **5:15** | **5:24** | **5:39** |
| **5:45** | **5:58** | **6:08** | **6:15** | **6:26** | **6:39** |

## Fares

| PRICE PER TRIP | Local Bus | Bus + Bus | Rapid Transit | Bus + Rapid Transit |
|---|---|---|---|---|
| CharlieCard | $1.70 | $1.70 | $2.40 | $2.40 |
| CharlieTicket | $2.00 | $2.00 | $2.90 | $4.90*** |
| Cash-on-Board | $2.00 | $4.00 | $2.90 | $4.90*** |
| Student/Youth* | $0.85 | $0.85 | $1.10 | $1.10 |
| Senior/TAP** | $0.85 | $0.85 | $1.10 | $1.10 |
| **UNLIMITED TRIP PASSES** | | | | |
| 1-Day | $12.75 | $12.75 | $12.75 | $12.75 |
| 7-Day | $22.50 | $22.50 | $22.50 | $22.50 |
| Monthly | $55.00 | $55.00 | $90.00 | $90.00 |
| Senior/TAP Monthly | $30.00/month for unlimited travel on Local Bus and Rapid Transit | | | |

**VALID PASSES**: LinkPass ($84.50/mo.); Student /Youth LinkPass* ($30/mo.) ; Senior/TAP LinkPass* ($30/mo.); and express bus, commuter rail, and boat passes.

**FREE FARES:** Children 11 and under ride free when accompanied by an adult; Blind Access CharlieCard holders ride free: if using a guide, the guide rides free

* Requires Student CharlieCard or Youth CharlieCard. Student CharlieCards are available to students through participating middle schools and high schools. Youth CharlieCards are available through community partners in the Boston metro area. Visit www.mbta.com/youthpass for details.

** Requires Senior/TAP CharlieCard, available to Medicare cardholders, seniors 65+, and persons with disabilities.

*** For Silver Line SL4 or SL5 pay $2.75. Also see "transfers."

**TRANSFERS**
If paying with a CharlieTicket or CharlieCard, discounted transfers that are available are automatic — just use the same ticket or card throughout your trip. If paying with cash onboard a vehicle, free transfers are only allowed between rapid transit lines and inside paid platform areas at gated stations.

**SCHEDULES**
Schedules are available at the following stations: Park Street, Airport, Malden, Harvard, Haymarket (Green Line Level), Back Bay and Downtown Crossing (Orange Line Level) or see station personnel. Schedules also available at the Transportation Building (10 Park Plaza), 45 High St, and online at mbta.com.

For real-time subway and bus tracking, download the Transit app on any smartphone.


# Rapid Transit

## Effective August 30, 2020






Massachusetts Bay Transportation Authority
massDOT Massachusetts Department of Transportation

**Information 617-222-3200 • 1-800-392-6100**
**(TTY) 617-222-5146 • www.mbta.com**

| Rapid Transit Line | Weekday | | | | Saturday | | | Sunday | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | First Trip | Peak | Off Peak | Last Trip | First Trip | Arriving Every | Last Trip | First Trip | Arriving Every | Last Trip |
| **Red Line** | | | | | | | | | | |
| **Alewife** | 5:24 AM | 9 | 12-16 | 12:20 AM | 5:24 AM | 12-16 | 12:20 AM | 6:08AM | 12-16 | 12:20 AM |
| **Braintree** | 5:08 AM | mins | mins | 12:17 AM | 5:09 AM | mins | 12:17 AM | 6:00AM | mins | 12:17 AM |
| **Alewife** | 5:16 AM | 9 | 12-16 | w 12:27 AM | 5:16 AM | 12-16 | w 12:27 AM | 6:00AM | 12-16 | w 12:27 AM |
| **Ashmont** | 5:16 AM | mins | mins | w 12:30 AM | 5:16 AM | mins | w 12:30 AM | 6:00AM | mins | w 12:30 AM |
| **"M" Ashmont** | 5:17 AM | 5 | 8-12 Day | w 1:05 AM | 5:15 AM | 8-12 Day | w 1:05 AM | 6:03AM | 8-12 Day | w 1:05 AM |
| **Mattapan** | 5:05 AM | mins | 26 Late | 12:53 AM | 5:05 AM | 26 Early/Late | 12:53 AM | 5:51AM | 26 Early/Late | 12:53 AM |
| **Blue Line** | | | | | | | | | | |
| **Wonderland** | 5:13 AM | 5 | 9-13 | 12:28 AM | 5:25 AM | 9-13 | 12:28 AM | 5:58AM | 9-13 | 12:28 AM |
| **Orient Heights** | 5:14 AM | mins | mins | 12:33 AM | 5:13 AM | mins | 12:33 AM | 6:03AM | mins | 12:33 AM |
| **Bowdoin** | 5:30 AM | | | w 1:00 AM | 5:29 AM | | w 1:00 AM | 6:21AM | | w 1:00 AM |
| **Orange Line** | | | | | | | | | | |
| **Oak Grove** | 5:16 AM | 6 | 9-11 | w 12:30 AM | 5:16 AM | 9-11 | w 12:30 AM | 6:00AM | 9-11 | w 12:30 AM |
| **Forest Hills** | 5:16 AM | mins | mins | w 12:28 AM | 5:16 AM | mins | w 12:28 AM | 6:00AM | mins | w 12:28 AM |
| **Green Line*** | | | | | | | | | | |
| **B Boston College** | 5:01 AM | 5-6 | 7-9 | 12:10 AM | 4:45 AM [2] | 7-8 | 12:09 AM | 5:20AM [2] | 9 | 12:10 AM |
| **Park Street** | 5:45 AM | mins | mins | w 12:52 AM | 5:40 AM | mins | w 12:52 AM | 6:12AM | mins | w 12:52 AM |
| **C Cleveland Circle** | 4:57 AM [1] | 6-8 | 9-11 | 12:07 AM | 4:50 AM [2] | 9-10 | 12:10 AM | 5:30AM [2] | 10 | 12:10 AM |
| **North Station** | 5:48 AM | mins | mins | w 12:46 AM | 5:30 AM | mins | w 12:46 AM | 6:06AM | mins | w 12:46 AM |
| **D Riverside** | 4:56 AM | 6 | 8-11 | 12:05 AM | 4:55 AM | 8-9 | 12:02 AM | 5:25AM | 11-12 | 12:05 AM |
| **Government Ctr.** | 5:45 AM | mins | mins | w 12:49 AM | 5:38 AM | mins | w 12:49 AM | 6:10AM | mins | w 12:49 AM |
| **E Lechmere *** | 5:00 AM [4] | 6-7 | 8-10 | 12:30 AM | 5:01 AM | 10 | 12:30 AM | 5:35AM | 12 | 12:30 AM |
| **Heath Street** | 5:45 AM | mins | mins | 12:47 AM [3] | 5:39 AM | mins | 12:47 AM [3] | 6:15AM | mins | 12:47 AM [3] |
| **Silver Line** | | | | | | | | | | |
| **SL1 Logan Airport** | 5:38 AM | 7-12 | 10-12 | f 1:03 AM | 5:48 AM | 10-12 | 1:15 AM | 5:50AM | 10-12 | f 1:12 AM |
| **South Station** | 5:40 AM | mins | mins | w 1:02 AM | 5:45 AM | mins | w 12:59 AM | 6:12AM | mins | w 1:00 AM |
| **SL2 Design Center** | 6:07 AM | 6 | 14-16 | 12:37 AM | 6:03 AM | 14-16 | 12:35 AM | 6:51AM | 14-16 | 12:51 AM |
| **South Station** | 5:44 AM | mins | mins | 12:50 AM | 5:47 AM | mins | 12:45 AM | 6:35AM | mins | 12:36 AM |
| | 4:55 AM | 6-11 | 8-13 | f 1:05 AM | 5:30 AM | 8-13 | 1:22 AM | 6:26AM | 8-13 | f 1:25 AM |
| **SL3 Chelsea Station** | 4:20 AM | mins | mins | w 12:35 AM | 4:56 AM | mins | w 12:55 AM | 5:53AM | mins | w 12:55 AM |
| **South Station** | | | | | | | | | | |
| **SL4 Nubian Station** | 5:20 AM | 6-11 | 6-11 | 12:20 AM | 5:23 AM | 13-20 | 12:20 AM | 6:02AM | 13-20 | 12:20 AM |
| **South Station** | 5:38 AM | mins | mins | 12:37 AM | 5:40 AM | mins | 12:40 AM | 6:20AM | mins | 12:40 AM |
| **SL5 Nubian Station** | 5:15 AM | 11-14 | 13-20 | 12:51 AM | 5:19 AM | 6-11 | 12:43 AM | 6:00AM | 6-11 | 12:25 AM |
| **Downtown Xing** | 5:32 AM | mins | mins | w 1:07 AM | 5:34 AM | mins | w 1:00 AM | 6:16AM | mins | w 12:47 AM |

**Peak Service:**
**Weekdays 7 AM - 9 AM, 4 PM - 6:30 PM**

## Green Line Notes:

New and ongoing infrastucture projects may result in diversions on some branches at various times.

**See GL service changes at mbta.com/GLwork**

**View service alerts at mbta.com/alerts**

* E trains start/end at North Station for Green Line Extension work – shuttles provided between North Station and Lechmere.

**More: mbta.com/GLEwork**

1 - The first two C train AM northbound trips run through to Lechmere Station on weekdays.

2 - The first B and second C train AM northbound trips run through to Lechmere Station on weekends.

3 - On weekdays the 12:27 AM trip (weekends the 12:32 AM trip) from Heath St is the last connecting train to other lines downtown. The 12:37AM and 12:47AM trips (weekends the 12:47AM trip) from Heath St. runs in service to Lechmere with no guaranteed connections.

4 - Early morning service from Lechmere to Riverside departs Lechmere at 5:00 AM.

f - After exiting Ted Williams Tunnel bus will only service World Trade Center and South Station stops.

w - Last trips wait at some stations, primarily in the Downtown area, for connecting service. Departure times are approximate.

Fall 2020 & Winter 2021 Holidays
9/7/20: Sunday; 10/12/20 & 11/11/20: Weekday
11/26/20, 12/25/20, & 1/1/21: Sun; 1/18/21 & 2/15/21: Sat

## 1. Route 9 at East Site Driveway and The Shops at Chestnut Hill Driveway

| Crash Number | Crash Date | Day of Week | Crash Time | City/Town | MassHighway District | Crash Severity | Maximum Injury Severity Reported | Number of NonFatal Injuries | Number of Fatal Injuries | Number of Vehicles | Manner of Collision | Vehicle Action Prior to Crash | Vehicle Travel Directions | Most Harmful Events | Vehicle Configuration | Age of Driver - Youngest Known | Age of Driver - Oldest Known | Driver Contributing Codes | Non Motorist Type | Road Surface | Ambient Light | Weather Condition | Street Number | Roadway | Near Intersection Roadway | Police Agency | RMV Document # | Report IDs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3556698 | 8/11/2013 | Sun | 3:43 PM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 1 | 0 | 2 | Rear-end | V1: Travelling straight ahead / V2:Parked | V1:W / V2:W | V1:(Collision with parked motor vehicle) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) | 35-44 | 35-44 | D1:(Other improper action) D2:() | | Dry | Daylight | Clear | 225 | BOYLSTON ST | | Local police | PW201322701508 | 1300000753 |
| 3590280 | 9/17/2013 | Tue | 6:45 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-end | V1: Slowing or stopped in traffic / V2:Travelling straight ahead | V1:W / V2:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Passenger car) | 21-24 | 21-24 | D1:(No improper driving) D2:(Inattention) | | Dry | Daylight | Clear | 225 | BOYLSTON STREET Rte 9 W | | State police | PW201326300410 | 2013-0H5-005532 |
| 3658002 | 11/13/2013 | Wed | 10:14 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Sideswipe, same direction | V1: Changing lanes / V2:Travelling straight ahead | V1:W / V2:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) | 65-74 | 65-74 | D1:(Inattention) D2:(No improper driving) | | Dry | Daylight | Clear | 220 | BOYLSTON STREET Rte 9 W | | State police | PW201332300510 | 2013-0H5-006847 |
| 3720937 | 12/30/2013 | Mon | 6:50 AM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Incapacitating | 1 | 0 | 2 | Angle | V1: Travelling straight ahead / V2:Entering traffic lane | V1:W / V2:S | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Truck/trailer) | 21-24 | 25-34 | D1:() D2:(Disregarded traffic signs, signals, road markings) | | Ice | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201402201008 | 2013-0H5-007740 |
| 3748807 | 2/16/2014 | Sun | 5:25 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-end | V1: Travelling straight ahead / V2:Slowing or stopped in traffic | V1:W / V2:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Passenger car) | 35-44 | 35-44 | D1:(Other improper action) D2:() | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201406400303 | 2014-0H5-000891 |
| 3828014 | 5/30/2014 | Fri | 12:24 PM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Possible | 1 | 0 | 1 | Single vehicle crash | V1: Turning right | V1:W | V1:(Collision with pedestrian) | V1:(Passenger car) | 35-44 | 35-44 | D1:(Made an improper turn) | P2:Pedestrian | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201416000532 | 2014-0H5-002971 |
| 3862165 | 6/21/2014 | Sat | 4:05 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-to-rear | V1: Backing / V2:Backing | V1:N / V2:S | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) | 55-64 | 65-74 | D1:(Inattention) D2:(Inattention) | | Dry | Daylight | Clear | 225 | BOYLSTON ST | | Local police | PW201417401213 | 1400000684 |
| 3968073 | 10/10/2014 | Fri | 1:29 PM | NEWTON | 6 | Not Reported | Not reported | 0 | 0 | 1 | Single vehicle crash | V1: Backing | V1:8 | V1:(Collision with pedestrian) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) | 55-64 | 55-64 | D1:(Other improper action) | | Dry | Daylight | Clear | 225 | BOYLSTON ST | | Local police | PW201430700948 | 1400001086 |
| 3974578 | 11/8/2014 | Sat | 1:35 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-end | V1: Travelling straight ahead / V2:Slowing or stopped in traffic | V1:W / V2:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) | 25-34 | 45-54 | D1:(Visibility obstructed) D2:(No improper driving) | | Dry | Daylight | Clear | 199 | BOYLSTON STREET Rte 9 W | | State police | PW201432300234 | 2014-0H5-006548 |
| 4007854 | 2/7/2015 | Sat | 3:40 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Angle | V1: Travelling straight ahead / V2:Turning right | V1:W / V2:S | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) | 55-64 | 75-84 | D1:(No improper driving) D2:(Failed to yield right of way) | | Dry | Daylight | Cloudy | | BOYLSTON STREET Rte 9 W | | State police | PW201504801139 | 2015-0H5-000749 |
| 4061777 | 6/5/2015 | Fri | 10:20 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 3 | Rear-end | V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Not reported | V1:E / V2:E / V3:8 | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) V3:() | V1:(Passenger car) V2:(Passenger car) V3:() | 16-20 | 45-54 | D1:(Followed too closely) D2:(Followed too closely) D3:() | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 E | | State police | PW201519405253 | 2015-0H5-003180 |
| 4087987 | 8/13/2015 | Thu | 12:01 PM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 3 | 0 | 3 | Sideswipe, same direction | V1: Turning right / V2:Slowing or stopped in traffic / V3:Travelling straight ahead | V1:W / V2:S / V3:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) V3:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) V3:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) | 25-34 | 65-74 | D1:(Made an improper turn) D2:(No improper driving) D3:(No improper driving) | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201526600819 | 2015-0H5-004541 |
| 4119012 | 12/1/2015 | Tue | 11:10 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Angle | V1: Turning left / V2:Travelling straight ahead | V1:W / V2:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Passenger car) | 25-34 | 45-54 | D1:(Made an improper turn) D2:(No improper driving) | | Dry | Daylight | Cloudy | 220 | BOYLSTON STREET Rte 9 W | | State police | PW201534301282 | 2015-0H5-007055 / 2015-0H5-007055 / 2015-0H5-007055 |
| 4120293 | 12/8/2015 | Tue | 8:32 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Sideswipe, same direction | V1: Changing lanes / V2:Slowing or stopped in traffic | V1:E / V2:E | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) | 35-44 | 35-44 | D1:(Other improper action) D2:(No improper driving) | | Dry | Daylight | Cloudy | | BOYLSTON STREET Rte 9 E | | State police | PW201534500194 | 2015-0H5-007204 |
| 4204371 | 5/10/2016 | Tue | 5:34 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 3 | Rear-end | V1: Travelling straight ahead / V2:Travelling straight ahead / V3:Travelling straight ahead | V1:W / V2:W / V3:W | V1:(Collision with motor vehicle in traffic) V2:(Collision with motor vehicle in traffic) V3:(Collision with motor vehicle in traffic) | V1:(Passenger car) V2:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V3:(Passenger car) | 16-20 | 55-64 | D1:(Followed too closely) D2:(Followed too closely) D3:(No improper driving) | | Dry | Daylight | Cloudy | | BOYLSTON STREET Rte 9 W | | State police | PW201616600428 | 2016-0H5-003612 |
| 4282139 | 10/18/2016 | Tue | 5:16 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-end | V1: Turning right / V2:Travelling straight ahead | V1:W / V2:W | V1:() V2:() | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) V2:(Passenger car) | 21-24 | 35-44 | D1:(Made an improper turn) D2:(No improper driving) | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201632000426 | 2016-0H5-007813 |
| 4307687 | 11/25/2016 | Fri | 1:19 PM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 2 | 0 | 1 | Angle | V1: Turning left | V1:E | V1:(Collision with pedestrian) | V1:(Passenger car) | 65-74 | 65-74 | D1:(Unknown),(Unknown) | P2:Pedestrian / P3:Pedestrian | Wet | Daylight | Rain/Rain | 225 | BOYLSTON ST | | Local police | PW201700901029 / PW201800306437 | 1600001278 / 1600001278 / 1600001278 |
| 4327743 | 2/3/2017 | Friday | 10:24 AM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Rear-end | V1: Slowing or stopped in traffic / V2: Travelling straight ahead | V1: W / V2: W | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Passenger car) | 25-34 | 45-54 | D1: (No improper driving) / D2: (Inattention) | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201705200606 | 2017-0H5-000959 |
| 4327748 | 2/13/2017 | Monday | 11:17 AM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 1 | 0 | 2 | Angle | V1: Travelling straight ahead / V2: Travelling straight ahead | V1: S / V2: W | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | 25-34 | 65-74 | D1: (No improper driving) / D2: (Disregarded traffic signs, signals, road markings) | | Wet | Daylight | Clear | | BOYLSTON STREET Rte 9 W | BOYLSTON STREET Rte 9 W | State police | PW201705200611 | 2017-0H5-001232 |
| 4402637 | 6/2/2017 | Friday | 2:14 PM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 1 | 0 | 2 | Angle | V1: Travelling straight ahead / V2: Backing | V1: N / V2: E | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Passenger car) | 65-74 | 75-84 | | | Dry | Daylight | Clear | 225 | BOYLSTON ST | | Local police | PW201721902950 / PW201826306793 | 1700000641 / 1700000641 |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4411232 | 8/12/2017 | Saturday | 5:56 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Angle | V1: Parked / V2: Turning left | V1: W / V2: N | V1:(Collision with parked motor vehicle) / V2:(Collision with parked motor vehicle) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Light truck(van, mini-van, pickup, sport utility)) | 18-20 | 21-24 | | | Dry | Daylight | Clear | 220 | BOYLSTON ST | | Local police | PW201723501006 / PW201826307915 | 1700000926 / 1700000926 |
| 4411822 | 8/5/2017 | Saturday | 3:43 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Angle | V1: Travelling straight ahead / V2: Turning left | V1: E / V2: N | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Passenger car) / V2:(Light truck(van, mini-van, pickup, sport utility)) | 21-24 | 45-54 | | | Wet | Daylight | Rain | 225 | BOYLSTON ST | | Local police | PW201723602509 / PW201826307847 | 1700000889 / 1700000889 |
| 4472443 | 12/19/2017 | Tuesday | 3:35 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 2 | Sideswipe, same direction | V1: Travelling straight ahead / V2: Backing | V1: W / V2: W | V1:(Collision with motor vehicle in traffic) / V2:(Collision with motor vehicle in traffic) | V1:(Light truck(van, mini-van, pickup, sport utility)) / V2:(Passenger car) | 55-64 | >84 | D1: (No improper driving) / D2: (Operating vehicle in erratic, reckless, careless, negligent or aggressive manner) | | Dry | Daylight | Clear | | BOYLSTON STREET Rte 9 W | | State police | PW201735901635 | 2017-0H5-009487 |
| 4473377 | 12/10/2017 | Sunday | 3:26 PM | NEWTON | 6 | Property damage only (none injured) | No injury | 0 | 0 | 1 | Angle | V1: Turning left | V1: W | V1:(Collision with pedestrian) | V1:(Passenger car) | | | | | Dry | Dusk | Clear | 225 | BOYLSTON ST | | Local police | PW201736100609 | 1700001436 |

## 2. Route 9 Eastbound at West Site Driveway

| Crash Number | Crash Date | Day of Week | Crash Time | City/Town | MassHighway District | Crash Severity | Maximum Injury Severity Reported | Number of NonFatal Injuries | Number of Fatal Injuries | Number of Vehicles | Manner of Collision | Vehicle Action Prior to Crash | Vehicle Travel Directions | Most Harmful Events | Vehicle Configuration | Age of Driver - Youngest Known | Age of Driver - Oldest Known | Driver Contributing Codes | Non Motorist Type | Road Surface | Ambient Light | Weather Condition | Street Number | Roadway | Near Intersection Roadway | Police Agency | RMV Document # | Report IDs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3491309 | 5/29/2013 | Wed | 7:28 AM | NEWTON | 6 | Non-fatal injury | Non-fatal injury - Non-incapacitating | 1 | 0 | 1 | Single vehicle crash | V1: Turning right | V1:E | V1:(Collision with pedestrian) | V1:(Light truck(van, mini-van, panel, pickup, sport utility) with only four tires) | 45-54 | 45-54 | D1:(No improper driving) | P2:Pedestrian | Dry | Daylight | Not Reported | 232 | BOYLSTON STREET | | State police | PW201318301022 | 2013-0H5-002845 |

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton

COUNT DATE : June 2019

DISTRICT : 6

UNSIGNALIZED : [ ] 0.52

SIGNALIZED : [X] 0.71

**~ INTERSECTION DATA ~**

MAJOR STREET : Route 9

MINOR STREET(S) : East Site Driveway

The Shops at Chestnut Hill Driveway

**INTERSECTION DIAGRAM (Label Approaches)**


**PEAK HOUR VOLUMES**

| APPROACH : | 1 | 2 | 3 | 4 | 5 | Total Peak Hourly Approach Volume |
|---|---|---|---|---|---|---|
| DIRECTION : | NB | SB | EB | WB | | |
| PEAK HOURLY VOLUMES (AM/**PM**) : | 195 | 315 | 2,225 | 2,025 | | **4,760** |

" K " FACTOR : **0.090**

INTERSECTION ADT ( **V** ) = TOTAL DAILY APPROACH VOLUME : **52,889**

TOTAL # OF CRASHES : 24

# OF YEARS : 5

AVERAGE # OF CRASHES PER YEAR ( **A** ) : **4.80**

**CRASH RATE CALCULATION :** **0.25**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments : MassDOT Accident Data (2013-2017)

Project Title & Date: 14559.00 2323 Boylston Street

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Newton | COUNT DATE : June 2019

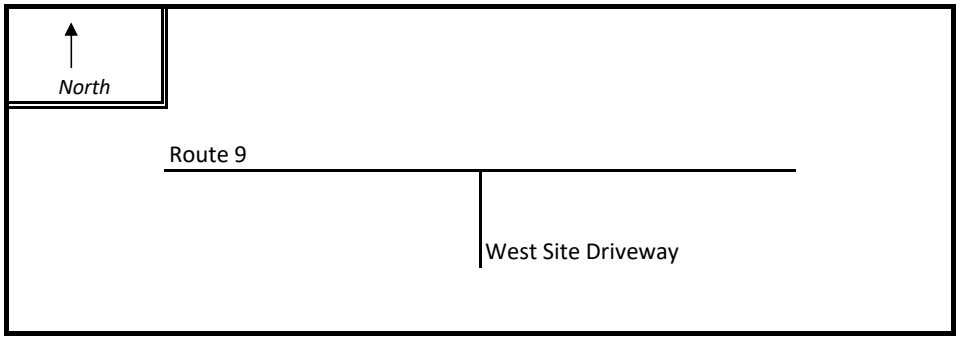
DISTRICT : 6 | UNSIGNALIZED : X (0.52) | SIGNALIZED : (0.71)

**~ INTERSECTION DATA ~**

MAJOR STREET : Route 9

MINOR STREET(S) : West Site Driveway

**INTERSECTION DIAGRAM (Label Approaches)**




**PEAK HOUR VOLUMES**

| APPROACH : | 1 | 2 | 3 | 4 | 5 | Total Peak Hourly Approach Volume |
|---|---|---|---|---|---|---|
| DIRECTION : | NB | SB | EB | WB | | |
| PEAK HOURLY VOLUMES (AM/**PM**) : | n/a | n/a | 2,270 | n/a | | **2,270** |

" K " FACTOR : **0.090**

INTERSECTION ADT ( **V** ) = TOTAL DAILY APPROACH VOLUME : **25,222**

TOTAL # OF CRASHES : 1 | # OF YEARS : 5 | AVERAGE # OF CRASHES PER YEAR ( **A** ) : **0.20**

**CRASH RATE CALCULATION :** **0.02**

$$\text{RATE} = \frac{(A * 1{,}000{,}000)}{(V * 365)}$$

Comments : MassDOT Accident Data (2013-2017)

Project Title & Date: 14559.00 2323 Boylston Street

**Historic Traffic Comparison**

**Approach Volumes at Intersection of Route 9 and East Site Dwy / Shops at Chestnut Hill Dwy**

| Peak | Direction | Approach Volume at Signalized Intersection 2009 Existing [a] | 2020 Existing [b] | Difference |
|---|---|---|---|---|
| Weekday Evening | EB | 2204 | 2235 | 31 |
| | WB | 2401 | 2035 | -366 |
| Saturday Midday | EB | 2204 | 1785 | -419 |
| | WB | 2185 | 2015 | -170 |

a - Based on Figures 5 and 6; Chestnut Hill Square (EEA No. 12928) Supplemental Traffic Impact Assessment; Newton, MA; August 12,2010; Prepared by VAI.

b - Based on turning movement counts coducted by VHB in June, 2019, and adjusted to 2020.

# TRAFFIC GROWTH CALCULATIONS

**Project Name:** 232 Boylston Street
**Project No:** 14559.00

| INTERSECTION | MOVEMENT | BACKGROUND DEVELOPMENT - LANGLEY ROAD | |
|---|---|---|---|
| | | PM | SAT |
| 1. ROUTE 9 AT EAST SITE DRIVEWAY AND THE SHOPS DRIVEWAY | | | |
| Route 9 | EB T | 1 | 1 |
| | EB R | | |
| Route 9 | WB L | | |
| | WB T | 1 | 1 |
| | WB R | | |
| East Site Driveway | NB R | | |
| The Shops Driveway | SB L | | |
| | SB T | | |
| | SB R | | |
| 2. ROUTE 9 AT WEST SITE DRIVEWAY | | | |
| Route 9 | EB T | 1 | 1 |
| | EB R | | |

**ITE TRIP GENERATION WORKSHEET**

***(10th Edition, Updated 2017)***

**LANDUSE:** Marijuana Dispensary
**LANDUSE CODE:** 882
**SETTING/LOCATION:** General Urban/Suburban
**JOB NAME:**
**JOB NUMBER:**

Independent Variable --- 1,000 Sq. Feet Gross Floor Area

**FLOOR AREA (KSF):** 4.825

## *WEEKDAY*

*RATES:*

| | # Studies | R^2 | Total Trip Ends | | | Independent Variable Range | | | Directional Distribution | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Low | High | Average | Low | High | Enter | Exit |
| DAILY | 4 | -- | 252.70 | 79.74 | 791.22 | 2 | 0 | 4 | 50% | 50% |
| AM PEAK OF GENERATOR | 4 | -- | 20.88 | 6.33 | 63.51 | 2 | 0 | 4 | 52% | 48% |
| PM PEAK OF GENERATOR | 9 | -- | 29.93 | 5.88 | 128.38 | 2 | 0 | 4 | 50% | 50% |
| AM PEAK (ADJACENT ST) | 4 | -- | 10.44 | 1.17 | 31.08 | 2 | 0 | 4 | 56% | 44% |
| PM PEAK (ADJACENT ST) | 12 | -- | 21.83 | 2.94 | 98.65 | 2 | 0 | 4 | 50% | 50% |

*TRIPS:*

| | BY AVERAGE | | | BY REGRESSION | | |
|---|---|---|---|---|---|---|
| | Total | Enter | Exit | Total | Enter | Exit |
| DAILY | 1,219 | 610 | 610 | N/A | N/A | N/A |
| AM PEAK (ADJACENT ST) | 50 | 28 | 22 | N/A | N/A | N/A |
| PM PEAK (ADJACENT ST) | 105 | 53 | 53 | N/A | N/A | N/A |

## *SATURDAY*

*RATES:*

| | # Studies | R^2 | Total Trip Ends | | | Independent Variable Range | | | Directional Distribution | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Low | High | Average | Low | High | Enter | Exit |
| DAILY | 4 | -- | 259.31 | 75.34 | 852.03 | 2 | 0 | 4 | 50% | 50% |
| PEAK OF GENERATOR | 4 | -- | 36.43 | 10.85 | 118.92 | 2 | 0 | 4 | 50% | 50% |

*TRIPS:*

| | BY AVERAGE | | | BY REGRESSION | | |
|---|---|---|---|---|---|---|
| | Total | Enter | Exit | Total | Enter | Exit |
| DAILY | 1,251 | 626 | 626 | N/A | N/A | N/A |
| PEAK OF GENERATOR | 176 | 88 | 88 | N/A | N/A | N/A |

## *SUNDAY*

*RATES:*

| | # Studies | R^2 | Total Trip Ends | | | Independent Variable Range | | | Directional Distribution | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | Average | Low | High | Average | Low | High | Enter | Exit |
| DAILY | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| PEAK OF GENERATOR | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |

*TRIPS:*

| | BY AVERAGE | | | BY REGRESSION | | |
|---|---|---|---|---|---|---|
| | Total | Enter | Exit | Total | Enter | Exit |
| DAILY | N/A | N/A | N/A | N/A | N/A | N/A |
| PEAK OF GENERATOR | N/A | N/A | N/A | N/A | N/A | N/A |

**232 Boylston Street Trip Generation**
**14559.00**

## SHARED TRIPS [1,2]

**RETAIL - RETAIL [3]**

**WEEKDAY EVENING**

| RETAIL (CH HILL SQ)[4] | % | # | BALANCED | # | % | RETAIL (RMD) [5] |
|---|---|---|---|---|---|---|
| EXIT -> | 20% | 403 | **11** | 53 | 20% | -> ENTER |
| ENTER <- | 20% | 403 | **11** | 53 | 20% | <- EXIT |

**TOTAL SHARED TRIPS - WEEKDAY EVENING**

| | ENTER | EXIT | TOTAL |
|---|---|---|---|
| CHESNUT HILL SQUARE | 11 | 11 | 22 |
| PROPOSED RMD | 11 | 11 | 22 |
| TOTAL | 22 | 22 | 44 |

**SATURDAY MIDDAY**

| RETAIL (CH HILL SQ)[4] | % | # | BALANCED | # | % | RETAIL (RMD) [5] |
|---|---|---|---|---|---|---|
| EXIT -> | 20% | 458 | **18** | 88 | 20% | -> ENTER |
| ENTER <- | 20% | 497 | **18** | 88 | 20% | <- EXIT |

**TOTAL SHARED TRIPS - SATURDAY MIDDAY**

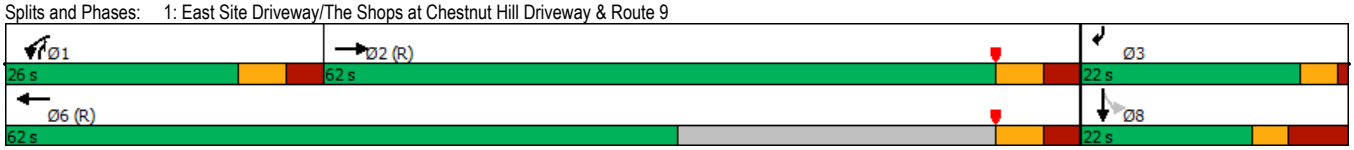
| | ENTER | EXIT | TOTAL |
|---|---|---|---|
| CHESNUT HILL SQUARE | 18 | 18 | 36 |
| PROPOSED RMD | 18 | 18 | 36 |
| TOTAL | 36 | 36 | 72 |

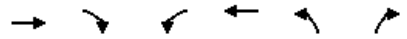
1 - Internal capture rates based on ITE Trip Generation Handbook, 2nd Edition (2004), Tables 7.1-7.2. Saturday rates assumed to be the same as weekday rates.
2 - ITE Trip Generation Handbook 2nd Edition used due to lack of retail-to-retail trip capture rates in the 3rd Edition (2017).
3 - Retail internal capture rates used for recreational marijuana dispensary due to lack of specific data.
4 - Based on 146,668 sf of retail/supermarket in adjacent Chestnut Hill Square Development (as specified in August 12, 2010, TIA for Chestnut Hill Square, Table 2)
5 - Based on dispensary of 4,825 sf

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 2090 | 145 | 115 | 1780 | 140 | 0 | 0 | 195 | 100 | 65 | 150 |
| Future Volume (vph) | 0 | 2090 | 145 | 115 | 1780 | 140 | 0 | 0 | 195 | 100 | 65 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5072 | 0 | 3467 | 5071 | 0 | 0 | 0 | 1644 | 0 | 1749 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.971 | |
| Satd. Flow (perm) | 0 | 5072 | 0 | 3467 | 5071 | 0 | 0 | 0 | 1644 | 0 | 1749 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 31 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 9 | | | 1 | | | | | | |
| Peak Hour Factor | 0.97 | 0.97 | 0.97 | 0.93 | 0.93 | 0.93 | 0.87 | 0.87 | 0.87 | 0.90 | 0.90 | 0.90 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 2304 | 0 | 124 | 2065 | 0 | 0 | 0 | 224 | 0 | 183 | 167 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 62.0 | | 26.0 | 62.0 | | | | 26.0 | 22.0 | 22.0 | 22.0 |
| Total Split (%) | | 56.4% | | 23.6% | 56.4% | | | | 23.6% | 20.0% | 20.0% | 20.0% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 62.1 | | 12.5 | 81.6 | | | | 12.5 | | 13.4 | 17.4 |
| Actuated g/C Ratio | | 0.56 | | 0.11 | 0.74 | | | | 0.11 | | 0.12 | 0.16 |
| v/c Ratio | | 0.80 | | 0.31 | 0.55 | | | | 0.77 | | 0.86 | 0.49 |
| Control Delay | | 22.7 | | 45.6 | 6.8 | | | | 38.9 | | 82.3 | 21.2 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 22.7 | | 45.6 | 6.8 | | | | 38.9 | | 82.3 | 21.2 |
| LOS | | C | | D | A | | | | D | | F | C |
| Approach Delay | | 22.7 | | | 9.0 | | | 38.9 | | | 53.1 | |
| Approach LOS | | C | | | A | | | D | | | D | |
| Queue Length 50th (ft) | | 447 | | 42 | 200 | | | | 72 | | 128 | 36 |
| Queue Length 95th (ft) | | 601 | | 66 | 232 | | | | 140 | | #247 | 102 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2868 | | 598 | 3770 | | | | 382 | | 222 | 352 |
| 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 | | 0.21 | 0.55 | | | | 0.59 | | 0.82 | 0.47 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 10 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 80 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.86 | | | |
| Intersection Signal Delay: 19.6 | | Intersection LOS: B | |
| Intersection Capacity Utilization 83.0% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9





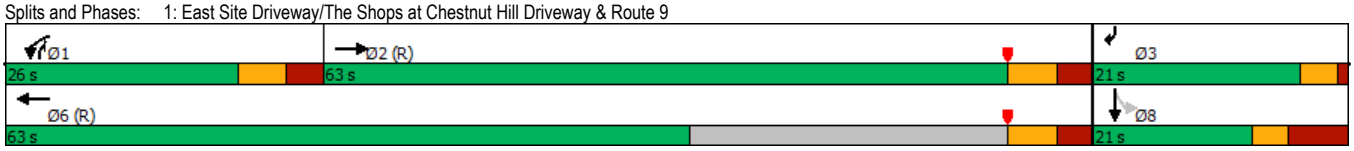
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2235 | 45 | 0 | 1930 | 0 | 0 |
| Future Volume (vph) | 2235 | 45 | 0 | 1930 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 8 | | | | |
| Peak Hour Factor | 0.96 | 0.96 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2375 | 0 | 0 | 2098 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 47.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 1595 | 190 | 195 | 1775 | 45 | 0 | 0 | 185 | 115 | 50 | 165 |
| Future Volume (vph) | 0 | 1595 | 190 | 195 | 1775 | 45 | 0 | 0 | 185 | 115 | 50 | 165 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5039 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.966 | |
| Satd. Flow (perm) | 0 | 5039 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 27 | | | 9 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 14 | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.88 | 0.88 | 0.88 | 0.93 | 0.93 | 0.93 | 0.91 | 0.91 | 0.91 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 1% | 1% | 2% | 0% | 0% | 0% | 1% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 1941 | 0 | 222 | 2068 | 0 | 0 | 0 | 199 | 0 | 181 | 181 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 63.0 | | 26.0 | 63.0 | | | | 26.0 | 21.0 | 21.0 | 21.0 |
| Total Split (%) | | 57.3% | | 23.6% | 57.3% | | | | 23.6% | 19.1% | 19.1% | 19.1% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 62.3 | | 12.0 | 81.3 | | | | 12.0 | | 13.7 | 17.7 |
| Actuated g/C Ratio | | 0.57 | | 0.11 | 0.74 | | | | 0.11 | | 0.12 | 0.16 |
| v/c Ratio | | 0.68 | | 0.59 | 0.55 | | | | 0.70 | | 0.80 | 0.52 |
| Control Delay | | 18.6 | | 52.6 | 7.0 | | | | 32.7 | | 72.2 | 23.4 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 18.6 | | 52.6 | 7.0 | | | | 32.7 | | 72.2 | 23.4 |
| LOS | | B | | D | A | | | | C | | E | C |
| Approach Delay | | 18.6 | | | 11.4 | | | 32.7 | | | 47.8 | |
| Approach LOS | | B | | | B | | | C | | | D | |
| Queue Length 50th (ft) | | 347 | | 78 | 225 | | | | 54 | | 122 | 44 |
| Queue Length 95th (ft) | | 426 | | 108 | 214 | | | | 126 | | #249 | 117 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2866 | | 598 | 3833 | | | | 382 | | 234 | 355 |
| 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 | | 0.68 | | 0.37 | 0.54 | | | | 0.52 | | 0.77 | 0.51 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 17 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 70 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.80 | | | |
| Intersection Signal Delay: 17.9 | | Intersection LOS: B | |
| Intersection Capacity Utilization 74.0% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9



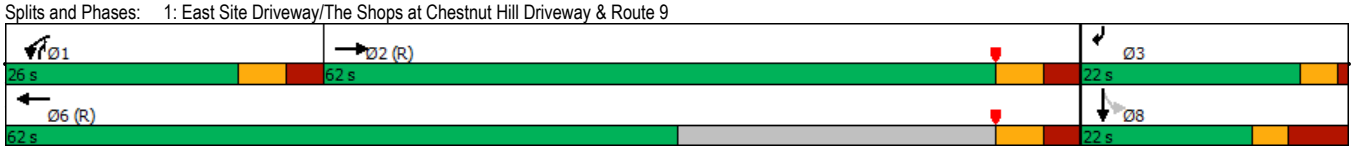
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1785 | 30 | 0 | 1940 | 0 | 0 |
| Future Volume (vph) | 1785 | 30 | 0 | 1940 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 1973 | 0 | 0 | 2109 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 40.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 2170 | 145 | 115 | 1845 | 140 | 0 | 0 | 195 | 100 | 65 | 150 |
| Future Volume (vph) | 0 | 2170 | 145 | 115 | 1845 | 140 | 0 | 0 | 195 | 100 | 65 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5077 | 0 | 3467 | 5071 | 0 | 0 | 0 | 1644 | 0 | 1750 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.971 | |
| Satd. Flow (perm) | 0 | 5077 | 0 | 3467 | 5071 | 0 | 0 | 0 | 1644 | 0 | 1750 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 30 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 9 | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 2517 | 0 | 125 | 2157 | 0 | 0 | 0 | 212 | 0 | 180 | 163 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 62.0 | | 26.0 | 62.0 | | | | 26.0 | 22.0 | 22.0 | 22.0 |
| Total Split (%) | | 56.4% | | 23.6% | 56.4% | | | | 23.6% | 20.0% | 20.0% | 20.0% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 62.7 | | 12.0 | 81.7 | | | | 12.0 | | 13.3 | 17.3 |
| Actuated g/C Ratio | | 0.57 | | 0.11 | 0.74 | | | | 0.11 | | 0.12 | 0.16 |
| v/c Ratio | | 0.87 | | 0.33 | 0.57 | | | | 0.75 | | 0.85 | 0.48 |
| Control Delay | | 25.2 | | 46.4 | 7.0 | | | | 36.8 | | 80.6 | 20.4 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 25.2 | | 46.4 | 7.0 | | | | 36.8 | | 80.6 | 20.4 |
| LOS | | C | | D | A | | | | D | | F | C |
| Approach Delay | | 25.2 | | | 9.2 | | | 36.8 | | | 52.0 | |
| Approach LOS | | C | | | A | | | D | | | D | |
| Queue Length 50th (ft) | | 519 | | 43 | 215 | | | | 64 | | 125 | 33 |
| Queue Length 95th (ft) | | #758 | | 67 | 249 | | | | 137 | | #241 | 98 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2898 | | 598 | 3772 | | | | 382 | | 222 | 352 |
| 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 | | 0.87 | | 0.21 | 0.57 | | | | 0.55 | | 0.81 | 0.46 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 10 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.87 | | | |
| Intersection Signal Delay: 20.6 | | Intersection LOS: C | |
| Intersection Capacity Utilization 84.6% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9



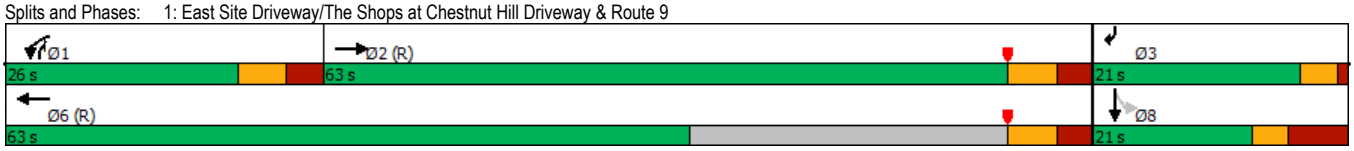
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2315 | 45 | 0 | 1995 | 0 | 0 |
| Future Volume (vph) | 2315 | 45 | 0 | 1995 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5119 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 8 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2565 | 0 | 0 | 2168 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 49.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 1660 | 190 | 195 | 1840 | 45 | 0 | 0 | 185 | 115 | 50 | 165 |
| Future Volume (vph) | 0 | 1660 | 190 | 195 | 1840 | 45 | 0 | 0 | 185 | 115 | 50 | 165 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5044 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.966 | |
| Satd. Flow (perm) | 0 | 5044 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 26 | | | 9 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 14 | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 1% | 1% | 2% | 0% | 0% | 0% | 1% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 2011 | 0 | 212 | 2049 | 0 | 0 | 0 | 201 | 0 | 179 | 179 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 63.0 | | 26.0 | 63.0 | | | | 26.0 | 21.0 | 21.0 | 21.0 |
| Total Split (%) | | 57.3% | | 23.6% | 57.3% | | | | 23.6% | 19.1% | 19.1% | 19.1% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 62.6 | | 12.0 | 81.5 | | | | 12.0 | | 13.5 | 17.5 |
| Actuated g/C Ratio | | 0.57 | | 0.11 | 0.74 | | | | 0.11 | | 0.12 | 0.16 |
| v/c Ratio | | 0.70 | | 0.56 | 0.54 | | | | 0.71 | | 0.80 | 0.52 |
| Control Delay | | 19.0 | | 51.8 | 6.8 | | | | 33.4 | | 73.5 | 23.3 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 19.0 | | 51.8 | 6.8 | | | | 33.4 | | 73.5 | 23.3 |
| LOS | | B | | D | A | | | | C | | E | C |
| Approach Delay | | 19.0 | | | 11.0 | | | 33.4 | | | 48.4 | |
| Approach LOS | | B | | | B | | | C | | | D | |
| Queue Length 50th (ft) | | 366 | | 75 | 222 | | | | 56 | | 120 | 42 |
| Queue Length 95th (ft) | | 453 | | 106 | 220 | | | | 128 | | #246 | 116 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2879 | | 598 | 3834 | | | | 382 | | 231 | 352 |
| 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 | | 0.35 | 0.53 | | | | 0.53 | | 0.77 | 0.51 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 17 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 70 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.80 | | | |
| Intersection Signal Delay: 18.0 | | Intersection LOS: B | |
| Intersection Capacity Utilization 75.2% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9



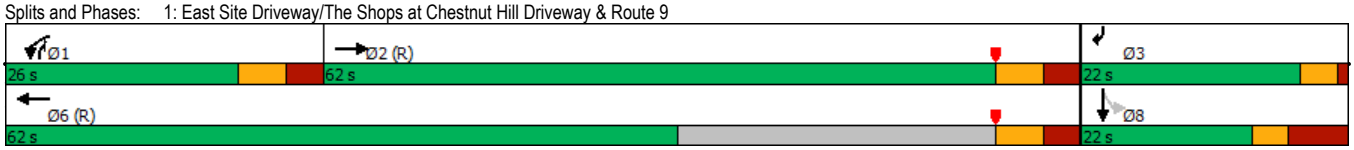
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1850 | 30 | 0 | 2005 | 0 | 0 |
| Future Volume (vph) | 1850 | 30 | 0 | 2005 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5124 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5124 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2044 | 0 | 0 | 2179 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.1% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 2170 | 150 | 135 | 1870 | 140 | 0 | 0 | 235 | 100 | 65 | 150 |
| Future Volume (vph) | 0 | 2170 | 150 | 135 | 1870 | 140 | 0 | 0 | 235 | 100 | 65 | 150 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5072 | 0 | 3467 | 5076 | 0 | 0 | 0 | 1644 | 0 | 1750 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.971 | |
| Satd. Flow (perm) | 0 | 5072 | 0 | 3467 | 5076 | 0 | 0 | 0 | 1644 | 0 | 1750 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 14 | | | 29 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 9 | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 1% | 2% | 1% | 1% | 1% | 0% | 0% | 0% | 9% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 2522 | 0 | 147 | 2185 | 0 | 0 | 0 | 255 | 0 | 180 | 163 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 62.0 | | 26.0 | 62.0 | | | | 26.0 | 22.0 | 22.0 | 22.0 |
| Total Split (%) | | 56.4% | | 23.6% | 56.4% | | | | 23.6% | 20.0% | 20.0% | 20.0% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 60.8 | | 13.9 | 81.7 | | | | 13.9 | | 13.3 | 17.3 |
| Actuated g/C Ratio | | 0.55 | | 0.13 | 0.74 | | | | 0.13 | | 0.12 | 0.16 |
| v/c Ratio | | 0.90 | | 0.34 | 0.58 | | | | 0.82 | | 0.85 | 0.48 |
| Control Delay | | 28.2 | | 44.8 | 7.1 | | | | 45.3 | | 80.6 | 20.4 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 28.2 | | 44.8 | 7.1 | | | | 45.3 | | 80.6 | 20.4 |
| LOS | | C | | D | A | | | | D | | F | C |
| Approach Delay | | 28.2 | | | 9.5 | | | 45.3 | | | 52.0 | |
| Approach LOS | | C | | | A | | | D | | | D | |
| Queue Length 50th (ft) | | 559 | | 49 | 220 | | | | 95 | | 125 | 33 |
| Queue Length 95th (ft) | | #768 | | 76 | 254 | | | | 180 | | #241 | 98 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2809 | | 598 | 3775 | | | | 382 | | 222 | 352 |
| 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 | | 0.90 | | 0.25 | 0.58 | | | | 0.67 | | 0.81 | 0.46 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 10 (9%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 90 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.90 | | | |
| Intersection Signal Delay: 22.5 | | Intersection LOS: C | |
| Intersection Capacity Utilization 87.2% | | ICU Level of Service E | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9



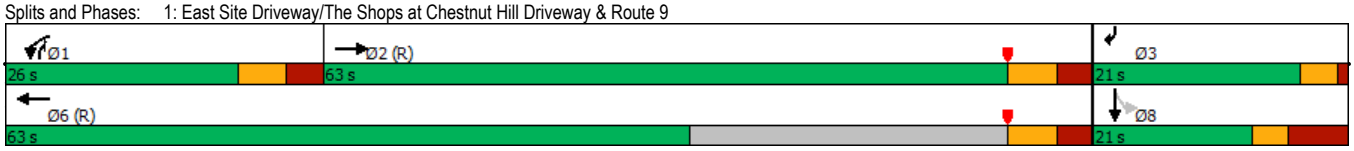
| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 2320 | 60 | 0 | 2020 | 0 | 0 |
| Future Volume (vph) | 2320 | 60 | 0 | 2020 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5114 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5114 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 8 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 2% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2587 | 0 | 0 | 2196 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 49.5% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 0 | 1660 | 200 | 225 | 1880 | 45 | 0 | 0 | 255 | 115 | 50 | 165 |
| Future Volume (vph) | 0 | 1660 | 200 | 225 | 1880 | 45 | 0 | 0 | 255 | 115 | 50 | 165 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 0 | | 0 | 325 | | 0 | 0 | | 0 | 0 | | 0 |
| Storage Lanes | 0 | | 0 | 2 | | 0 | 0 | | 1 | 0 | | 1 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Satd. Flow (prot) | 0 | 5039 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Flt Permitted | | | | 0.950 | | | | | | | 0.966 | |
| Satd. Flow (perm) | 0 | 5039 | 0 | 3467 | 5111 | 0 | 0 | 0 | 1644 | 0 | 1823 | 1599 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 28 | | | 9 | | | | 119 | | | 109 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 150 | | | 929 | | | 314 | | | 396 | |
| Travel Time (s) | | 3.4 | | | 21.1 | | | 7.1 | | | 9.0 | |
| Confl. Peds. (#/hr) | | | 14 | | | 1 | | | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 0% | 1% | 0% | 1% | 1% | 2% | 0% | 0% | 0% | 1% | 0% | 1% |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 2021 | 0 | 245 | 2092 | 0 | 0 | 0 | 277 | 0 | 179 | 179 |
| Turn Type | | NA | | Prot | NA | | | | Over | Perm | NA | custom |
| Protected Phases | | 2 | | 1 | 6 | | | | 1 | | 8 | 3 |
| Permitted Phases | | | | | | | | | | 8 | | |
| Detector Phase | | 2 | | 1 | 6 | | | | 1 | 8 | 8 | 3 |
| Switch Phase | | | | | | | | | | | | |
| Minimum Initial (s) | | 20.0 | | 8.0 | 20.0 | | | | 8.0 | 8.0 | 8.0 | 8.0 |
| Minimum Split (s) | | 27.0 | | 17.0 | 30.0 | | | | 17.0 | 19.0 | 19.0 | 12.0 |
| Total Split (s) | | 63.0 | | 26.0 | 63.0 | | | | 26.0 | 21.0 | 21.0 | 21.0 |
| Total Split (%) | | 57.3% | | 23.6% | 57.3% | | | | 23.6% | 19.1% | 19.1% | 19.1% |
| Yellow Time (s) | | 4.0 | | 4.0 | 4.0 | | | | 4.0 | 3.0 | 3.0 | 3.0 |
| All-Red Time (s) | | 3.0 | | 3.0 | 3.0 | | | | 3.0 | 5.0 | 5.0 | 1.0 |
| Lost Time Adjust (s) | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Lost Time (s) | | 7.0 | | 7.0 | 7.0 | | | | 7.0 | | 8.0 | 4.0 |
| Lead/Lag | | Lag | | Lead | | | | | Lead | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Recall Mode | | C-Min | | None | C-Min | | | | None | None | None | None |
| Act Effct Green (s) | | 60.0 | | 15.0 | 82.0 | | | | 15.0 | | 13.0 | 17.0 |
| Actuated g/C Ratio | | 0.55 | | 0.14 | 0.75 | | | | 0.14 | | 0.12 | 0.15 |
| v/c Ratio | | 0.73 | | 0.52 | 0.55 | | | | 0.85 | | 0.83 | 0.53 |
| Control Delay | | 21.4 | | 47.4 | 6.7 | | | | 49.1 | | 77.8 | 23.8 |
| Queue Delay | | 0.0 | | 0.0 | 0.0 | | | | 0.0 | | 0.0 | 0.0 |
| Total Delay | | 21.4 | | 47.4 | 6.7 | | | | 49.1 | | 77.8 | 23.8 |
| LOS | | C | | D | A | | | | D | | E | C |
| Approach Delay | | 21.4 | | | 11.0 | | | 49.1 | | | 50.8 | |
| Approach LOS | | C | | | B | | | D | | | D | |
| Queue Length 50th (ft) | | 393 | | 82 | 210 | | | | 110 | | 123 | 44 |
| Queue Length 95th (ft) | | 470 | | 119 | 227 | | | | #219 | | #246 | 116 |
| Internal Link Dist (ft) | | 70 | | | 849 | | | 234 | | | 316 | |
| Turn Bay Length (ft) | | | | 325 | | | | | | | | |
| Base Capacity (vph) | | 2761 | | 598 | 3834 | | | | 382 | | 223 | 346 |
| 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 | | 0.73 | | 0.41 | 0.55 | | | | 0.73 | | 0.80 | 0.52 |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Cycle Length: 110 | | | |
| Actuated Cycle Length: 110 | | | |
| Offset: 17 (15%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow | | | |
| Natural Cycle: 75 | | | |
| Control Type: Actuated-Coordinated | | | |
| Maximum v/c Ratio: 0.85 | | | |
| Intersection Signal Delay: 20.2 | | Intersection LOS: C | |
| Intersection Capacity Utilization 79.8% | | ICU Level of Service D | |
| Analysis Period (min) 15 | | | |
| # 95th percentile volume exceeds capacity, queue may be longer. | | | |
| Queue shown is maximum after two cycles. | | | |

Splits and Phases: 1: East Site Driveway/The Shops at Chestnut Hill Driveway & Route 9



| Lane Group | EBT | EBR | WBL | WBT | NBL | NBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1860 | 60 | 0 | 2045 | 0 | 0 |
| Future Volume (vph) | 1860 | 60 | 0 | 2045 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Satd. Flow (prot) | 5107 | 0 | 0 | 5085 | 0 | 0 |
| Flt Permitted | | | | | | |
| Satd. Flow (perm) | 5107 | 0 | 0 | 5085 | 0 | 0 |
| Link Speed (mph) | 30 | | | 30 | 30 | |
| Link Distance (ft) | 1049 | | | 150 | 256 | |
| Travel Time (s) | 23.8 | | | 3.4 | 5.8 | |
| Confl. Peds. (#/hr) | | 1 | | | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles (%) | 1% | 3% | 2% | 2% | 2% | 2% |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 2087 | 0 | 0 | 2223 | 0 | 0 |
| Sign Control | Free | | | Free | Stop | |

| Intersection Summary | | | |
|---|---|---|---|
| Area Type: | Other | | |
| Control Type: Unsignalized | | | |
| Intersection Capacity Utilization | 42.8% | ICU Level of Service | A |
| Analysis Period (min) | 15 | | |