# MEMORANDUM

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**DATE:** November 2, 2023 **RE:** 9345

**SUBJECT:** Transportation Impact Assessment Update
Proposed Residential Development – Blackstone Street
Bellingham, Massachusetts

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Vanasse & Associates, Inc. (VAI) has prepared an update to the October 2022 *Transportation Impact Assessment* (the "October 2022 TIA") that was prepared in support of the proposed residential development to be located on a portion of a property that fronts along North Street and Blackstone Street in Bellingham, Massachusetts (hereafter referred to as the "Project"). This study updates the trip-generation calculations and analyses that were presented in the October 2022 TIA to reflect the following changes to the Project: i) elimination of the North Street access to the Project site; and ii) a reduction in the size and scope of the development from a 36-unit multifamily development spanning the property between North Street and Blackstone Street, to a compact, 15-unit multifamily residential development to be advanced in a clustered configuration and located on a discrete portion of the Project site off Blackstone Street. Based on this updated assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the Institute of Transportation Engineers (ITE),[1] the current development program for the Project is expected to generate approximately 64 vehicle trips on an average weekday (two-way, 24-hour volume), with two (2) vehicle trips expected during the weekday morning peak hour and five (5) vehicle trips expected during the weekday evening peak hour;

2. In comparison to the development program that was assessed in the October 2022 TIA (36 multifamily residential units), the current development program (15 multifamily residential units) will result in 160 fewer vehicle trips on an average weekday, with 11 fewer vehicle trips expected during the weekday morning peak-hour and 13 fewer vehicle trips expected during the weekday evening peak-hour;

[1] *Trip Generation,* 11th Edition; Institute of Transportation Engineers; Washington, DC; 2021.

3. Consistent with the findings of the October 2022 TIA, the Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with all movements at the North Street/Blackstone Street intersection shown to continue to operate at level-of-service (LOS) B or better with a negligible increase in vehicle queuing predicted;

4. All movements at the Project site driveway intersection with Blackstone Street are predicted to operate at LOS A during the peak hours with negligible vehicle queuing predicted;

5. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the North Street/Blackstone Street intersection; and

6. Lines of sight at the Project site driveway intersection with Blackstone Street were found to exceed or can be made to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with the implementation of the recommendations defined herein.

The following details our assessment of the Project.

## PROJECT DESCRIPTION

As currently proposed, the Project will entail the construction of a 15-unit multifamily residential development to be located on a portion of a larger development parcel that fronts along North Street and Blackstone Street in Bellingham, Massachusetts. The overall Project site encompasses approximately 20.83± acres of undeveloped land that is bounded by areas of open and wooded space to the north; Blackstone Street and a residential property to the south; areas of open and wooded space and low-lying wetland areas to the east; and North Street and a residential property to the west. The portion of the overall Project site that will contain the Project (the "Development Area") consists of 5.36± acres of land that fronts along Blackstone Street. Figure 1 depicts the Project site location in relation to the existing roadway network.

Access to the Project site will be provided by way of a new driveway that will intersect the north side of Blackstone Street approximately 700 feet northeast of North Street. Off-street parking will be provided in individual garages and driveways that will accommodate a minimum of two (2) vehicles per unit, which is consistent with the requirements of §240-59, Schedule of requirements, of the Zoning Bylaws of the Town of Bellingham.[2] There will also be an additional 11 off-street parking spaces provided for visitors.

[2]The Zoning Bylaws require the following parking for a multifamily residential development: (a) Assisted elderly housing: one space per bedroom; (b) Studio: 1.25 spaces per dwelling unit; (c) One bedroom: 1.5 spaces per dwelling unit; (d) Two or more bedrooms: two spaces per dwelling unit.

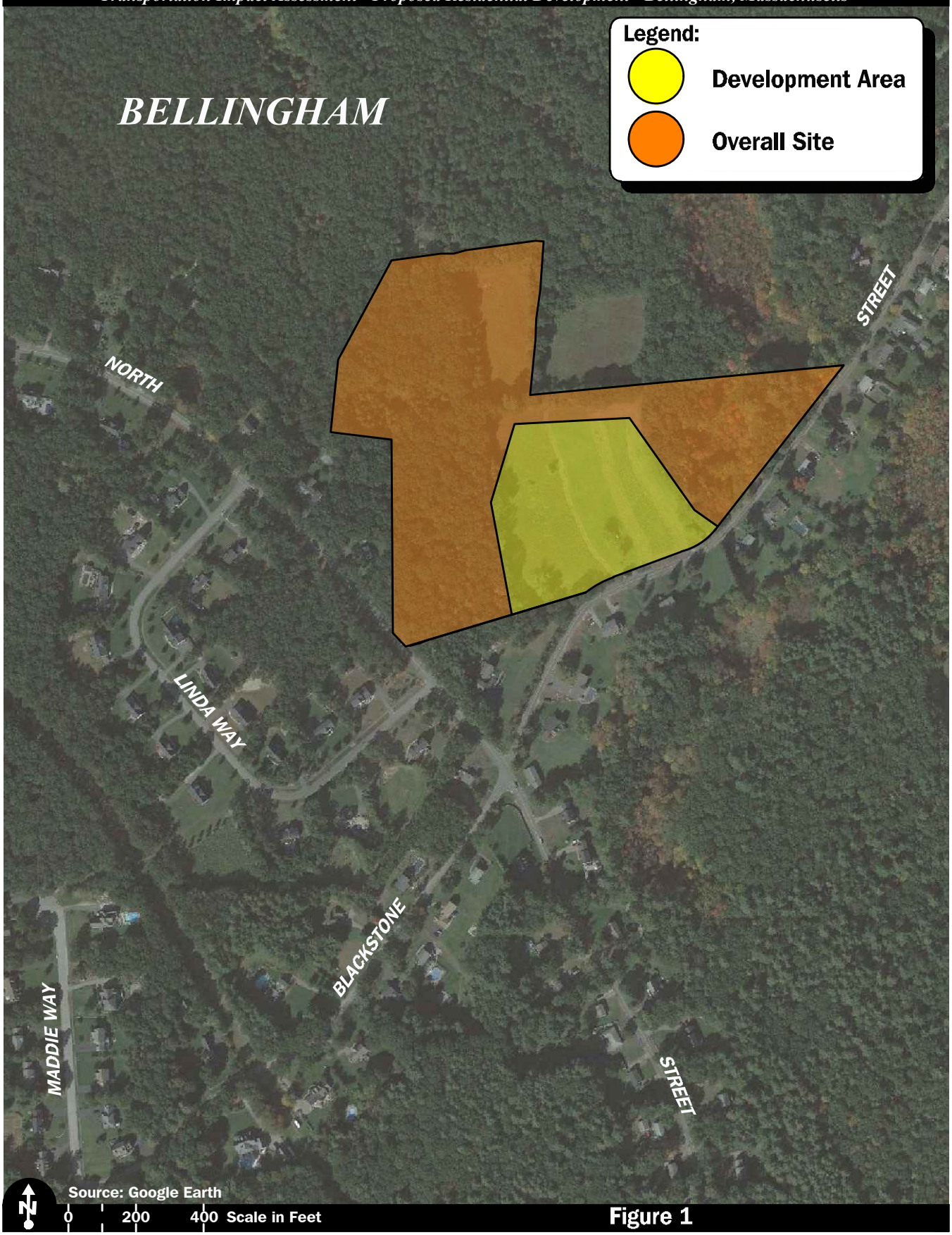


**Figure 1**

**Site Location Map**

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## STUDY METHODOLOGY

This study was prepared in consultation with the Massachusetts Department of Transportation (MassDOT) and the Town of Bellingham; and was performed in accordance with MassDOT's *Transportation Impact Assessment (TIA) Guidelines* and the standards of the Traffic Engineering and Transportation Planning professions for the preparation of such reports; and was conducted in three distinct stages.

The first stage involved an assessment of existing conditions in the study area and included an inventory of roadway geometrics; pedestrian and bicycle facilities; on-street parking; public transportation services; observations of traffic flow; and collection of pedestrian, bicycle, and vehicle counts.

In the second stage of the study, future traffic conditions were projected and analyzed. Specific travel demand forecasts for the Project were assessed along with future traffic demands due to expected traffic growth independent of the Project. A seven-year time horizon was selected for analyses consistent with MassDOT guidelines. The analysis conducted in stage two identifies existing or projected future capacity, safety, and access issues, as these areas relate to the transportation infrastructure.

The third stage of the study presents and evaluates measures to address deficiencies in the transportation infrastructure, if any, identified in stage two of the study.

## EXISTING CONDITIONS

A comprehensive field inventory of existing conditions within the study area was conducted in August 2022. This inventory included the collection of traffic-volume data and vehicle travel speed measurements, as well as a review of existing pedestrian and bicycle accommodations, public transportation services, and motor vehicle crash data. The following summarizes existing conditions within the study area.

### Roadways

**North Street**

- Two-lane urban collector roadway under Town jurisdiction;
- Transverses study area in a general northwest-southeast direction between South Main Street (Route 126) and Irene Court, where North Street becomes Bates Street;
- Provides two 10- to 11-foot wide travel lanes that are separated by a double-yellow centerline with no marked shoulders provided;
- The posted speed limit is 25 miles per hour (mph) within the study area;
- Sidewalks are provided on the west side of the roadway between Linda Way and Blackstone Street;
- Illumination is provided intermittently by way of streetlights mounted on wooden poles; and

- Land use within the study area consists of the Project site, residential properties, and areas of open and wooded space.

**Blackstone Street**

- Two-lane local access roadway under Town jurisdiction;
- Transverses study area in a general northeast-southwest direction between Maddie Way and Mechanic Street (Route 140);
- Provides two 10- to 11-foot wide travel lanes that are separated by a double-yellow centerline with no marked shoulders provided;
- The statutory limit pursuant to M.G.L c. 90 § 17 is 30 mph;[3]
- A sidewalk is provided on the south side of the roadway west of North Street;
- Illumination is provided intermittently by way of streetlights mounted on wood poles; and
- Land use within the study area consists of the Project site, residential properties, and areas of open and wooded space;

**Intersection**

Table 1 and Figure 2 summarize existing lane use, traffic control, and pedestrian and bicycle accommodations at the study area intersection as observed in August 2022.

**Table 1**
**STUDY AREA INTERSECTION DESCRIPTION**

| Intersection | Traffic Control Type[a] | No. of Travel Lanes Provided | Shoulder Provided? (Yes/No/Width) | Pedestrian Accommodations? (Yes/No/Description) | Bicycle Accommodations? (Yes/No/Description) |
|---|---|---|---|---|---|
| North St./ Blackstone St. | S | 1 general-purpose travel lane provided on all approaches | No | Yes; a sidewalk is provided along the west side of North St. between Linda Way and Blackstone St. and along the south side of Blackstone St. west of North St. | No |

[a]S = STOP-sign control.

**Existing Traffic Volumes**

In order to determine existing traffic-volume demands and flow patterns within the study area, automatic traffic recorder (ATR) counts, turning movement counts (TMCs), and vehicle classification counts were completed in August 2022. The ATR counts were conducted on Blackstone Street, east of North Street, on August 2nd through 3rd, 2022 (Tuesday through Wednesday, inclusive) in order to record weekday traffic conditions over an extended period, with weekday morning (7:00 to 9:00 AM) and evening (4:00 to 6:00 PM) peak-period TMCs performed

[3]The statutory or "prima facie" speed is defined in M.G.L Chapter 90, Section 17, as the speed which would be deemed reasonable and proper to operate a motor vehicle.

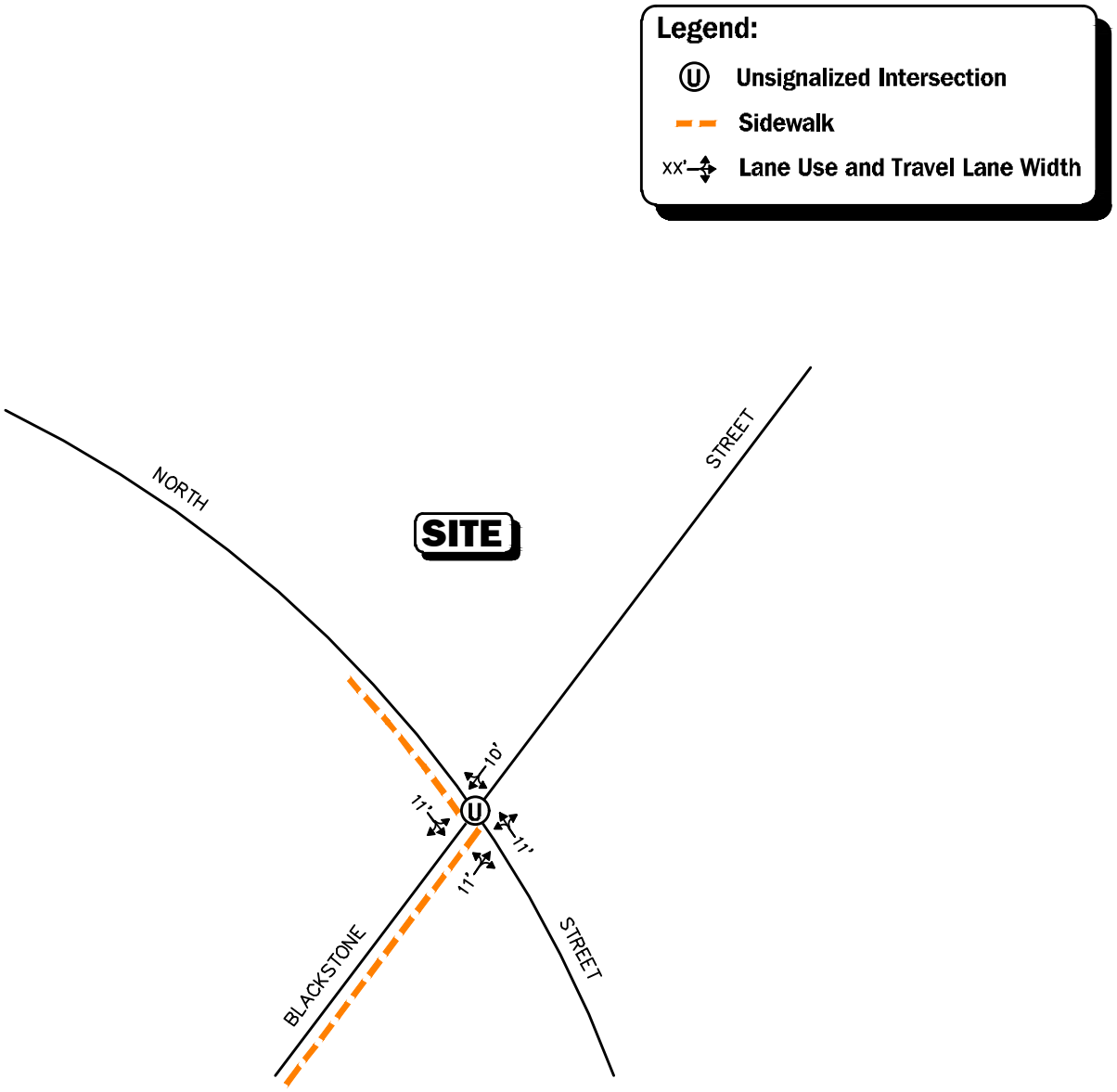


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**Figure 2**

**Existing Intersection Lane Use, Travel Lane Width, and Pedestrian Faclities**

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at the intersection of North Street at Blackstone Street on August 2, 2022 (Tuesday). These time periods were selected for analysis purposes as they are representative of the peak-traffic-volume hours for both the Project and the adjacent roadway network.

In order to evaluate the potential for seasonal fluctuation of traffic volumes within the study area, MassDOT weekday seasonal factors for Urban Groups 4 through 7 roadways (minor arterial, major and minor collectors and local roads and streets, the functional classification of North Street and Blackstone Street) were reviewed.[4] Based on a review of this data, it was determined that traffic volumes for the month of August are approximately 9.9 percent *higher* than those under average-month conditions. As such, a seasonal adjustment was not required as the August traffic volumes are higher than those under average-month conditions.

Based on current guidance from MassDOT,[5] pandemic-related adjustments to traffic counts performed after March 2022 are no longer required except in locations where the predominant land use consists of offices or similar uses. Given that the predominant land use within the study area is residential, a pandemic-related adjustment was not required.

In order to account for the changes in traffic volumes between the year the counts were taken (2022) to the current year (2023), the August 2022 traffic volumes were adjusted upward using an annual background traffic growth rate of 1.5 percent per year (discussion follows).

The 2023 Existing traffic volumes are summarized in Table 2, with the weekday morning and evening peak-hour traffic volumes graphically depicted on Figure 3. Note that the peak-hour traffic volumes presented in Table 2 were obtained from the aforementioned figure.

**Table 2**
**2023 EXISTING TRAFFIC VOLUMES**

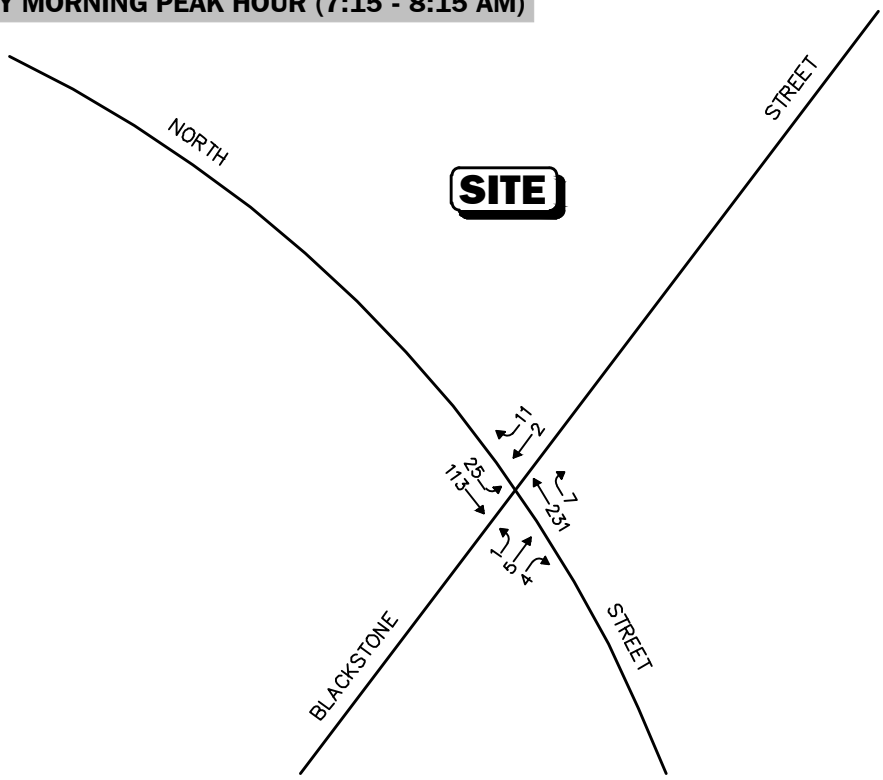
| Location/Peak Hour | AWT[a] | VPH[b] | K Factor[c] | Directional Distribution[d] |
|---|---|---|---|---|
| *Blackstone Street, east of North Street:* | 880 | -- | -- | -- |
| Weekday Morning (7:15 – 8:15 AM) | -- | 50 | 5.7 | 74.0% EB |
| Weekday Evening (4:00 – 5:00 PM) | -- | 84 | 9.5 | 51.2% WB |

[a]Average weekday traffic in vehicles per day.
[b]Vehicles per hour.
[c]Percent of daily traffic occurring during the peak hour.
[d]Percent traveling in peak direction.
EB = eastbound; WB = westbound.

As can be seen in Table 2, Blackstone Street in the vicinity of the Project site, was found to accommodate approximately 880 vehicles on an average weekday (two-way, 24-hour volume), with approximately 50 vehicles per hour (vph) during the weekday morning peak hour and 84 vph during the weekday evening peak hour.

[4]MassDOT statewide Traffic Data Collection; 2019 Weekday Seasonal Factors, Group U4-U7.
[5]*Traffic and Safety Engineering 25% Design Submission Guidelines*; MassDOT; Revised March 31, 2022.

**WEEKDAY MORNING PEAK HOUR (7:15 - 8:15 AM)**




**WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)**

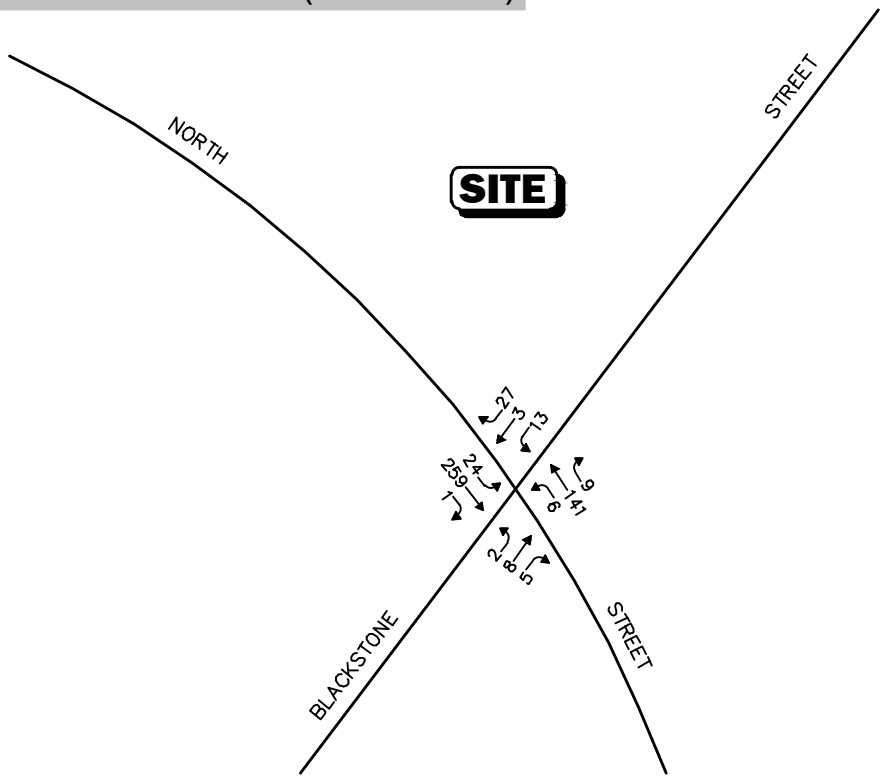



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**Figure 3**

**2023 Existing**
**Peak-Hour Traffic Volumes**

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## Pedestrian and Bicycle Facilities

A comprehensive field inventory of pedestrian and bicycle facilities within the study area was undertaken in August 2022. The field inventory consisted of a review of the location of sidewalks and pedestrian crossing locations along the study roadways and at the study area intersection, as well as the location of existing and planned future bicycle facilities. As detailed on Figure 2, sidewalks are provided along the west side of North Street between Linda Way and Blackstone Street and along the south side of Blackstone Street west of North Street.

Formal bicycle facilities are not provided within the study area and the study area roadways do not provide sufficient width (combined travel lane and shoulder) to support bicycle travel in a shared traveled-way configuration.[6]

## Public Transportation

Regularly scheduled public transportation services are not currently provided within the Town of Bellingham or in the immediate vicinity of the Project site. The closest regularly scheduled public transportation services to the Project site are located in Franklin (Massachusetts Bay Transportation Authority (MBTA) Commuter Rail service on the Franklin/Foxborough Line from Forge Park/I-495 Station).

## Spot Speed Measurements

Vehicle travel speed measurements were performed on Blackstone Street in the vicinity of the Project site in conjunction with the ATR counts. Table 3 summarizes the vehicle travel speed measurements.

**Table 3**
**VEHICLE TRAVEL SPEED MEASUREMENTS**

| | Blackstone Street | |
|---|---|---|
| | Eastbound | Westbound |
| Mean Travel Speed (mph) | 30 | 27 |
| 85th Percentile Speed (mph) | 33 | 30 |
| Statutory Speed Limit (mph) | 30 | 30 |

mph = miles per hour.

As can be seen in Table 3, the mean vehicle travel speed along Blackstone Street in the vicinity of the Project site was found to be 30 mph in the eastbound direction and 27 mph westbound. The measured 85th percentile vehicle travel speed, or the speed at which 85 percent of the observed vehicles traveled at or below, was found to be 33 mph in the eastbound direction and 30 mph westbound, which is consistent with the statutory speed limit in the vicinity of the Project site (30 mph).

[6] A minimum combined travel lane and paved shoulder width of 14 feet is required to support bicycle travel in a shared traveled-way condition.

## Motor Vehicle Crash Data

Motor vehicle crash information for the study area intersection was provided by the MassDOT Highway Division Safety Management/Traffic Operations Unit for the most recent five-year period available (2016 through 2020, inclusive) in order to examine motor vehicle crash trends occurring within the study area. The data is summarized by intersection, type, severity, roadway and weather conditions, and day of occurrence, and presented in Table 4.

As can be seen in Table 4, the intersection of North Street at Blackstone Street was found to have experienced a total of five (5) reported motor vehicle crashes over the five-year review period, or an average of 1.0 crashes per year, and was found to have a motor vehicle crash rate that is *below* both the MassDOT statewide and District average crash rates for a similar intersection for the MassDOT Highway Division District in which the intersection is located (District 3). The majority of the reported crashes occurred on a weekday; during daylight; under clear or cloudy weather conditions; and involved angle-type collisions that resulted in property damage only. No (0) motor vehicle crashes were reported to have occurred along Blackstone Street in the vicinity of the proposed Project site driveway over the five-year review period.

A review of the MassDOT statewide High Crash Location List indicated that there are no locations within the study area or along North Street or Blackstone Street that are included on MassDOT's Highway Safety Improvement Program (HSIP) listing as a high crash location. In addition, no fatal motor vehicle crashes were reported to have occurred at the study area intersection over the five-year review period.

The detailed MassDOT Crash Rate Worksheet and High Crash Location mapping are attached.

**Table 4**
**MOTOR VEHICLE CRASH DATA SUMMARY[a]**

| | North Street/ Blackstone Street |
|---|---|
| Traffic Control Type:[b] | U |
| *Year:* | |
| 2016 | 2 |
| 2017 | 2 |
| 2018 | 1 |
| 2019 | 0 |
| 2020 | 0 |
| Total | 5 |
| Average | 1.00 |
| Rate[c] | 0.50 |
| MassDOT Crash Rate:[d] | 0.57/0.61 |
| Significant?[e] | No |
| *Type:* | |
| Angle | 4 |
| Rear-End | 0 |
| Head-On | 0 |
| Sideswipe | 1 |
| Fixed Object | 0 |
| Pedestrian/Bicycle | 0 |
| Unknown/Other | 0 |
| Total | 5 |
| *Conditions:* | |
| Clear | 2 |
| Cloudy | 2 |
| Rain | 0 |
| Snow/Ice | 1 |
| Total | 5 |
| *Lighting:* | |
| Daylight | 5 |
| Dawn/Dusk | 0 |
| Dark (Road Lit) | 0 |
| Dark (Road Unlit) | 0 |
| Total | 5 |
| *Day of Week:* | |
| Monday through Friday | 3 |
| Saturday | 1 |
| Sunday | 1 |
| Total | 5 |
| *Severity:* | |
| Property Damage Only | 5 |
| Personal Injury | 0 |
| Fatality | 0 |
| Not Reported | 0 |
| Total | 5 |

[a]Source: MassDOT Safety Management/Traffic Operations Unit records, 2016 through 2020.
[b]Traffic Control Type: S = Signalized; U = unsignalized.
[c]Crash rate per million vehicles entering the intersection.
[d]Statewide/District crash rate.
[e]The intersection crash rate is significant if it is found to exceed the MassDOT crash rate for the MassDOT Highway Division District in which the Project is located (District 3).

## FUTURE CONDITIONS

Traffic volumes in the study area were projected to the year 2030, which reflects a seven-year planning horizon consistent with MassDOT guidelines. Independent of the Project, traffic volumes on the roadway network in the year 2030 under No-Build conditions include all existing traffic and new traffic resulting from background traffic growth. Anticipated Project-generated traffic volumes superimposed upon the 2030 No-Build traffic volumes reflect 2030 Build traffic-volume conditions with the Project.

### Future Traffic Growth

Future traffic growth is a function of the expected land development in the immediate area and the surrounding region. Several methods can be used to estimate this growth. A procedure frequently employed estimates an annual percentage increase in traffic growth and applies that percentage to all traffic volumes under study. The drawback to such a procedure is that some turning volumes may actually grow at either a higher or a lower rate at particular intersections.

An alternative procedure identifies the location and type of planned development, estimates the traffic to be generated, and assigns it to the area roadway network. This procedure produces a more realistic estimate of growth for local traffic; however, potential population growth and development external to the study area would not be accounted for in the resulting traffic projections.

To provide a conservative analysis framework, both procedures were used, the salient components of which are described below.

### Specific Development by Others

The Town of Bellingham Planning and Zoning Department was contacted in order to determine if there were any projects planned within the study area that would have an impact on future traffic volumes at the study intersection. Based on these consultations, the following developments were identified for review in conjunction with this assessment:

- ***Bellingham Shores, Major Residential Development Definitive Subdivision, Bellingham, Massachusetts.*** This project consists of the construction of 103 single-family residential units to be located off Route 126 (South Main Street) to the east of the Project.

- ***Red Hill on the Charles, Definitive Subdivision, Bellingham, Massachusetts.*** This project consists of the construction of 105 single-family homes and 66 townhouse units to be located off Route 140 (Mechanic Street) to the northeast of the Project.

- ***Bungay Brook Estate Townhomes, Special Residential Use Townhouse Dwelling, Bellingham, Massachusetts.*** This project consists of the construction of 108 townhouse units to be located off Locust Street to the east of the Project.

- ***Proposed Warehouse, Bellingham, Massachusetts.*** This project consists of the construction of a 124,200 square foot (sf) warehouse building to be located at 206 Mechanic Street, east of the Project.

The traffic volumes associated with the aforementioned projects within the study area of this assessment are expected to be relatively minor and would be reflected in the general background traffic growth rate (discussion follows). No other developments were identified at this time that are expected to result in an increase in traffic within the study area beyond the general background traffic growth rate.

**General Background Traffic Growth**

Traffic-volume data compiled by MassDOT from permanent count stations in the region were reviewed in order to determine general traffic growth trends in the area. This data indicates that annual traffic volumes have fluctuated over the past several years, with the average growth rate found to be approximately 1.21 percent per year. In order to provide a conservative (high) analysis scenario and a prudent planning assessment for the Project, a higher 1.5 percent per year compounded annual background traffic growth rate was used to account for future traffic growth and presently unforeseen development within the study area.

**Roadway Improvement Projects**

The Town of Bellingham was contacted and the MassDOT Project Viewer website was reviewed in order to determine if there were any planned future roadway improvement projects expected to be completed within the study area by 2030. Based on this review, no roadway improvement projects aside from routine maintenance activities were identified to be planned within the study area at this time.

**No-Build Traffic Volumes**

The 2030 No-Build condition peak-hour traffic volumes were developed by applying the 1.5 percent per year compounded annual background traffic growth rate to the 2023 Existing peak-hour traffic volumes. The resulting 2030 No-Build weekday morning and evening peak-hour traffic volumes are shown on Figure 4.

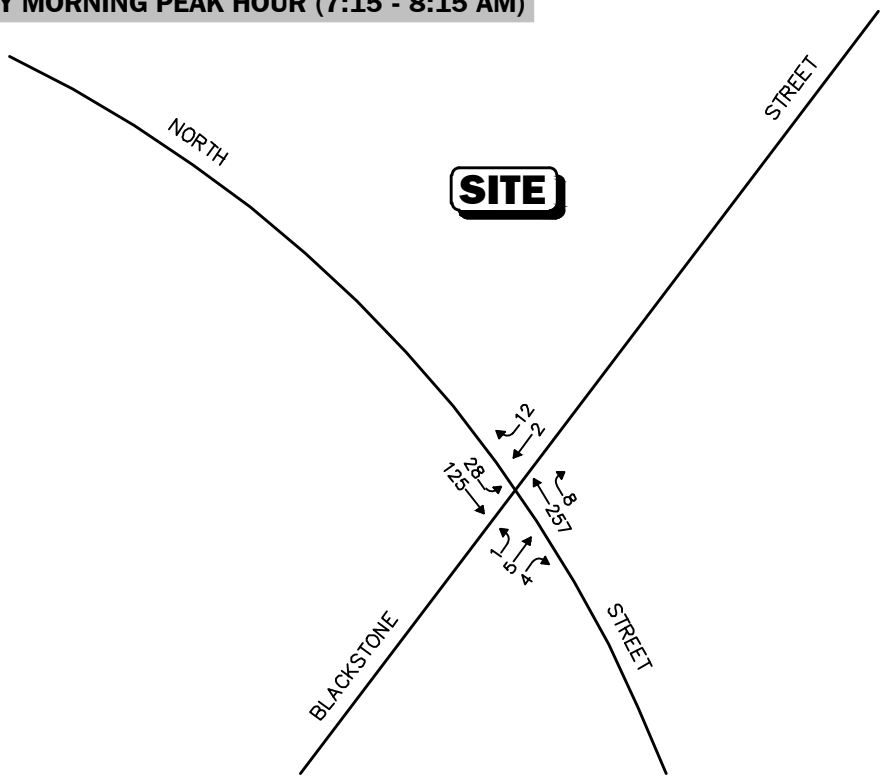
**Project-Generated Traffic**

Design year (2030 Build) traffic volumes for the study area roadways were determined by estimating Project-generated traffic volumes and assigning those volumes on the study roadways. The following sections describe the methodology used to develop the anticipated traffic characteristics of the Project.

As currently proposed, the Project will entail the construction of 15 attached residential units. In order to develop the traffic characteristics of the Project, trip-generation statistics published by the Institute of Transportation Engineers (ITE)[7] for a similar land use as that proposed were used. ITE Land Use Code (LUC) 215, *Single-Family Attached Housing*, was used to develop the traffic characteristics of the Project, the results of which are summarized in Table 5 and are compared to those of the development program that was assessed in the October 2022 TIA.

[7]Institute of Transportation Engineers, op. cit. 1.

**WEEKDAY MORNING PEAK HOUR (7:15 - 8:15 AM)**




**WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)**

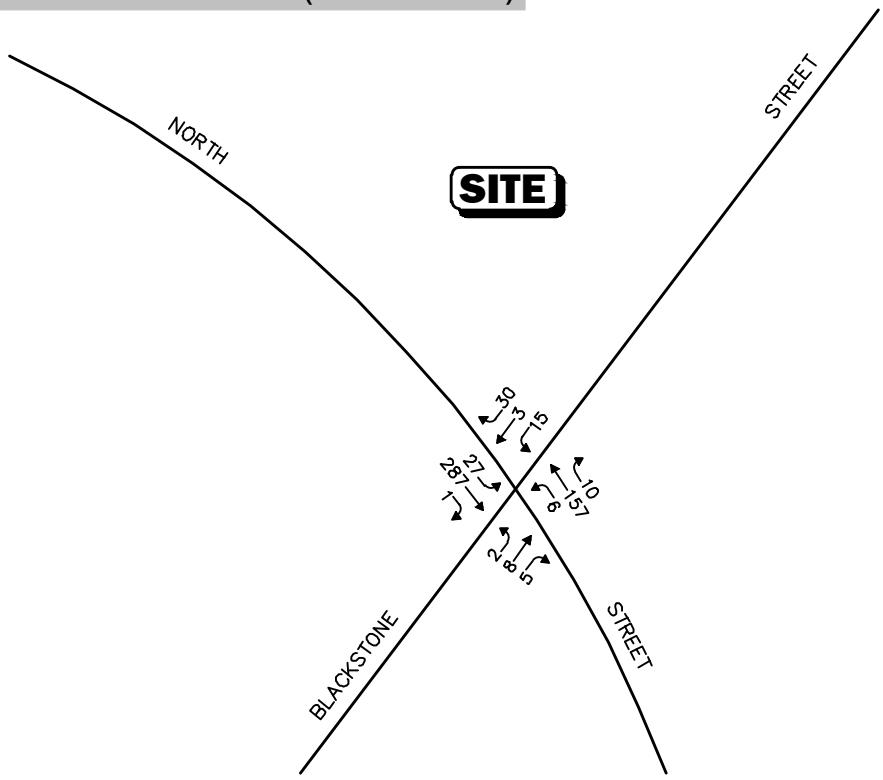



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**Figure 4**

**2030 No-Build**
**Peak-Hour Traffic Volumes**

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**Table 5**
**TRIP-GENERATION SUMMARY AND COMPARISON[a]**

| Time Period/Direction | Vehicle Trips (A) Current Development Program (15 Units) | (B) October 2022 TIA Development Program (36 Units) | (A-B) Difference |
|---|---|---|---|
| *Average Weekday Daily:* | | | |
| Entering | 32 | 112 | |
| Exiting | 32 | 112 | |
| Total | 64 | 224 | -160 |
| *Weekday Morning Peak Hour:* | | | |
| Entering | 1 | 4 | |
| Exiting | 1 | 9 | |
| Total | 2 | 13 | -11 |
| *Weekday Evening Peak Hour:* | | | |
| Entering | 3 | 10 | |
| Exiting | 2 | 8 | |
| Total | 5 | 18 | -13 |

[a]Based on ITE LUC 215, *Single-Family Attached Housing*.

As can be seen in Table 5 Column A, the Project is expected to generate approximately 64 vehicle trips on an average weekday (two-way, 24-hour volume, or 32 vehicles entering and 32 exiting), with two (2) vehicle trips (1 vehicle entering and 1 exiting) expected during the weekday morning peak hour and five (5) vehicle trips (3 vehicles entering and 2 exiting) expected during the weekday evening peak hour.

In comparison to the development program that was assessed in the October 2022 TIA (Column B), the current development program is expected to result in 160 fewer vehicle trips on an average weekday (an approximate 71 percent decrease), with 11 fewer vehicle trips expected during the weekday morning peak-hour (an approximate 85 percent decrease) and 13 fewer vehicle trips expected during the weekday evening peak-hour (an approximate 72 percent decrease).

***It is clear from this comparative assessment that the current development proposal (15 units) will be significantly less impactful on the transportation infrastructure than the development program that was assessed in the October 2022 TIA.***

## Trip Distribution and Assignment

The directional distribution of generated trips to and from the Project site was determined based on a review of U.S. Census Journey-to-Work data for the Town of Bellingham and then refined based on a review of existing traffic patterns within the study area. The general trip distribution for the Project is graphically depicted in Figure 5, with the additional traffic that is expected to be generated by the Project assigned on the study area roadway network as shown on Figure 6.

**Legend:**

| | |
|---|---|
| XX | Entering Trips |
| (XX) | Exiting Trips |

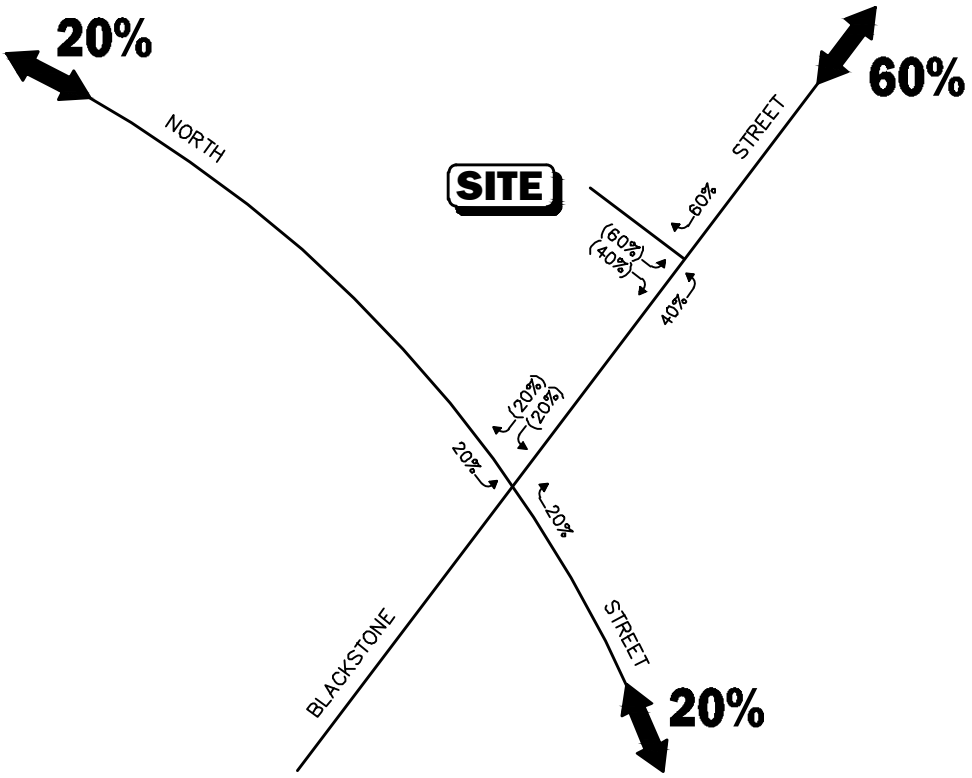


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**Figure 5**

**Trip Distribution Map**

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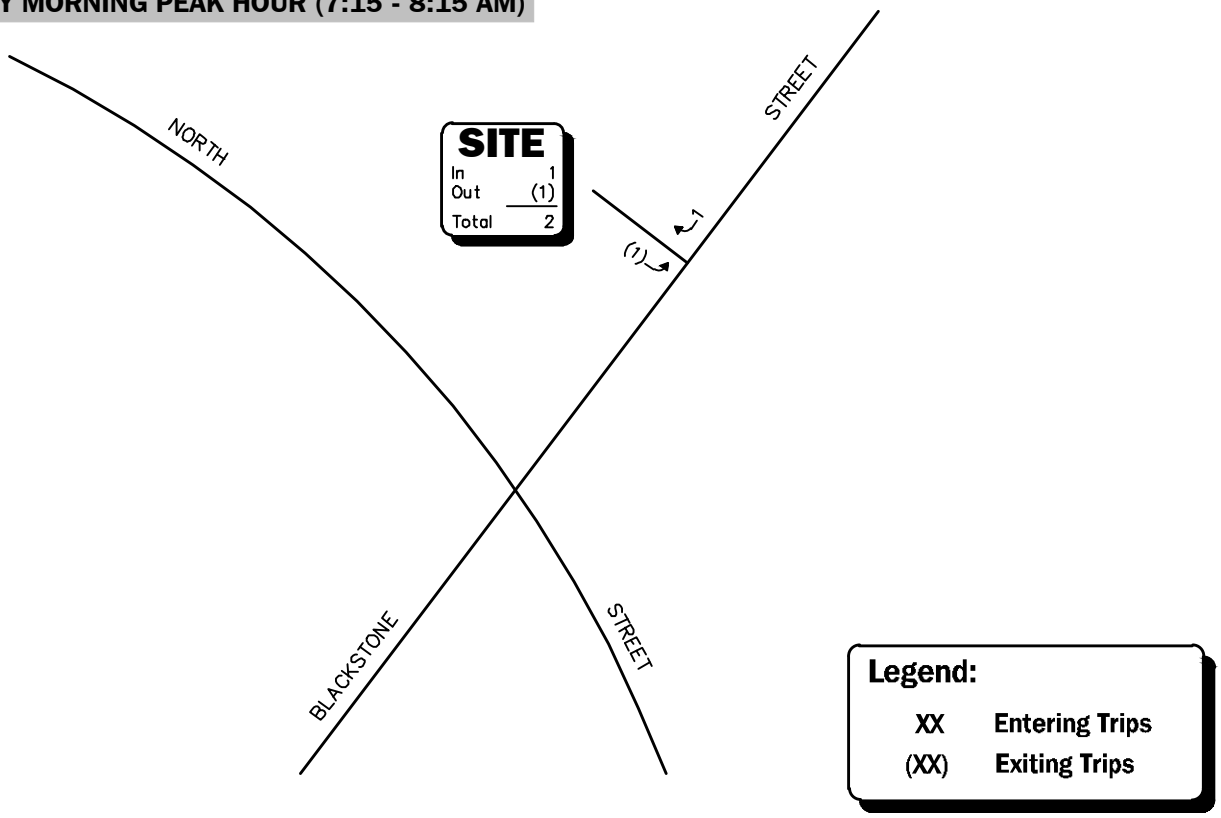
**WEEKDAY MORNING PEAK HOUR (7:15 - 8:15 AM)**




**WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)**

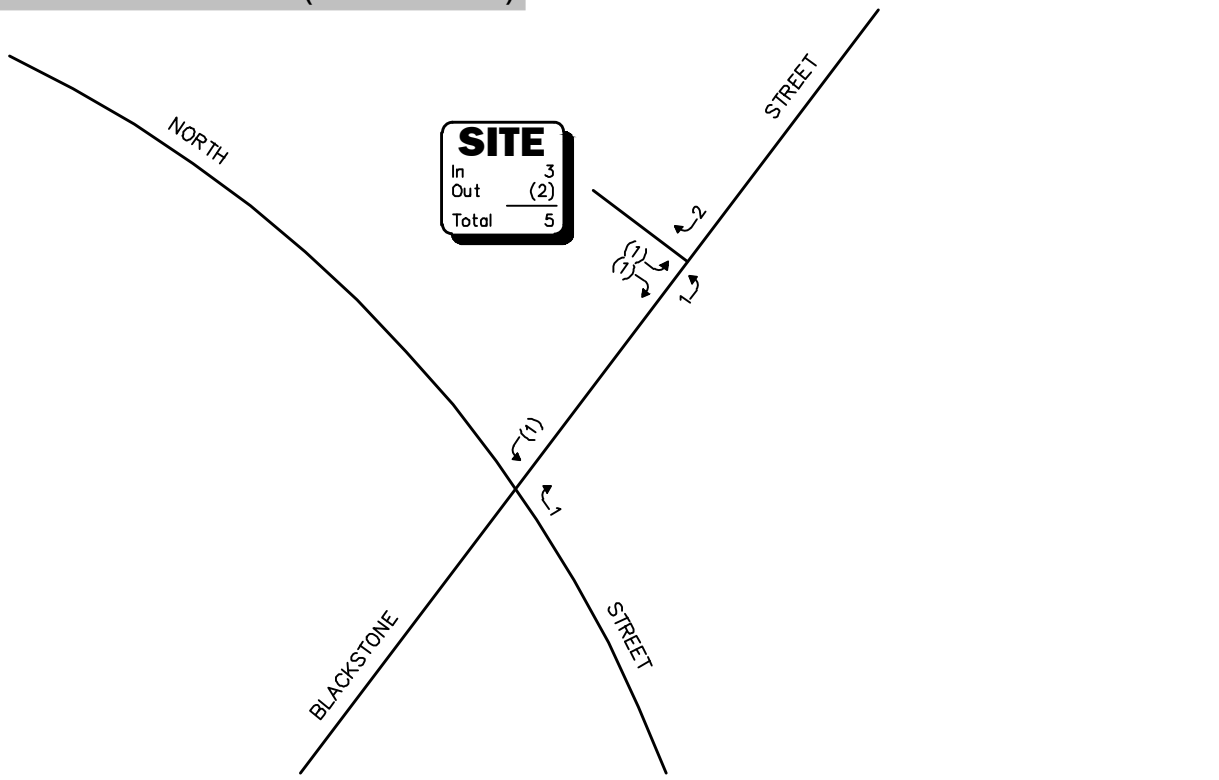



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**Figure 6**

**Project-Generated Peak-Hour Traffic Volumes**

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## Build Traffic Volumes

The 2030 Build condition traffic volumes consist of the 2030 No-Build traffic volumes with the addition of the traffic expected to be generated by the Project. The 2030 Build weekday morning and evening peak-hour traffic volumes are graphically depicted on Figure 7.

# TRAFFIC OPERATIONS ANALYSIS

In order to assess the potential impact of the Project on the roadway network, a detailed traffic operations analysis (motorist delays, vehicle queuing, and level of service) was performed for the study intersections. Capacity analyses provide an indication of how well transportation facilities serve the traffic demands placed upon them, with vehicle queue analyses providing a secondary measure of the operational characteristics of an intersection or section of roadway under study.

In brief, six levels of service are defined for each type of facility. They are given letter designations ranging from A to F, with LOS "A" representing the best operating conditions and LOS "F" representing congested or constrained operations. An LOS of "E" is representative of a transportation facility that is operating at its design capacity with an LOS of "D" generally defined as the limit of "acceptable" traffic operations. Since the level of service of a traffic facility is a function of the flows placed upon it, such a facility may operate at a wide range of levels of service depending on the time of day, day of week, or period of the year. The Synchro® intersection capacity analysis software, which is based on the analysis methodologies and procedures presented in the *6th Edition Highway Capacity Manual* (HCM)[8] for unsignalized intersections was used to complete the level-of-service and vehicle queue analyses.

## Analysis Results

Level-of-service and vehicle queue analysis were conducted for 2023 Existing, 2030 No-Build, and 2030 Build conditions for the intersections within the study area. The results of the intersection capacity and vehicle queue analyses are summarized in Table 6, with the detailed analysis results attached.

The following is a summary of the level-of-service and vehicle queue analyses for intersections within the study area. For context, we note that an LOS of "D" or better is generally defined as "acceptable" operating conditions.

### North Street at Blackstone Street

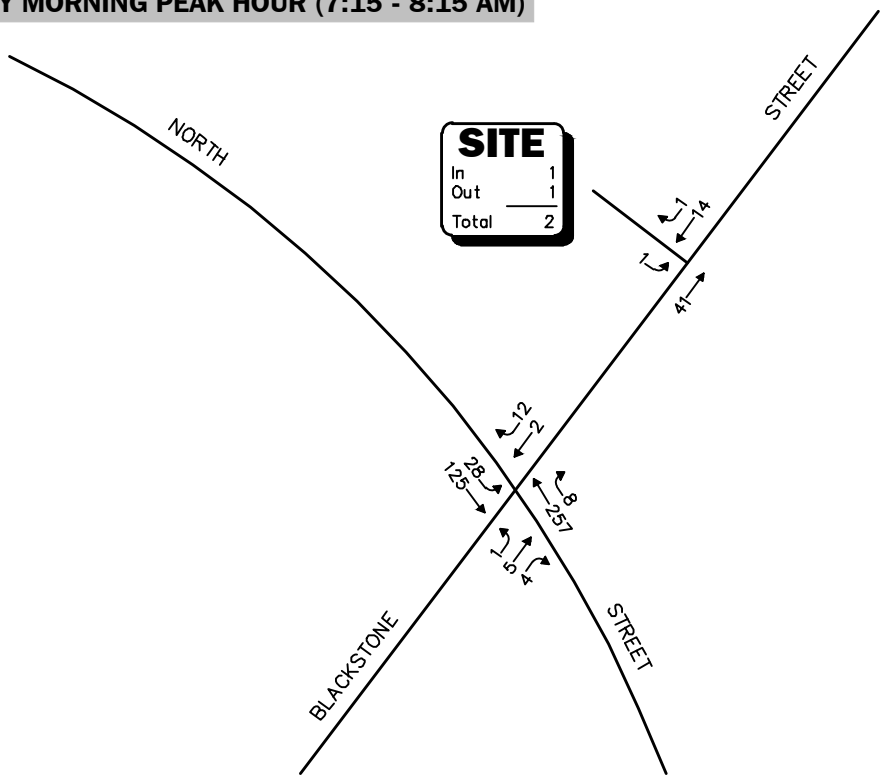
No change in level of service or vehicle queuing is predicted to occur for any movement over No-Build conditions, with all movements shown to continue to operate at LOS B or better during the peak-hours and project-related impacts generally defined as an increase in average motorist delay of less than 1.0 seconds.

### Blackstone Street at the Project Site Driveway

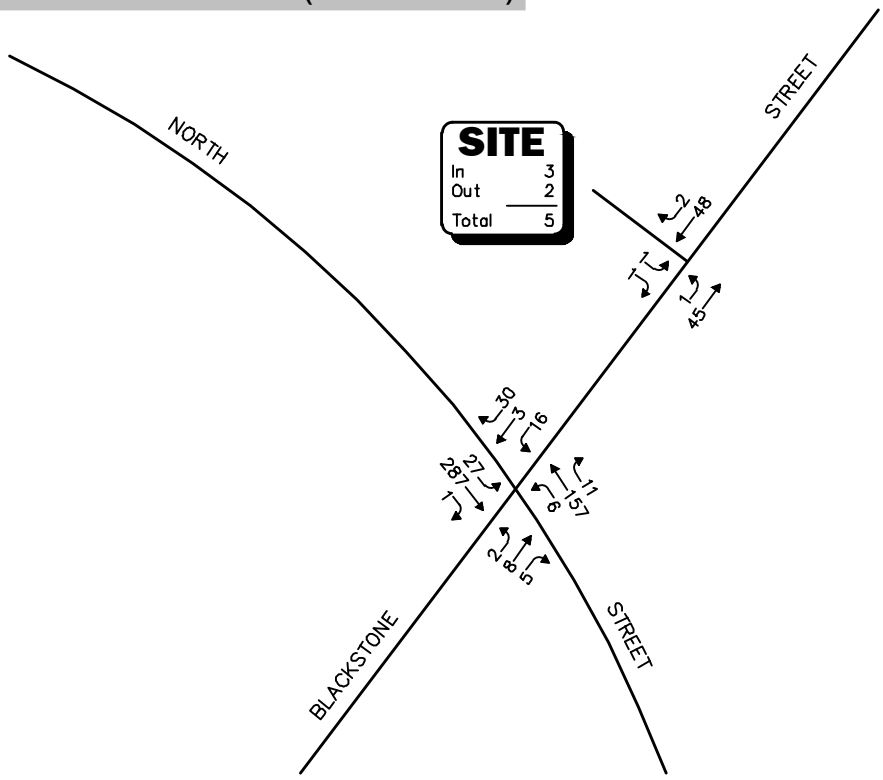
All movements at the Project site driveway intersection with Blackstone Street are predicted to operate at LOS A during the peak hours with negligible vehicle queuing predicted.

[8] *Highway Capacity Manual*, Transportation Research Board; Washington, DC; 2016.

## WEEKDAY MORNING PEAK HOUR (7:15 - 8:15 AM)




## WEEKDAY EVENING PEAK HOUR (4:00 - 5:00 PM)




Not To Scale

**Figure 7**

**2030 Build**
**Peak-Hour Traffic Volumes**

Vanasse & Associates inc

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**Table 6**
**UNSIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

| | 2023 Existing | | | | 2030 No-Build | | | | 2030 Build | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unsignalized Intersection/Peak-Hour/Movement | Demand[a] | Delay[b] | LOS[c] | Queue[d] 95th | Demand | Delay | LOS | Queue 95th | Demand | Delay | LOS | Queue 95th |
| ***North Street at Blackstone Street*** | | | | | | | | | | | | |
| *Weekday Morning:* | | | | | | | | | | | | |
| Blackstone Street EB LT/TH/RT | 10 | 11.1 | B | 0 | 10 | 11.5 | B | 0 | 10 | 11.5 | B | 0 |
| Blackstone Street WB LT/TH/RT | 13 | 10.2 | B | 0 | 14 | 10.4 | B | 0 | 14 | 10.4 | B | 0 |
| North Street NB LT/TH/RT | 238 | 0.0 | A | 0 | 265 | 0.0 | A | 0 | 265 | 0.0 | A | 0 |
| North Street SB LT/TH/RT | 138 | 1.4 | A | 0 | 153 | 1.4 | A | 0 | 153 | 1.4 | A | 0 |
| *Weekday Evening:* | | | | | | | | | | | | |
| Blackstone Street EB LT/TH/RT | 15 | 12.6 | B | 0 | 15 | 13.3 | B | 0 | 15 | 13.3 | B | 0 |
| Blackstone Street WB LT/TH/RT | 43 | 11.3 | B | 0 | 48 | 11.9 | B | 1 | 49 | 12.0 | B | 1 |
| North Street NB LT/TH/RT | 156 | 0.3 | A | 0 | 173 | 0.3 | A | 0 | 174 | 0.3 | A | 0 |
| North Street SB LT/TH/RT | 284 | 0.6 | A | 0 | 315 | 0.7 | A | 0 | 315 | 0.7 | A | 0 |
| ***Blackstone Street at the Project Site Driveway*** | | | | | | | | | | | | |
| *Weekday Morning:* | | | | | | | | | | | | |
| Blackstone Street EB LT/TH | -- | -- | -- | -- | -- | -- | -- | -- | 41 | 0.0 | A | 0 |
| Blackstone Street WB TH/RT | -- | -- | -- | -- | -- | -- | -- | -- | 15 | 0.0 | A | 0 |
| Project Site Driveway SB LT/RT | -- | -- | -- | -- | -- | -- | -- | -- | 1 | 8.8 | A | 0 |
| *Weekday Evening:* | | | | | | | | | | | | |
| Blackstone Street EB LT/TH | -- | -- | -- | -- | -- | -- | -- | -- | 46 | 0.2 | A | 0 |
| Blackstone Street WB TH/RT | -- | -- | -- | -- | -- | -- | -- | -- | 50 | 0.0 | A | 0 |
| Project Site Driveway SB LT/RT | -- | -- | -- | -- | -- | -- | -- | -- | 2 | 8.8 | A | 0 |

[a]Demand in vehicles per hour.
[b]Average control delay per vehicle (in seconds).
[c]Level of service.
[d]Queue length in vehicles.
NB = northbound, EB = eastbound; SB = southbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

## SIGHT DISTANCE ASSESSMENT

Sight distance measurements were performed at the Project site driveway intersection with Blackstone Street in accordance with MassDOT and American Association of State Highway and Transportation Officials (AASHTO)[9] requirements. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an oncoming vehicle and safely complete a turning or crossing maneuver with oncoming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 7 presents the measured SSD and ISD at the subject intersection.

**Table 7**
**SIGHT DISTANCE MEASUREMENTS[a]**

| Intersection/Sight Distance Measurement | Feet | | |
|---|---|---|---|
| | Required Minimum (SSD) | Desirable (ISD)[b] | Measured |
| ***Blackstone Street at the Project Site Driveway*** | | | |
| *Stopping Sight Distance:* | | | |
| Blackstone Street approaching from the east | 250 | -- | 309 |
| Blackstone Street approaching from the west | 250 | -- | 500+ |
| *Intersection Sight Distance:* | | | |
| Looking to the east from the Project Site Driveway | 250 | 335 | 281 |
| Looking to the west from the Project Site Driveway | 250 | 390 | 63/500+[c] |

[a]Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018; and based on a 35 mph approach speed on Blackstone Street.

[b]Values shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

[c]Available sight distance with the selective trimming/removal of trees and vegetation located within the sight triangle areas.

As can be seen in Table 7, <u>with the selective trimming/removal of trees and vegetation located within the sight triangle areas of Project site driveway</u>, the available lines of sight to and from the Project site driveway intersection with Blackstone Street will exceed the recommended minimum sight distance to function in a safe manner (SSD) based on a 35 mph approach speed, which is above both the measured 85th percentile vehicle travel speed (33/30 mph) in the vicinity of the Project site and the statutory speed limit (30 mph).

[9] *A Policy on Geometric Design of Highway and Streets,* 7th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

## SUMMARY

VAI has completed a detailed assessment of the potential impacts on the transportation infrastructure associated with the proposed construction of a residential development to be located on a portion of a property that fronts along North Street and Blackstone Street in Bellingham, Massachusetts. The following specific areas have been evaluated as they relate to the Project: i) access requirements; ii) potential off-site improvements; and iii) safety considerations; under existing and future conditions, both with and without the Project. Based on this assessment, we have concluded the following with respect to the Project:

1. Using trip-generation statistics published by the ITE,[10] the current development program for the Project is expected to generate approximately 64 vehicle trips on an average weekday (two-way, 24-hour volume), with two (2) vehicle trips expected during the weekday morning peak hour and five (5) vehicle trips expected during the weekday evening peak hour;

2. In comparison to the development program that was assessed in the October 2022 TIA (36 multifamily residential units), the current development program (15 multifamily residential units) will result in 160 fewer vehicle trips on an average weekday, with 11 fewer vehicle trips expected during the weekday morning peak-hour and 13 fewer vehicle trips expected during the weekday evening peak-hour;

3. Consistent with the findings of the October 2022 TIA, the Project will not result in a significant impact (increase) on motorist delays or vehicle queuing over Existing or anticipated future conditions without the Project (No-Build conditions), with all movements at the North Street/Blackstone Street intersection shown to continue to operate at LOS B or better with a negligible increase in vehicle queuing predicted;

4. All movements at the Project site driveway intersection with Blackstone Street are predicted to operate at LOS A during the peak hours with negligible vehicle queuing predicted;

5. No apparent safety deficiencies were noted with respect to the motor vehicle crash history at the North Street/Blackstone Street intersection; and

6. Lines of sight at the Project site driveway intersection with Blackstone Street were found to exceed or can be made to exceed the recommended minimum distance for the intersection to operate in a safe manner based on the appropriate approach speed.

In consideration of the above, we have concluded that the Project can be accommodated within the confines of the existing transportation infrastructure in a safe and efficient manner with the implementation of the recommendations that follow.

## RECOMMENDATIONS

A detailed transportation improvement program has been developed that is designed to provide safe and efficient access to the Project site and address any deficiencies identified as a part of this assessment. The following improvements have been recommended as a part of this evaluation and, where applicable, will be completed in conjunction with the Project subject to receipt of all necessary rights, permits, and approvals.

[10] Institute of Transportation Engineers, op. cit. 1.

**Project Access**

Access to the Project site will be provided by way of a new driveway that will intersect the north side of Blackstone Street approximately 700 feet northeast of North Street. The following recommendations are offered with respect to the design and operation of the Project site access and internal circulation, many of which are reflected on the Site Plan:

- The Project site driveway should be 22 feet in width and designed to accommodate the turning and maneuvering requirements of the largest anticipated responding emergency vehicle.
- Vehicles exiting the Project site should be placed under STOP-sign control with a marked STOP-line provided.
- All signs and pavement markings to be installed within the Project site should conform to the applicable standards of the *Manual on Uniform Traffic Control Devices* (MUTCD).[11]
- Sidewalks are provided within the Project site that link the proposed buildings to Blackstone Street, where a widened sidewalk area should be provided as a school bus waiting area. A crosswalk and Americans with Disabilities Act (ADA)-compliant wheelchair ramps are provided for crossing the driveway.
- Driveways to the residential units should be a minimum of 21 feet long measured between the garage door and the far edge of the sidewalk (edge closest to the residence) where a sidewalk is provided, and 23 feet measured between the garage door and the edge of the traveled-way in locations without a sidewalk.
- Signs and landscaping to be installed as a part of the Project within the intersection sight triangle areas of the Project site driveway should be designed and maintained so as not to restrict lines of sight.
- Existing trees and vegetation located within the sight triangle areas of the Project site driveway should be selectively trimmed or removed and maintained so as to provide the necessary sight lines for the driveway to operate in a safe manner.
- Snow accumulations (windrows) within sight triangle areas should be promptly removed where such accumulations would impede sight lines.

With implementation of the aforementioned recommendations, safe and efficient access will be provided to the Project site and the Project can be accommodated within the confines of the existing transportation system.

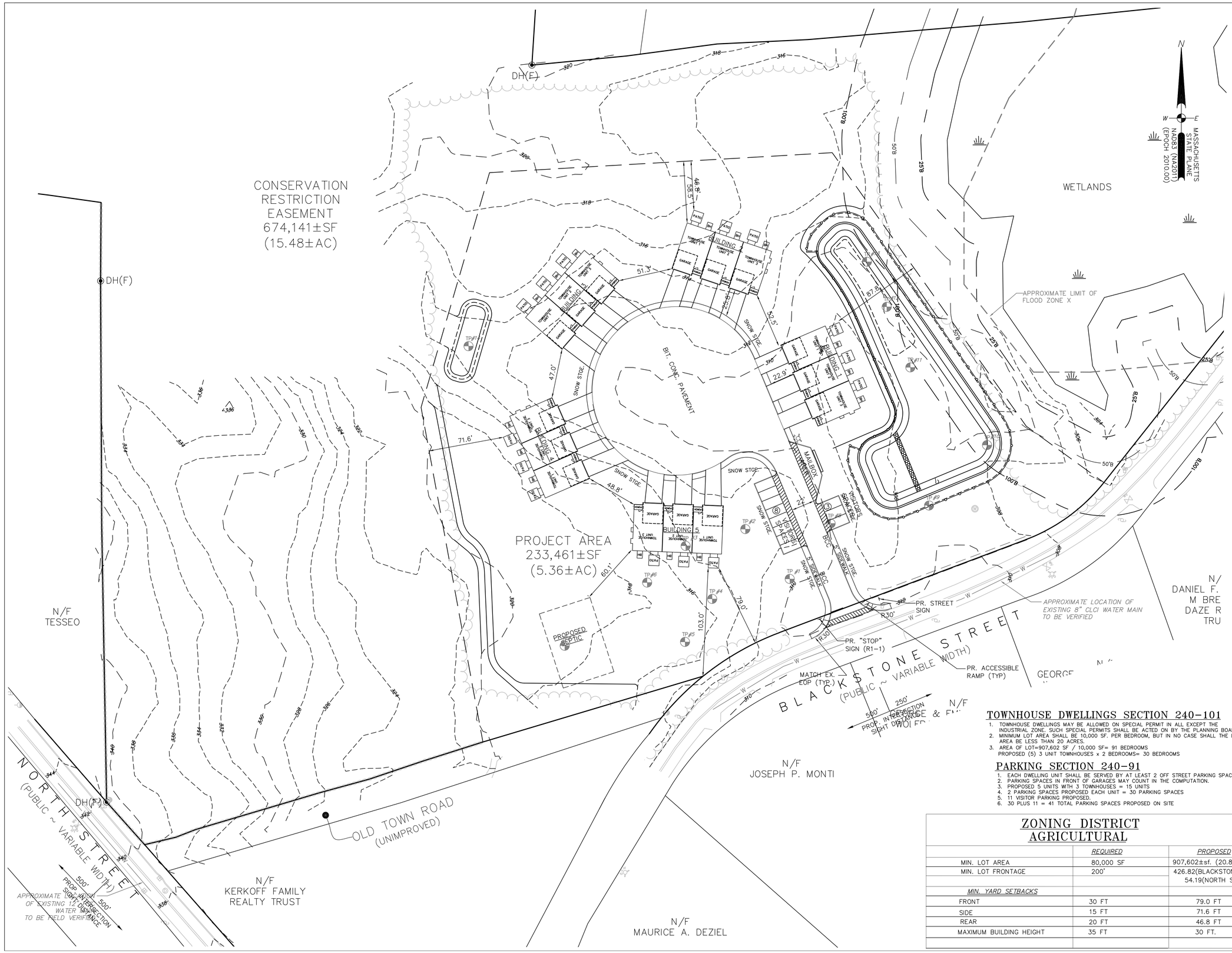
cc: File

[11] *Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, D.C.; 2009.

# ATTATCHMENTS

PROJECT SITE PLAN
AUTOMATIC TRAFFIC RECORDER COUNT DATA
TURNING MOVEMENT COUNT DATA
SEASONAL ADJUSTMENT DATA
VEHICLE TRAVEL SPEED DATA
MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAP
GENERAL BACKGROUND TRAFFIC GROWTH
TRIP-GENERATION CALCULATIONS
TRIP DISTRIBUTION DATA
CAPACITY ANALYSIS WORKSHEETS

PROJECT SITE PLAN




## TOWNHOUSE DWELLINGS SECTION 240-101

1. TOWNHOUSE DWELLINGS MAY BE ALLOWED ON SPECIAL PERMIT IN ALL EXCEPT THE INDUSTRIAL ZONE. SUCH SPECIAL PERMITS SHALL BE ACTED ON BY THE PLANNING BOARD.
2. MINIMUM LOT AREA SHALL BE 10,000 SF. PER BEDROOM, BUT IN NO CASE SHALL THE LOT AREA BE LESS THAN 20 ACRES.
3. AREA OF LOT=907,602 SF / 10,000 SF= 91 BEDROOMS
   PROPOSED (5) 3 UNIT TOWNHOUSES x 2 BEDROOMS= 30 BEDROOMS

## PARKING SECTION 240-91

1. EACH DWELLING UNIT SHALL BE SERVED BY AT LEAST 2 OFF STREET PARKING SPACES
2. PARKING SPACES IN FRONT OF GARAGES MAY COUNT IN THE COMPUTATION.
3. PROPOSED 5 UNITS WITH 3 TOWNHOUSES = 15 UNITS
4. 2 PARKING SPACES PROPOSED EACH UNIT = 30 PARKING SPACES
5. 11 VISITOR PARKING PROPOSED.
6. 30 PLUS 11 = 41 TOTAL PARKING SPACES PROPOSED ON SITE

## ZONING DISTRICT AGRICULTURAL

| | REQUIRED | PROPOSED |
|---|---|---|
| MIN. LOT AREA | 80,000 SF | 907,602±sf. (20.84 acs) |
| MIN. LOT FRONTAGE | 200' | 426.82(BLACKSTONE ST.)<br>54.19(NORTH ST.) |
| | | |
| MIN. YARD SETBACKS | | |
| FRONT | 30 FT | 79.0 FT |
| SIDE | 15 FT | 71.6 FT |
| REAR | 20 FT | 46.8 FT |
| MAXIMUM BUILDING HEIGHT | 35 FT | 30 FT. |
| | | |

F4457

### LEGAL NOTES

UTILITIES ARE PLOTTED AS A COMPILATION OF RECORD DOCUMENTS, MARKINGS AND OTHER OBSERVED EVIDENCE TO DEVELOP A VIEW OF THE UNDERGROUND UTILITIES AND SHOULD BE CONSIDERED APPROXIMATE. LACKING EXCAVATION, THE EXACT LOCATION OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. ADDITIONAL UTILITIES, NOT EVIDENCED BY RECORD DOCUMENTS OR OBSERVED PHYSICAL EVIDENCE, MAY EXIST. CONTRACTORS (IN ACCORDANCE WITH MASS.G.L. CHAPTER 82 SECTION 40 AS AMENDED) MUST CONTACT ALL UTILITY COMPANIES BEFORE EXCAVATING AND DRILLING AND CALL DIGSAFE AT 1(888)DIG-SAFE(7233).

CONSTRUCTION ON THIS LAND IS SUBJECT TO ANY EASEMENTS, RIGHTS-OF-WAY, RESTRICTIONS, RESERVATIONS, OR OTHER LIMITATIONS WHICH MAY BE REVEALED BY AN EXAMINATION OF THE TITLE.

### OWNER

RAVEN HOMES, INC.
22 BUCKHILL ROAD
NORTHBOROUGH, MA 01532

DEED BOOK 38607 PAGE 308
PLAN BOOK 697, PLAN 40
MAP 59 LOT 60A

### APPLICANT

RAVEN HOMES, INC.
22 BUCKHILL ROAD
NORTHBOROUGH, MA 01532

# DEVELOPMENT PLAN AND SPECIAL PERMIT NORTH STREET & BLACKSTONE STREET BELLINGHAM MASSACHUSETTS

## 5 UNIT SITE PLAN

## DECEMBER 30, 2022

| DATE | REVISION DESCRIPTION |
|---|---|
| 10/00/23 | PER TOWN REQUESTS |
| | |
| | |
| | |
| | |
| | |

GRAPHIC SCALE: 1"=40'

0 10 20 30 40 50 75 100 FEET
0 5 10 15 20 30 METERS

Guerriere & Halnon, Inc.
ENGINEERING & LAND SURVEYING
55 WEST CENTRAL ST.
FRANKLIN, MA 02038
PH. (508) 528-3221
FX. (508) 528-7921
www.gandhengineering.com

SHEET 1 OF 1

JOB NO. F4457

G:\C3D\Franklin\F4457\DWG\F4457-SITE REV-6 units-REV 4.dwg, 10/26/2023 1:36:41 PM, [D48]

AUTOMATIC TRAFFIC RECORDER COUNT DATA

# Accurate Counts

978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA

| 8/2/2022 | SB, | | Hour Totals | | NB, | | Hour Totals | | Combined Totals | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | Morning | Afternoon | Morning | Afternon | Morning | Afternoon | Morning | Afternoon | Morning | Afternoon |
| 12:00 | 0 | 12 | | | 0 | 6 | | | | |
| 12:15 | 0 | 8 | | | 0 | 7 | | | | |
| 12:30 | 0 | 6 | | | 1 | 2 | | | | |
| 12:45 | 0 | 7 | 0 | 33 | 0 | 10 | 1 | 25 | 1 | 58 |
| 1:00 | 0 | 2 | | | 0 | 12 | | | | |
| 1:15 | 1 | 7 | | | 0 | 9 | | | | |
| 1:30 | 0 | 2 | | | 0 | 6 | | | | |
| 1:45 | 0 | 5 | 1 | 16 | 0 | 5 | 0 | 32 | 1 | 48 |
| 2:00 | 0 | 4 | | | 0 | 6 | | | | |
| 2:15 | 0 | 2 | | | 0 | 6 | | | | |
| 2:30 | 1 | 4 | | | 0 | 7 | | | | |
| 2:45 | 0 | 5 | 1 | 15 | 0 | 6 | 0 | 25 | 1 | 40 |
| 3:00 | 0 | 6 | | | 0 | 5 | | | | |
| 3:15 | 0 | 10 | | | 0 | 9 | | | | |
| 3:30 | 0 | 12 | | | 0 | 8 | | | | |
| 3:45 | 0 | 14 | 0 | 42 | 0 | 16 | 0 | 38 | 0 | 80 |
| 4:00 | 0 | 11 | | | 0 | 14 | | | | |
| 4:15 | 2 | 12 | | | 1 | 15 | | | | |
| 4:30 | 0 | 11 | | | 0 | 8 | | | | |
| 4:45 | 1 | 7 | 3 | 41 | 0 | 9 | 1 | 46 | 4 | 87 |
| 5:00 | 0 | 5 | | | 0 | 8 | | | | |
| 5:15 | 3 | 8 | | | 2 | 10 | | | | |
| 5:30 | 4 | 5 | | | 0 | 12 | | | | |
| 5:45 | 4 | 7 | 11 | 25 | 3 | 9 | 5 | 39 | 16 | 64 |
| 6:00 | 7 | 6 | | | 3 | 19 | | | | |
| 6:15 | 3 | 4 | | | 1 | 7 | | | | |
| 6:30 | 3 | 5 | | | 1 | 6 | | | | |
| 6:45 | 4 | 3 | 17 | 18 | 2 | 4 | 7 | 36 | 24 | 54 |
| 7:00 | 12 | 2 | | | 1 | 10 | | | | |
| 7:15 | 13 | 2 | | | 2 | 9 | | | | |
| 7:30 | 9 | 4 | | | 4 | 5 | | | | |
| 7:45 | 9 | 6 | 43 | 14 | 7 | 5 | 14 | 29 | 57 | 43 |
| 8:00 | 8 | 2 | | | 3 | 7 | | | | |
| 8:15 | 6 | 1 | | | 2 | 8 | | | | |
| 8:30 | 6 | 1 | | | 2 | 2 | | | | |
| 8:45 | 12 | 4 | 32 | 8 | 5 | 5 | 12 | 22 | 44 | 30 |
| 9:00 | 4 | 4 | | | 5 | 4 | | | | |
| 9:15 | 4 | 1 | | | 9 | 2 | | | | |
| 9:30 | 7 | 1 | | | 4 | 8 | | | | |
| 9:45 | 7 | 1 | 22 | 7 | 4 | 5 | 22 | 19 | 44 | 26 |
| 10:00 | 6 | 2 | | | 3 | 5 | | | | |
| 10:15 | 5 | 1 | | | 3 | 3 | | | | |
| 10:30 | 7 | 2 | | | 3 | 0 | | | | |
| 10:45 | 5 | 1 | 23 | 6 | 4 | 2 | 13 | 10 | 36 | 16 |
| 11:00 | 6 | 1 | | | 6 | 1 | | | | |
| 11:15 | 3 | 0 | | | 5 | 2 | | | | |
| 11:30 | 6 | 1 | | | 4 | 1 | | | | |
| 11:45 | 8 | 0 | 23 | 2 | 8 | 0 | 23 | 4 | 46 | 6 |
| Total | 176 | 227 | | | 98 | 325 | | | 274 | 552 |
| Percent | 43.7% | 56.3% | | | 23.2% | 76.8% | | | 33.2% | 66.8% |

Accurate Counts
978-664-2565

Location : Blackstone Street
Location : North of North Street
City/State: Bellingham, MA

93450002

| 8/3/2022 | SB, | | Hour Totals | | NB, | | Hour Totals | | Combined Totals | |
|---|---|---|---|---|---|---|---|---|---|---|
| Time | Morning | Afternoon | Morning | Afternon | Morning | Afternoon | Morning | Afternoon | Morning | Afternoon |
| 12:00 | 1 | 5 | | | 1 | 12 | | | | |
| 12:15 | 0 | 2 | | | 0 | 11 | | | | |
| 12:30 | 0 | 6 | | | 0 | 8 | | | | |
| 12:45 | 0 | 5 | 1 | 18 | 0 | 2 | 1 | 33 | 2 | 51 |
| 1:00 | 0 | 8 | | | 0 | 9 | | | | |
| 1:15 | 0 | 9 | | | 0 | 3 | | | | |
| 1:30 | 0 | 4 | | | 1 | 2 | | | | |
| 1:45 | 0 | 2 | 0 | 23 | 0 | 6 | 1 | 20 | 1 | 43 |
| 2:00 | 0 | 4 | | | 0 | 5 | | | | |
| 2:15 | 0 | 5 | | | 1 | 6 | | | | |
| 2:30 | 0 | 8 | | | 0 | 8 | | | | |
| 2:45 | 1 | 4 | 1 | 21 | 0 | 3 | 1 | 22 | 2 | 43 |
| 3:00 | 0 | 6 | | | 0 | 6 | | | | |
| 3:15 | 0 | 13 | | | 0 | 9 | | | | |
| 3:30 | 0 | 4 | | | 0 | 13 | | | | |
| 3:45 | 0 | 8 | 0 | 31 | 0 | 8 | 0 | 36 | 0 | 67 |
| 4:00 | 1 | 7 | | | 0 | 13 | | | | |
| 4:15 | 0 | 13 | | | 0 | 9 | | | | |
| 4:30 | 1 | 9 | | | 1 | 13 | | | | |
| 4:45 | 0 | 10 | 2 | 39 | 0 | 15 | 1 | 50 | 3 | 89 |
| 5:00 | 0 | 7 | | | 1 | 7 | | | | |
| 5:15 | 4 | 10 | | | 2 | 11 | | | | |
| 5:30 | 1 | 6 | | | 0 | 12 | | | | |
| 5:45 | 1 | 8 | 6 | 31 | 3 | 7 | 6 | 37 | 12 | 68 |
| 6:00 | 4 | 6 | | | 1 | 12 | | | | |
| 6:15 | 7 | 3 | | | 2 | 9 | | | | |
| 6:30 | 7 | 7 | | | 2 | 5 | | | | |
| 6:45 | 10 | 5 | 28 | 21 | 4 | 8 | 9 | 34 | 37 | 55 |
| 7:00 | 14 | 3 | | | 5 | 12 | | | | |
| 7:15 | 10 | 8 | | | 4 | 4 | | | | |
| 7:30 | 12 | 7 | | | 4 | 4 | | | | |
| 7:45 | 13 | 5 | 49 | 23 | 6 | 8 | 19 | 28 | 68 | 51 |
| 8:00 | 10 | 7 | | | 7 | 10 | | | | |
| 8:15 | 13 | 6 | | | 6 | 6 | | | | |
| 8:30 | 7 | 2 | | | 6 | 2 | | | | |
| 8:45 | 12 | 3 | 42 | 18 | 5 | 2 | 24 | 20 | 66 | 38 |
| 9:00 | 6 | 2 | | | 7 | 6 | | | | |
| 9:15 | 5 | 2 | | | 5 | 3 | | | | |
| 9:30 | 4 | 4 | | | 9 | 5 | | | | |
| 9:45 | 4 | 2 | 19 | 10 | 6 | 3 | 27 | 17 | 46 | 27 |
| 10:00 | 6 | 1 | | | 3 | 1 | | | | |
| 10:15 | 7 | 1 | | | 10 | 2 | | | | |
| 10:30 | 6 | 3 | | | 7 | 0 | | | | |
| 10:45 | 10 | 1 | 29 | 6 | 9 | 4 | 29 | 7 | 58 | 13 |
| 11:00 | 5 | 0 | | | 4 | 1 | | | | |
| 11:15 | 8 | * | | | 6 | * | | | | |
| 11:30 | 6 | * | | | 9 | * | | | | |
| 11:45 | 7 | * | 26 | 0 | 8 | * | 27 | 1 | 53 | 1 |
| Total | 203 | 241 | | | 145 | 305 | | | 348 | 546 |
| Percent | 45.7% | 54.3% | | | 32.2% | 67.8% | | | 38.9% | 61.1% |
| Grand Total | 379 | 468 | | | 243 | 630 | | | 622 | 1098 |
| Percent | 44.7% | 55.3% | | | 27.8% | 72.2% | | | 36.2% | 63.8% |
| ADT | | ADT: 863 | | AADT: 863 | | | | | | |

# Accurate Counts

978-664-2565

Location : Blackstone Street
Location : North of North Street
City/State: Bellingham, MA

93450002

| 8/1/2022 | Monday | | Tuesday | | Wednesday | | Thursday | | Friday | | Saturday | | Sunday | | Week Average | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Time | SB, | NB, | SB, | NB, | SB, | NB, | SB, | NB, | SB, | NB, | SB, | NB, | SB, | NB, | SB, | NB, |
| 12:00 AM | * | * | 0 | 1 | 1 | 1 | * | * | * | * | * | * | * | * | 0 | 1 |
| 1:00 | * | * | 1 | 0 | 0 | 1 | * | * | * | * | * | * | * | * | 0 | 0 |
| 2:00 | * | * | 1 | 0 | 1 | 1 | * | * | * | * | * | * | * | * | 1 | 0 |
| 3:00 | * | * | 0 | 0 | 0 | 0 | * | * | * | * | * | * | * | * | 0 | 0 |
| 4:00 | * | * | 3 | 1 | 2 | 1 | * | * | * | * | * | * | * | * | 2 | 1 |
| 5:00 | * | * | 11 | 5 | 6 | 6 | * | * | * | * | * | * | * | * | 8 | 6 |
| 6:00 | * | * | 17 | 7 | 28 | 9 | * | * | * | * | * | * | * | * | 22 | 8 |
| 7:00 | * | * | 43 | 14 | 49 | 19 | * | * | * | * | * | * | * | * | 46 | 16 |
| 8:00 | * | * | 32 | 12 | 42 | 24 | * | * | * | * | * | * | * | * | 37 | 18 |
| 9:00 | * | * | 22 | 22 | 19 | 27 | * | * | * | * | * | * | * | * | 20 | 24 |
| 10:00 | * | * | 23 | 13 | 29 | 29 | * | * | * | * | * | * | * | * | 26 | 21 |
| 11:00 | * | * | 23 | 23 | 26 | 27 | * | * | * | * | * | * | * | * | 24 | 25 |
| 12:00 PM | * | * | 33 | 25 | 18 | 33 | * | * | * | * | * | * | * | * | 26 | 29 |
| 1:00 | * | * | 16 | 32 | 23 | 20 | * | * | * | * | * | * | * | * | 20 | 26 |
| 2:00 | * | * | 15 | 25 | 21 | 22 | * | * | * | * | * | * | * | * | 18 | 24 |
| 3:00 | * | * | 42 | 38 | 31 | 36 | * | * | * | * | * | * | * | * | 36 | 37 |
| 4:00 | * | * | 41 | 46 | 39 | 50 | * | * | * | * | * | * | * | * | 40 | 48 |
| 5:00 | * | * | 25 | 39 | 31 | 37 | * | * | * | * | * | * | * | * | 28 | 38 |
| 6:00 | * | * | 18 | 36 | 21 | 34 | * | * | * | * | * | * | * | * | 20 | 35 |
| 7:00 | * | * | 14 | 29 | 23 | 28 | * | * | * | * | * | * | * | * | 18 | 28 |
| 8:00 | * | * | 8 | 22 | 18 | 20 | * | * | * | * | * | * | * | * | 13 | 21 |
| 9:00 | * | * | 7 | 19 | 10 | 17 | * | * | * | * | * | * | * | * | 8 | 18 |
| 10:00 | * | * | 6 | 10 | 6 | 7 | * | * | * | * | * | * | * | * | 6 | 8 |
| 11:00 | * | * | 2 | 4 | 0 | 1 | * | * | * | * | * | * | * | * | 1 | 2 |
| Total | 0 | 0 | 403 | 423 | 444 | 450 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 420 | 434 |
| Day | 0 | | 826 | | 894 | | 0 | | 0 | | 0 | | 0 | | 854 | |
| AM Peak | | | 7:00 | 11:00 | 7:00 | 10:00 | | | | | | | | | 7:00 | 11:00 |
| Volume | | | 43 | 23 | 49 | 29 | | | | | | | | | 46 | 25 |
| PM Peak | | | 3:00 | 4:00 | 4:00 | 4:00 | | | | | | | | | 4:00 | 4:00 |
| Volume | | | 42 | 46 | 39 | 50 | | | | | | | | | 40 | 48 |
| Comb Total | 0 | | 826 | | 894 | | 0 | | 0 | | 0 | | 0 | | 854 | |
| ADT | ADT: 863 | | AADT: 863 | | | | | | | | | | | | | |

# TURNING MOVEMENT COUNT DATA

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 1

Groups Printed- Cars - Trucks

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 AM | 0 | 0 | 1 | 0 | 37 | 3 | 0 | 3 | 0 | 6 | 21 | 0 | 71 |
| 07:15 AM | 0 | 0 | 2 | 0 | 63 | 1 | 0 | 1 | 1 | 10 | 27 | 0 | 105 |
| 07:30 AM | 0 | 1 | 2 | 0 | 60 | 1 | 0 | 4 | 1 | 3 | 36 | 0 | 108 |
| 07:45 AM | 0 | 1 | 6 | 0 | 57 | 2 | 0 | 0 | 1 | 7 | 30 | 0 | 104 |
| Total | 0 | 2 | 11 | 0 | 217 | 7 | 0 | 8 | 3 | 26 | 114 | 0 | 388 |
| 08:00 AM | 0 | 0 | 1 | 0 | 48 | 3 | 1 | 0 | 1 | 5 | 18 | 0 | 77 |
| 08:15 AM | 0 | 0 | 3 | 0 | 38 | 1 | 0 | 1 | 2 | 2 | 22 | 0 | 69 |
| 08:30 AM | 2 | 0 | 2 | 2 | 42 | 1 | 0 | 1 | 0 | 4 | 27 | 0 | 81 |
| 08:45 AM | 2 | 1 | 2 | 1 | 41 | 1 | 1 | 3 | 2 | 6 | 19 | 1 | 80 |
| Total | 4 | 1 | 8 | 3 | 169 | 6 | 2 | 5 | 5 | 17 | 86 | 1 | 307 |
| Grand Total | 4 | 3 | 19 | 3 | 386 | 13 | 2 | 13 | 8 | 43 | 200 | 1 | 695 |
| Apprch % | 15.4 | 11.5 | 73.1 | 0.7 | 96 | 3.2 | 8.7 | 56.5 | 34.8 | 17.6 | 82 | 0.4 | |
| Total % | 0.6 | 0.4 | 2.7 | 0.4 | 55.5 | 1.9 | 0.3 | 1.9 | 1.2 | 6.2 | 28.8 | 0.1 | |
| Cars | 4 | 3 | 19 | 2 | 385 | 13 | 2 | 13 | 7 | 43 | 197 | 1 | 689 |
| % Cars | 100 | 100 | 100 | 66.7 | 99.7 | 100 | 100 | 100 | 87.5 | 100 | 98.5 | 100 | 99.1 |
| Trucks | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 6 |
| % Trucks | 0 | 0 | 0 | 33.3 | 0.3 | 0 | 0 | 0 | 12.5 | 0 | 1.5 | 0 | 0.9 |

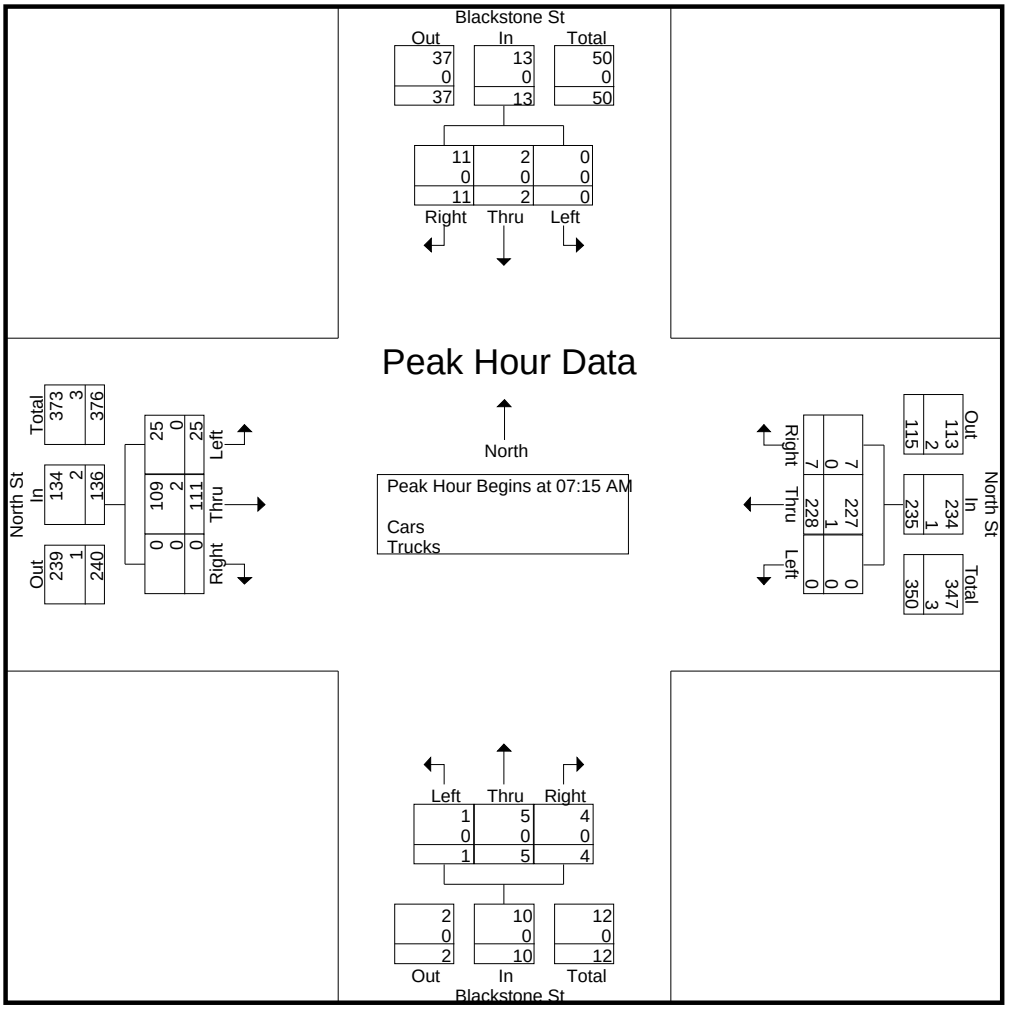
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 2 | 2 | 0 | **63** | 1 | **64** | 0 | 1 | **1** | 2 | **10** | 27 | 0 | 37 | 105 |
| 07:30 AM | 0 | **1** | 2 | 3 | 0 | 60 | 1 | 61 | 0 | **4** | 1 | **5** | 3 | **36** | 0 | **39** | **108** |
| 07:45 AM | 0 | 1 | **6** | **7** | 0 | 57 | 2 | 59 | 0 | 0 | 1 | 1 | 7 | 30 | 0 | 37 | 104 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 48 | **3** | 51 | **1** | 0 | 1 | 2 | 5 | 18 | 0 | 23 | 77 |
| Total Volume | 0 | 2 | 11 | 13 | 0 | 228 | 7 | 235 | 1 | 5 | 4 | 10 | 25 | 111 | 0 | 136 | 394 |
| % App. Total | 0 | 15.4 | 84.6 | | 0 | 97 | 3 | | 10 | 50 | 40 | | 18.4 | 81.6 | 0 | | |
| PHF | .000 | .500 | .458 | .464 | .000 | .905 | .583 | .918 | .250 | .313 | 1.00 | .500 | .625 | .771 | .000 | .872 | .912 |
| Cars | 0 | 2 | 11 | 13 | 0 | 227 | 7 | 234 | 1 | 5 | 4 | 10 | 25 | 109 | 0 | 134 | 391 |
| % Cars | 0 | 100 | 100 | 100 | 0 | 99.6 | 100 | 99.6 | 100 | 100 | 100 | 100 | 100 | 98.2 | 0 | 98.5 | 99.2 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 0 | 0 | 0 | 1.8 | 0 | 1.5 | 0.8 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 2




Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

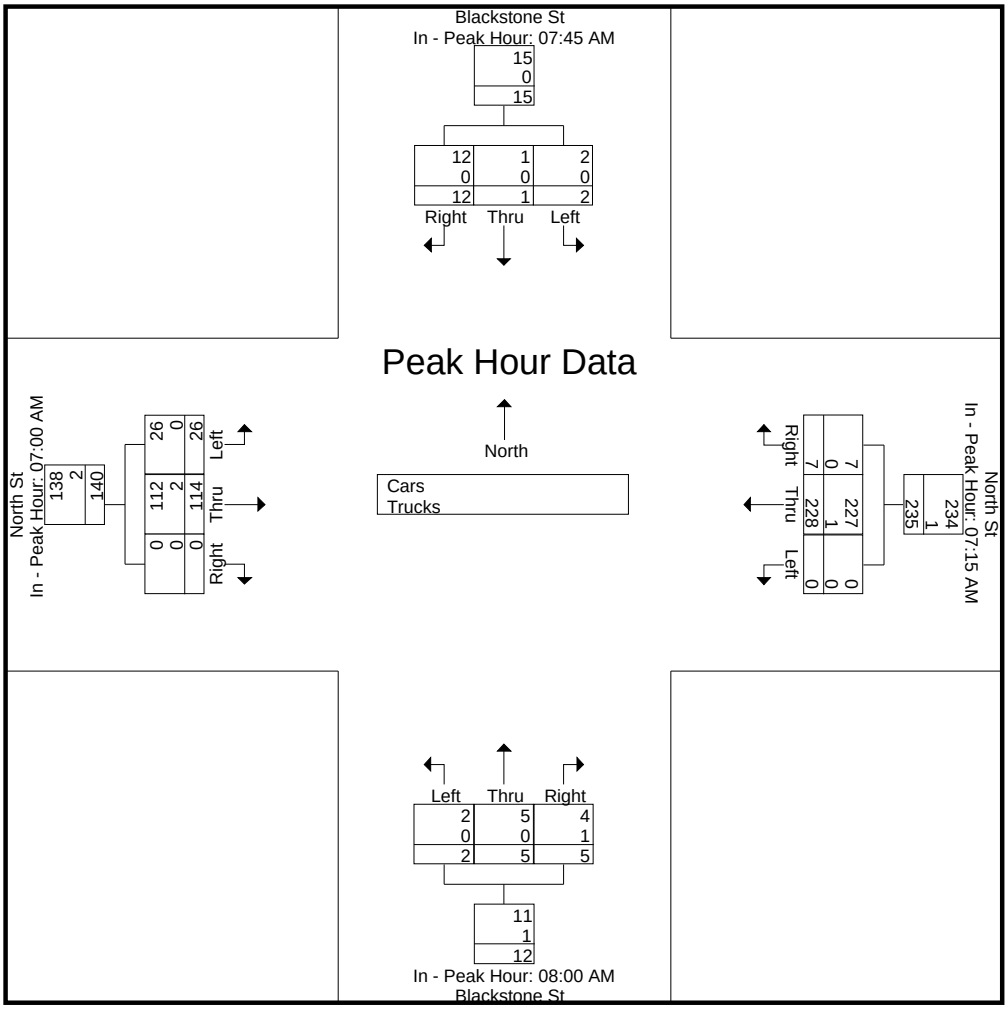
| | 07:45 AM | | | | 07:15 AM | | | | 08:00 AM | | | | 07:00 AM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | **1** | **6** | **7** | 0 | **63** | 1 | **64** | **1** | 0 | 1 | 2 | 6 | 21 | 0 | 27 |
| +15 mins. | 0 | 0 | 1 | 1 | 0 | 60 | 1 | 61 | 0 | 1 | **2** | 3 | **10** | 27 | 0 | 37 |
| +30 mins. | 0 | 0 | 3 | 3 | 0 | 57 | 2 | 59 | 0 | 1 | 0 | 1 | 3 | **36** | 0 | **39** |
| +45 mins. | **2** | 0 | 2 | 4 | 0 | 48 | **3** | 51 | 1 | **3** | 2 | **6** | 7 | 30 | 0 | 37 |
| Total Volume | 2 | 1 | 12 | 15 | 0 | 228 | 7 | 235 | 2 | 5 | 5 | 12 | 26 | 114 | 0 | 140 |
| % App. Total | 13.3 | 6.7 | 80 | | 0 | 97 | 3 | | 16.7 | 41.7 | 41.7 | | 18.6 | 81.4 | 0 | |
| PHF | .250 | .250 | .500 | .536 | .000 | .905 | .583 | .918 | .500 | .417 | .625 | .500 | .650 | .792 | .000 | .897 |
| Cars | 2 | 1 | 12 | 15 | 0 | 227 | 7 | 234 | 2 | 5 | 4 | 11 | 26 | 112 | 0 | 138 |
| % Cars | 100 | 100 | 100 | 100 | 0 | 99.6 | 100 | 99.6 | 100 | 100 | 80 | 91.7 | 100 | 98.2 | 0 | 98.6 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0.4 | 0 | 0.4 | 0 | 0 | 20 | 8.3 | 0 | 1.8 | 0 | 1.4 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 3



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 4

Groups Printed- Cars

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 AM | 0 | 0 | 1 | 0 | 37 | 3 | 0 | 3 | 0 | 6 | 21 | 0 | 71 |
| 07:15 AM | 0 | 0 | 2 | 0 | 62 | 1 | 0 | 1 | 1 | 10 | 27 | 0 | 104 |
| 07:30 AM | 0 | 1 | 2 | 0 | 60 | 1 | 0 | 4 | 1 | 3 | 36 | 0 | 108 |
| 07:45 AM | 0 | 1 | 6 | 0 | 57 | 2 | 0 | 0 | 1 | 7 | 28 | 0 | 102 |
| Total | 0 | 2 | 11 | 0 | 216 | 7 | 0 | 8 | 3 | 26 | 112 | 0 | 385 |
| 08:00 AM | 0 | 0 | 1 | 0 | 48 | 3 | 1 | 0 | 1 | 5 | 18 | 0 | 77 |
| 08:15 AM | 0 | 0 | 3 | 0 | 38 | 1 | 0 | 1 | 2 | 2 | 22 | 0 | 69 |
| 08:30 AM | 2 | 0 | 2 | 2 | 42 | 1 | 0 | 1 | 0 | 4 | 26 | 0 | 80 |
| 08:45 AM | 2 | 1 | 2 | 0 | 41 | 1 | 1 | 3 | 1 | 6 | 19 | 1 | 78 |
| Total | 4 | 1 | 8 | 2 | 169 | 6 | 2 | 5 | 4 | 17 | 85 | 1 | 304 |
| Grand Total | 4 | 3 | 19 | 2 | 385 | 13 | 2 | 13 | 7 | 43 | 197 | 1 | 689 |
| Apprch % | 15.4 | 11.5 | 73.1 | 0.5 | 96.2 | 3.2 | 9.1 | 59.1 | 31.8 | 17.8 | 81.7 | 0.4 | |
| Total % | 0.6 | 0.4 | 2.8 | 0.3 | 55.9 | 1.9 | 0.3 | 1.9 | 1 | 6.2 | 28.6 | 0.1 | |

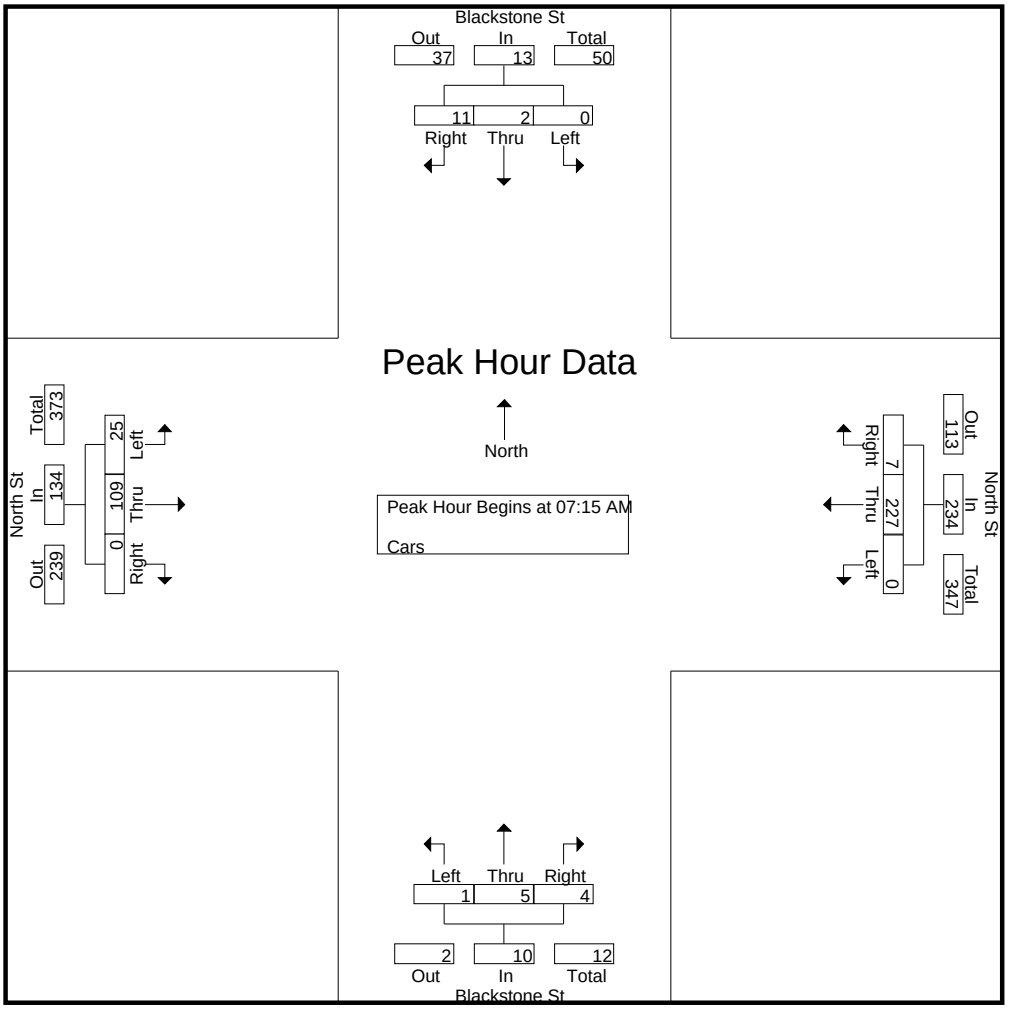
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 2 | 2 | 0 | **62** | 1 | **63** | 0 | 1 | **1** | 2 | **10** | 27 | 0 | 37 | 104 |
| 07:30 AM | 0 | **1** | 2 | 3 | 0 | 60 | 1 | 61 | 0 | **4** | 1 | **5** | 3 | **36** | 0 | **39** | **108** |
| 07:45 AM | 0 | 1 | **6** | **7** | 0 | 57 | 2 | 59 | 0 | 0 | 1 | 1 | 7 | 28 | 0 | 35 | 102 |
| 08:00 AM | 0 | 0 | 1 | 1 | 0 | 48 | **3** | 51 | **1** | 0 | 1 | 2 | 5 | 18 | 0 | 23 | 77 |
| Total Volume | 0 | 2 | 11 | 13 | 0 | 227 | 7 | 234 | 1 | 5 | 4 | 10 | 25 | 109 | 0 | 134 | 391 |
| % App. Total | 0 | 15.4 | 84.6 | | 0 | 97 | 3 | | 10 | 50 | 40 | | 18.7 | 81.3 | 0 | | |
| PHF | .000 | .500 | .458 | .464 | .000 | .915 | .583 | .929 | .250 | .313 | 1.00 | .500 | .625 | .757 | .000 | .859 | .905 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 5




Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

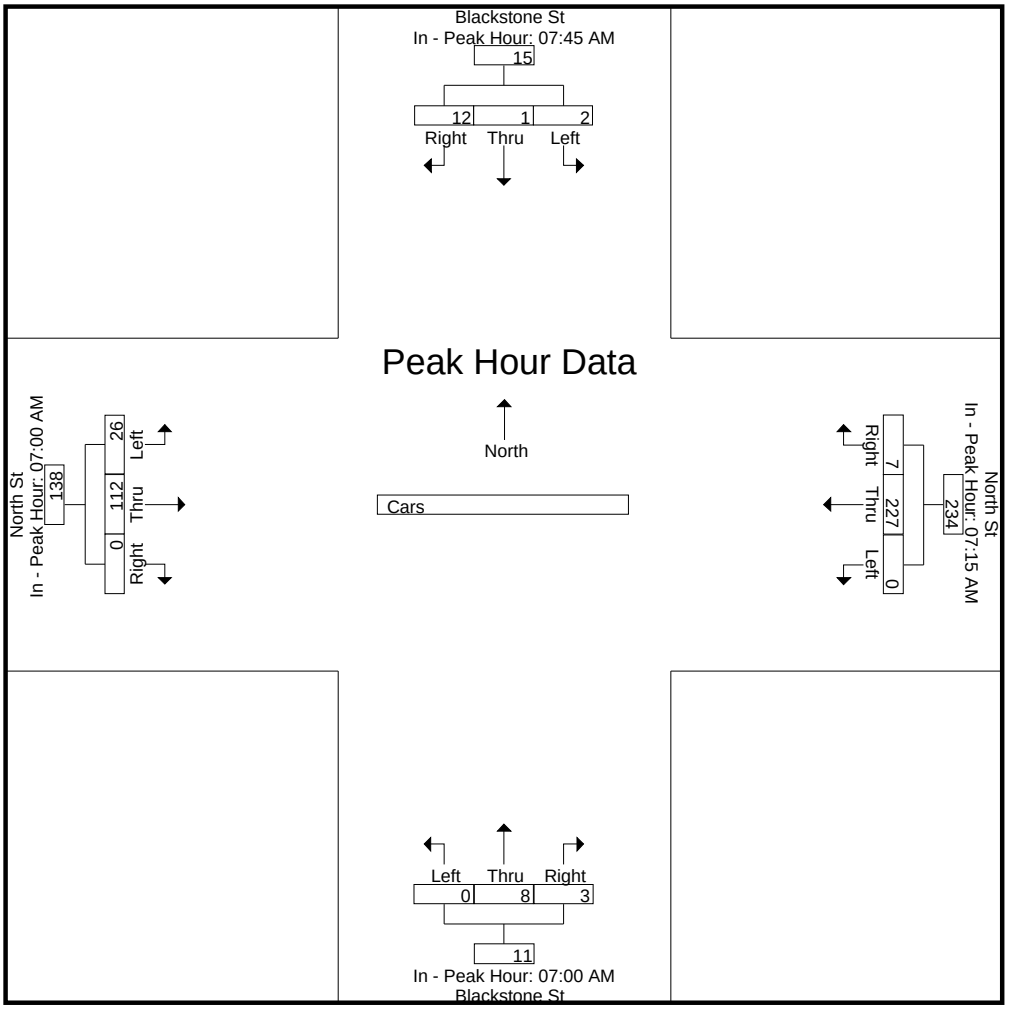
| | 07:45 AM | | | | 07:15 AM | | | | 07:00 AM | | | | 07:00 AM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | **1** | **6** | **7** | 0 | **62** | 1 | **63** | 0 | 3 | 0 | 3 | 6 | 21 | 0 | 27 |
| +15 mins. | 0 | 0 | 1 | 1 | 0 | 60 | 1 | 61 | 0 | 1 | **1** | 2 | **10** | 27 | 0 | 37 |
| +30 mins. | 0 | 0 | 3 | 3 | 0 | 57 | 2 | 59 | 0 | **4** | 1 | **5** | 3 | **36** | 0 | **39** |
| +45 mins. | **2** | 0 | 2 | 4 | 0 | 48 | **3** | 51 | 0 | 0 | 1 | 1 | 7 | 28 | 0 | 35 |
| Total Volume | 2 | 1 | 12 | 15 | 0 | 227 | 7 | 234 | 0 | 8 | 3 | 11 | 26 | 112 | 0 | 138 |
| % App. Total | 13.3 | 6.7 | 80 | | 0 | 97 | 3 | | 0 | 72.7 | 27.3 | | 18.8 | 81.2 | 0 | |
| PHF | .250 | .250 | .500 | .536 | .000 | .915 | .583 | .929 | .000 | .500 | .750 | .550 | .650 | .778 | .000 | .885 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 6



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 7

Groups Printed- Trucks

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| Total | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 3 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| 08:45 AM | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 2 |
| Total | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 3 |
| Grand Total | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 1 | 0 | 3 | 0 | 6 |
| Apprch % | 0 | 0 | 0 | 50 | 50 | 0 | 0 | 0 | 100 | 0 | 100 | 0 | |
| Total % | 0 | 0 | 0 | 16.7 | 16.7 | 0 | 0 | 0 | 16.7 | 0 | 50 | 0 | |

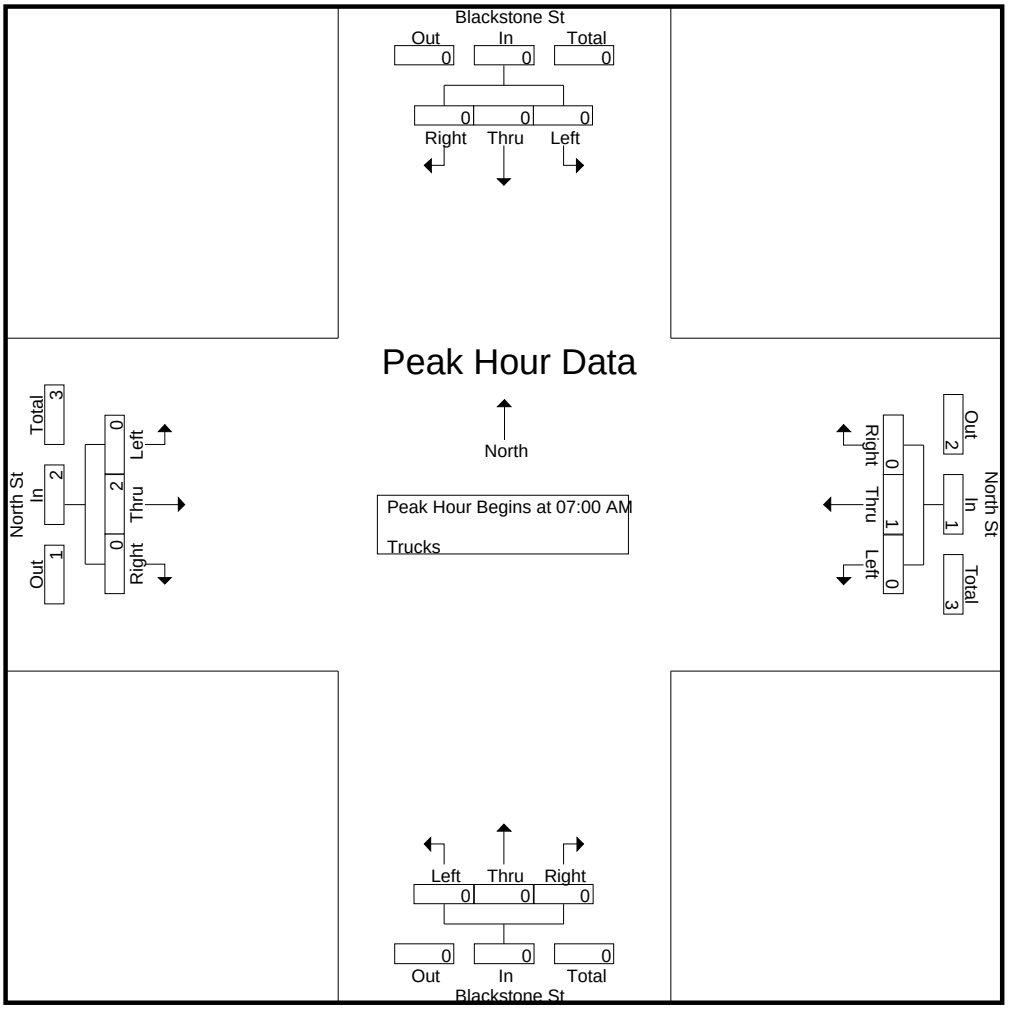
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 07:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2** | 0 | **2** | **2** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 3 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .250 | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .250 | .375 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 8




Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

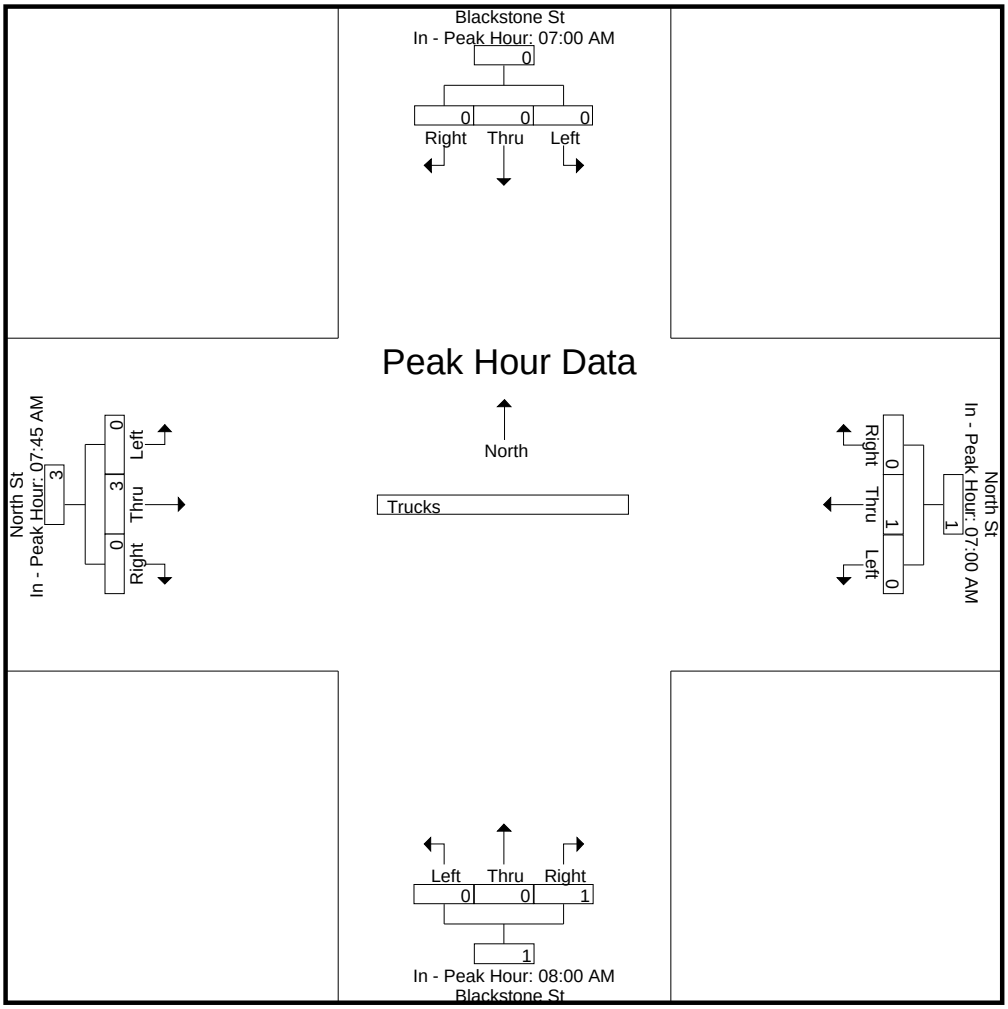
| | 07:00 AM | | | | 07:00 AM | | | | 08:00 AM | | | | 07:45 AM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **2** | 0 | **2** |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | **1** | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | **1** | 0 | 1 | 0 | 1 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 0 | 3 |
| % App. Total | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 0 | 100 | | 0 | 100 | 0 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .250 | .000 | .000 | .250 | .250 | .000 | .375 | .000 | .375 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 9



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 10

Groups Printed- Bikes Peds

| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Exclu. Total | Inclu. Total | Int. Total |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 08:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 08:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 4 | 0 | 4 |
| 08:30 AM | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 0 | 4 |
| 08:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 8 | 0 | 8 |
| Grand Total | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 8 | 1 | 9 |
| Apprch % | 100 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | | | |
| Total % | 100 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 88.9 | 11.1 | |

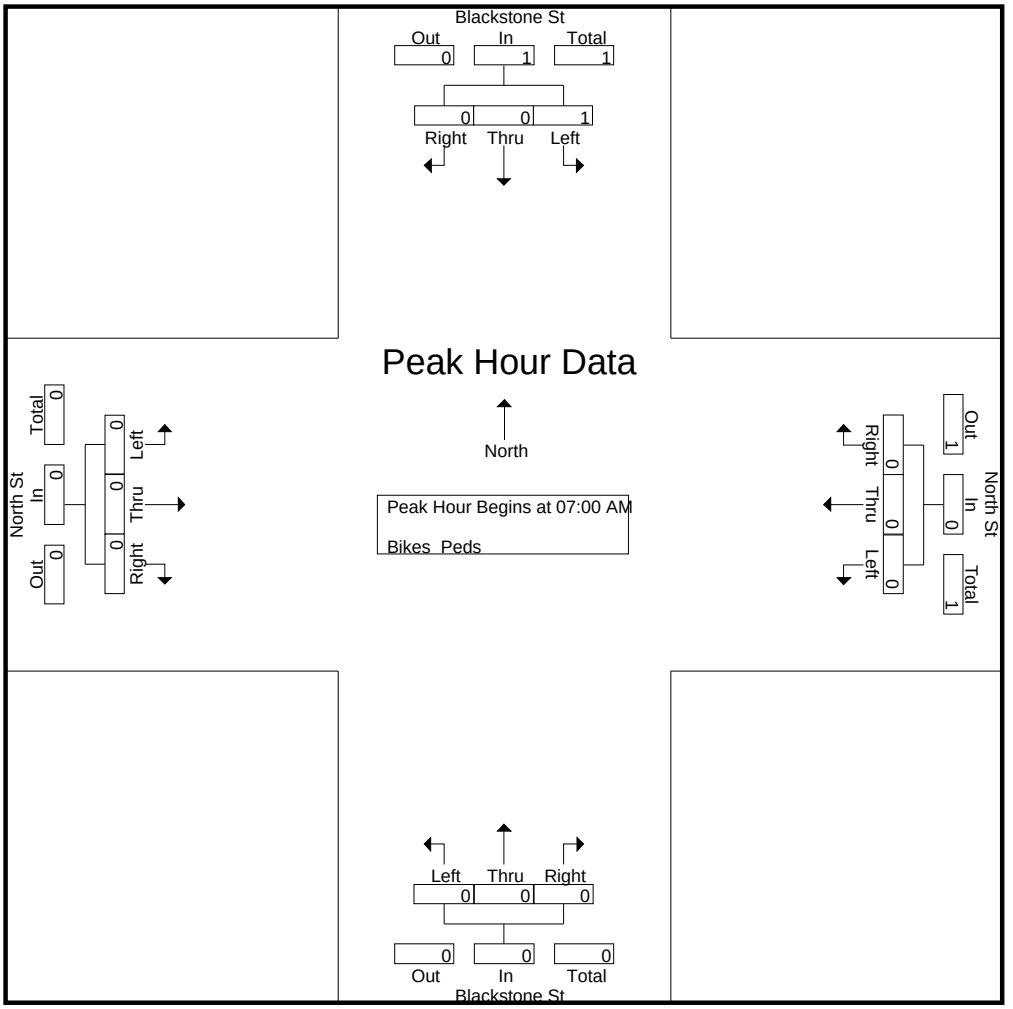
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:00 AM | | | | | | | | | | | | | | | | | |
| 07:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 07:30 AM | **1** | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Volume | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| % App. Total | 100 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| PHF | .250 | .000 | .000 | .250 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .250 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 11




Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

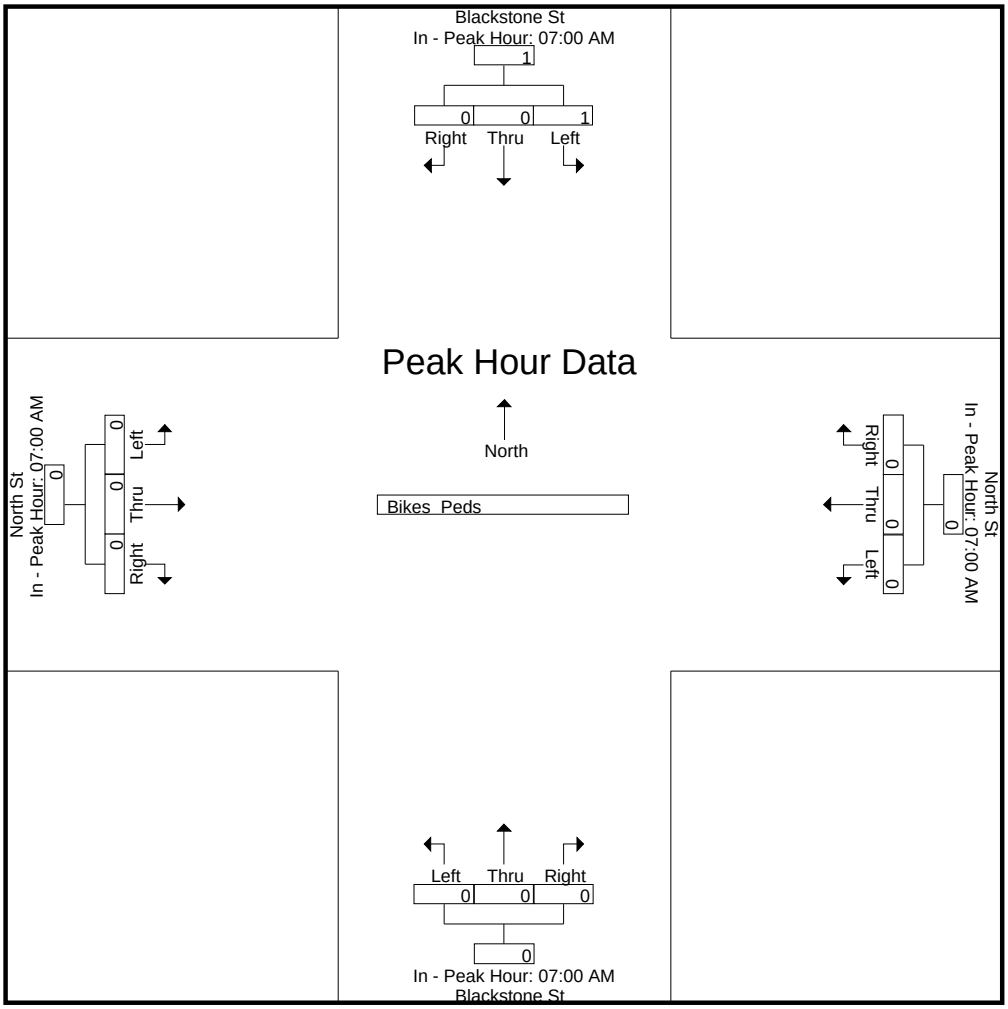
| | 07:00 AM | | | | 07:00 AM | | | | 07:00 AM | | | | 07:00 AM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | **1** | 0 | 0 | **1** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Volume | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % App. Total | 100 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| PHF | .250 | .000 | .000 | .250 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 12



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 1

Groups Printed- Cars - Trucks

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 04:00 PM | 5 | 0 | 6 | 1 | 37 | 3 | 0 | 0 | 1 | 9 | 63 | 0 | 125 |
| 04:15 PM | 4 | 1 | 10 | 2 | 34 | 3 | 1 | 4 | 0 | 4 | 71 | 0 | 134 |
| 04:30 PM | 1 | 1 | 8 | 3 | 36 | 3 | 0 | 2 | 1 | 6 | 49 | 0 | 110 |
| 04:45 PM | 3 | 1 | 3 | 0 | 32 | 0 | 1 | 2 | 3 | 5 | 42 | 1 | 93 |
| Total | 13 | 3 | 27 | 6 | 139 | 9 | 2 | 8 | 5 | 24 | 225 | 1 | 462 |
| 05:00 PM | 0 | 2 | 5 | 0 | 34 | 3 | 1 | 0 | 0 | 3 | 62 | 0 | 110 |
| 05:15 PM | 3 | 1 | 6 | 1 | 32 | 2 | 0 | 2 | 0 | 3 | 53 | 0 | 103 |
| 05:30 PM | 6 | 0 | 4 | 1 | 42 | 0 | 0 | 0 | 0 | 3 | 52 | 1 | 109 |
| 05:45 PM | 1 | 2 | 5 | 1 | 31 | 0 | 1 | 2 | 0 | 5 | 36 | 2 | 86 |
| Total | 10 | 5 | 20 | 3 | 139 | 5 | 2 | 4 | 0 | 14 | 203 | 3 | 408 |
| Grand Total | 23 | 8 | 47 | 9 | 278 | 14 | 4 | 12 | 5 | 38 | 428 | 4 | 870 |
| Apprch % | 29.5 | 10.3 | 60.3 | 3 | 92.4 | 4.7 | 19 | 57.1 | 23.8 | 8.1 | 91.1 | 0.9 | |
| Total % | 2.6 | 0.9 | 5.4 | 1 | 32 | 1.6 | 0.5 | 1.4 | 0.6 | 4.4 | 49.2 | 0.5 | |
| Cars | 23 | 8 | 47 | 9 | 278 | 14 | 4 | 12 | 5 | 38 | 428 | 4 | 870 |
| % Cars | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

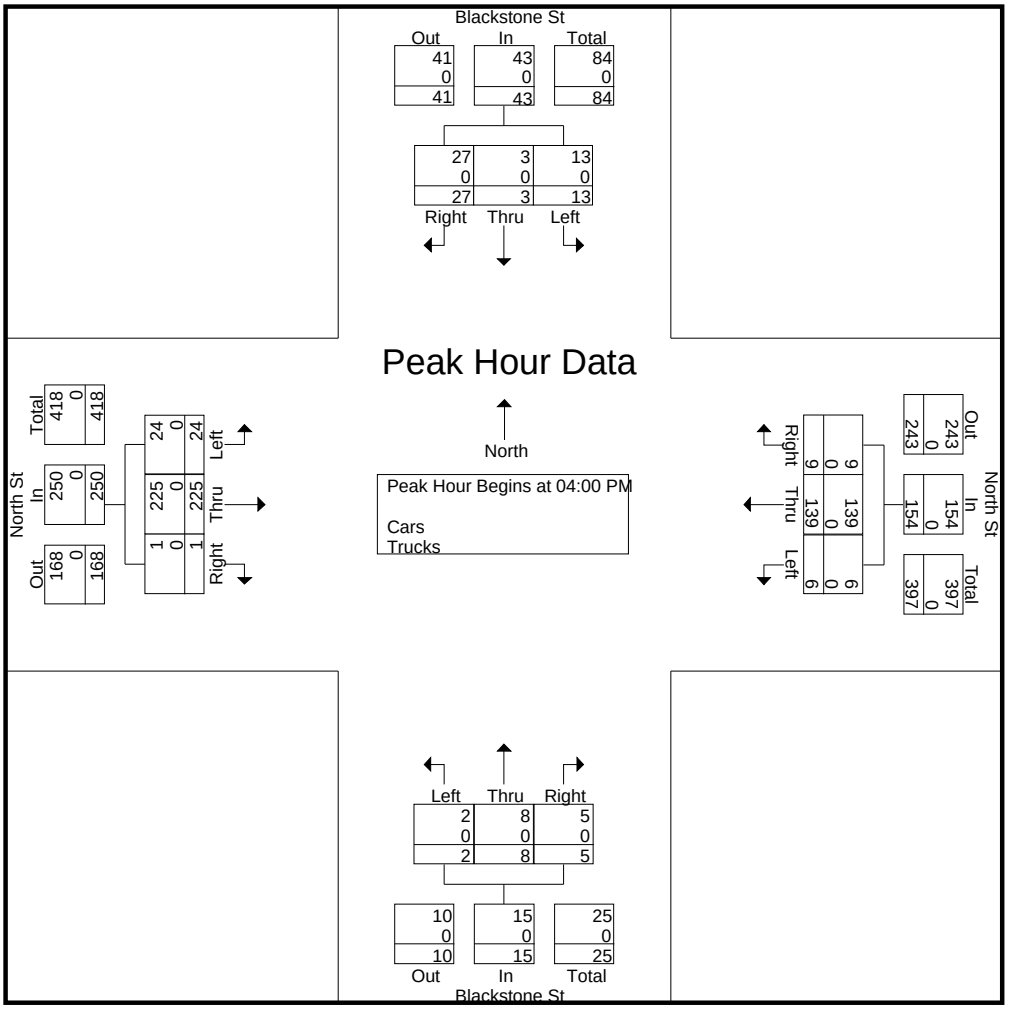
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | **5** | 0 | 6 | 11 | 1 | **37** | **3** | 41 | 0 | 0 | 1 | 1 | **9** | 63 | 0 | 72 | 125 |
| 04:15 PM | 4 | **1** | **10** | **15** | 2 | 34 | 3 | 39 | **1** | **4** | 0 | 5 | 4 | **71** | 0 | **75** | **134** |
| 04:30 PM | 1 | 1 | 8 | 10 | **3** | 36 | 3 | **42** | 0 | 2 | 1 | 3 | 6 | 49 | 0 | 55 | 110 |
| 04:45 PM | 3 | 1 | 3 | 7 | 0 | 32 | 0 | 32 | 1 | 2 | **3** | **6** | 5 | 42 | **1** | 48 | 93 |
| Total Volume | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 | 462 |
| % App. Total | 30.2 | 7 | 62.8 | | 3.9 | 90.3 | 5.8 | | 13.3 | 53.3 | 33.3 | | 9.6 | 90 | 0.4 | | |
| PHF | .650 | .750 | .675 | .717 | .500 | .939 | .750 | .917 | .500 | .500 | .417 | .625 | .667 | .792 | .250 | .833 | .862 |
| Cars | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 | 462 |
| % Cars | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 2




Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

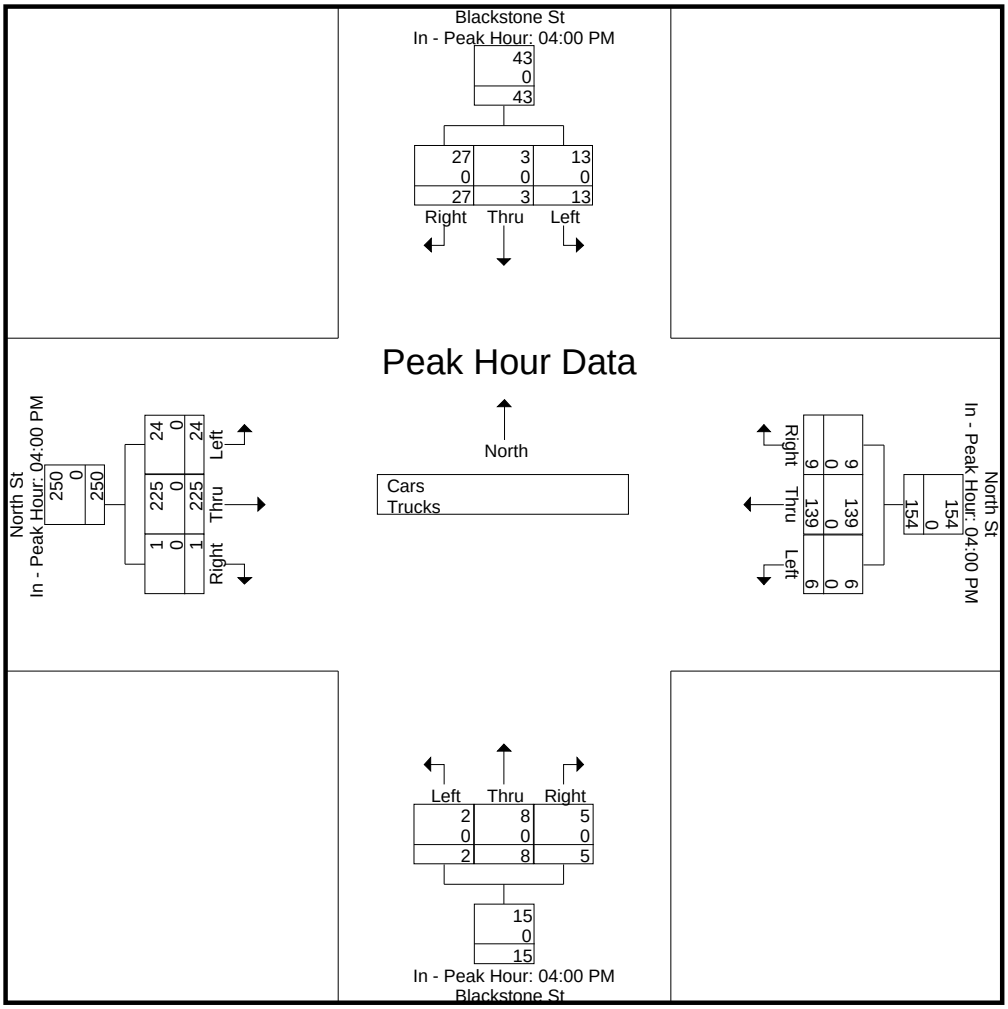
| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | **5** | 0 | 6 | 11 | 1 | **37** | **3** | 41 | 0 | 0 | 1 | 1 | **9** | 63 | 0 | 72 |
| +15 mins. | 4 | **1** | **10** | **15** | 2 | 34 | 3 | 39 | **1** | **4** | 0 | 5 | 4 | **71** | 0 | **75** |
| +30 mins. | 1 | 1 | 8 | 10 | **3** | 36 | 3 | **42** | 0 | 2 | 1 | 3 | 6 | 49 | 0 | 55 |
| +45 mins. | 3 | 1 | 3 | 7 | 0 | 32 | 0 | 32 | 1 | 2 | **3** | **6** | 5 | 42 | **1** | 48 |
| Total Volume | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 |
| % App. Total | 30.2 | 7 | 62.8 | | 3.9 | 90.3 | 5.8 | | 13.3 | 53.3 | 33.3 | | 9.6 | 90 | 0.4 | |
| PHF | .650 | .750 | .675 | .717 | .500 | .939 | .750 | .917 | .500 | .500 | .417 | .625 | .667 | .792 | .250 | .833 |
| Cars | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 |
| % Cars | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % Trucks | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 3



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 4

Groups Printed- Cars

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 04:00 PM | 5 | 0 | 6 | 1 | 37 | 3 | 0 | 0 | 1 | 9 | 63 | 0 | 125 |
| 04:15 PM | 4 | 1 | 10 | 2 | 34 | 3 | 1 | 4 | 0 | 4 | 71 | 0 | 134 |
| 04:30 PM | 1 | 1 | 8 | 3 | 36 | 3 | 0 | 2 | 1 | 6 | 49 | 0 | 110 |
| 04:45 PM | 3 | 1 | 3 | 0 | 32 | 0 | 1 | 2 | 3 | 5 | 42 | 1 | 93 |
| Total | 13 | 3 | 27 | 6 | 139 | 9 | 2 | 8 | 5 | 24 | 225 | 1 | 462 |
| 05:00 PM | 0 | 2 | 5 | 0 | 34 | 3 | 1 | 0 | 0 | 3 | 62 | 0 | 110 |
| 05:15 PM | 3 | 1 | 6 | 1 | 32 | 2 | 0 | 2 | 0 | 3 | 53 | 0 | 103 |
| 05:30 PM | 6 | 0 | 4 | 1 | 42 | 0 | 0 | 0 | 0 | 3 | 52 | 1 | 109 |
| 05:45 PM | 1 | 2 | 5 | 1 | 31 | 0 | 1 | 2 | 0 | 5 | 36 | 2 | 86 |
| Total | 10 | 5 | 20 | 3 | 139 | 5 | 2 | 4 | 0 | 14 | 203 | 3 | 408 |
| Grand Total | 23 | 8 | 47 | 9 | 278 | 14 | 4 | 12 | 5 | 38 | 428 | 4 | 870 |
| Apprch % | 29.5 | 10.3 | 60.3 | 3 | 92.4 | 4.7 | 19 | 57.1 | 23.8 | 8.1 | 91.1 | 0.9 | |
| Total % | 2.6 | 0.9 | 5.4 | 1 | 32 | 1.6 | 0.5 | 1.4 | 0.6 | 4.4 | 49.2 | 0.5 | |

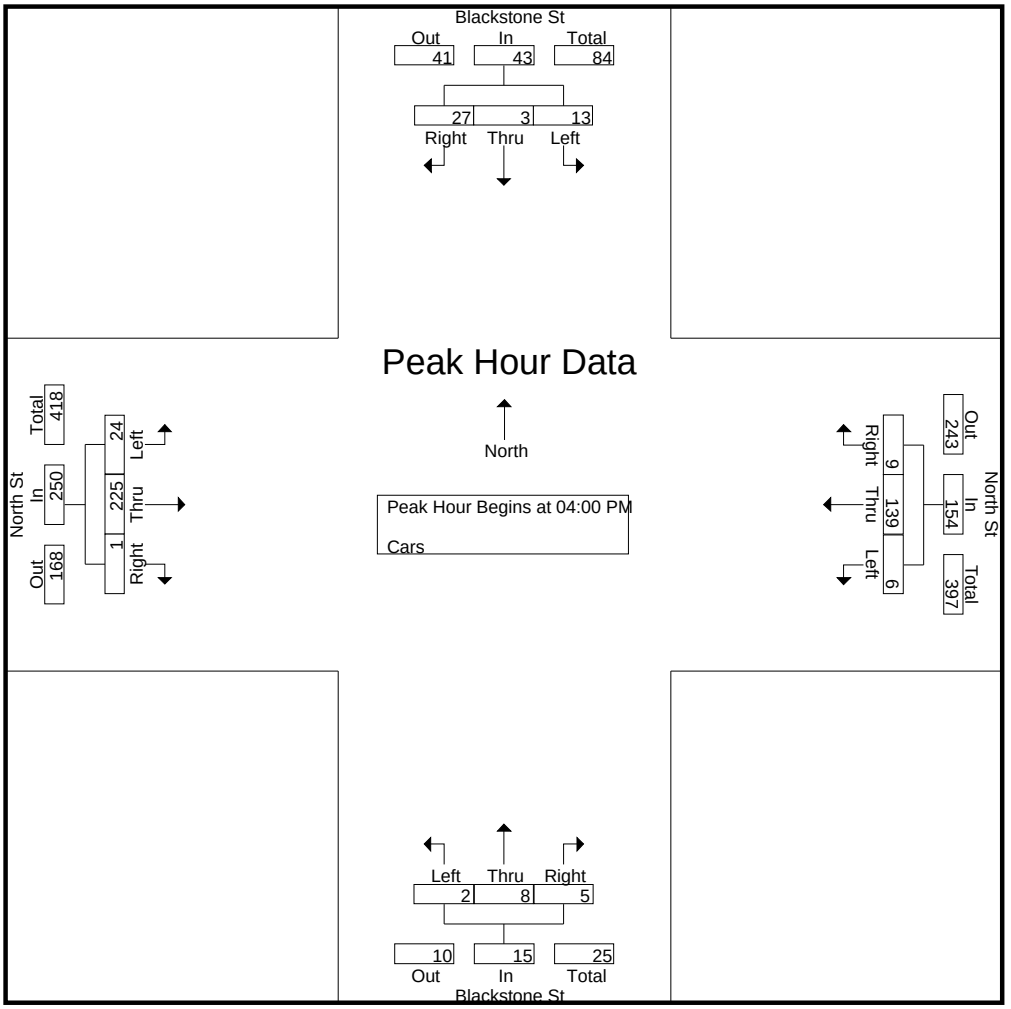
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | **5** | 0 | 6 | 11 | 1 | **37** | **3** | 41 | 0 | 0 | 1 | 1 | **9** | 63 | 0 | 72 | 125 |
| 04:15 PM | 4 | **1** | **10** | **15** | 2 | 34 | 3 | 39 | **1** | **4** | 0 | 5 | 4 | **71** | 0 | **75** | **134** |
| 04:30 PM | 1 | 1 | 8 | 10 | **3** | 36 | 3 | **42** | 0 | 2 | 1 | 3 | 6 | 49 | 0 | 55 | 110 |
| 04:45 PM | 3 | 1 | 3 | 7 | 0 | 32 | 0 | 32 | 1 | 2 | **3** | **6** | 5 | 42 | **1** | 48 | 93 |
| Total Volume | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 | 462 |
| % App. Total | 30.2 | 7 | 62.8 | | 3.9 | 90.3 | 5.8 | | 13.3 | 53.3 | 33.3 | | 9.6 | 90 | 0.4 | | |
| PHF | .650 | .750 | .675 | .717 | .500 | .939 | .750 | .917 | .500 | .500 | .417 | .625 | .667 | .792 | .250 | .833 | .862 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 5




Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

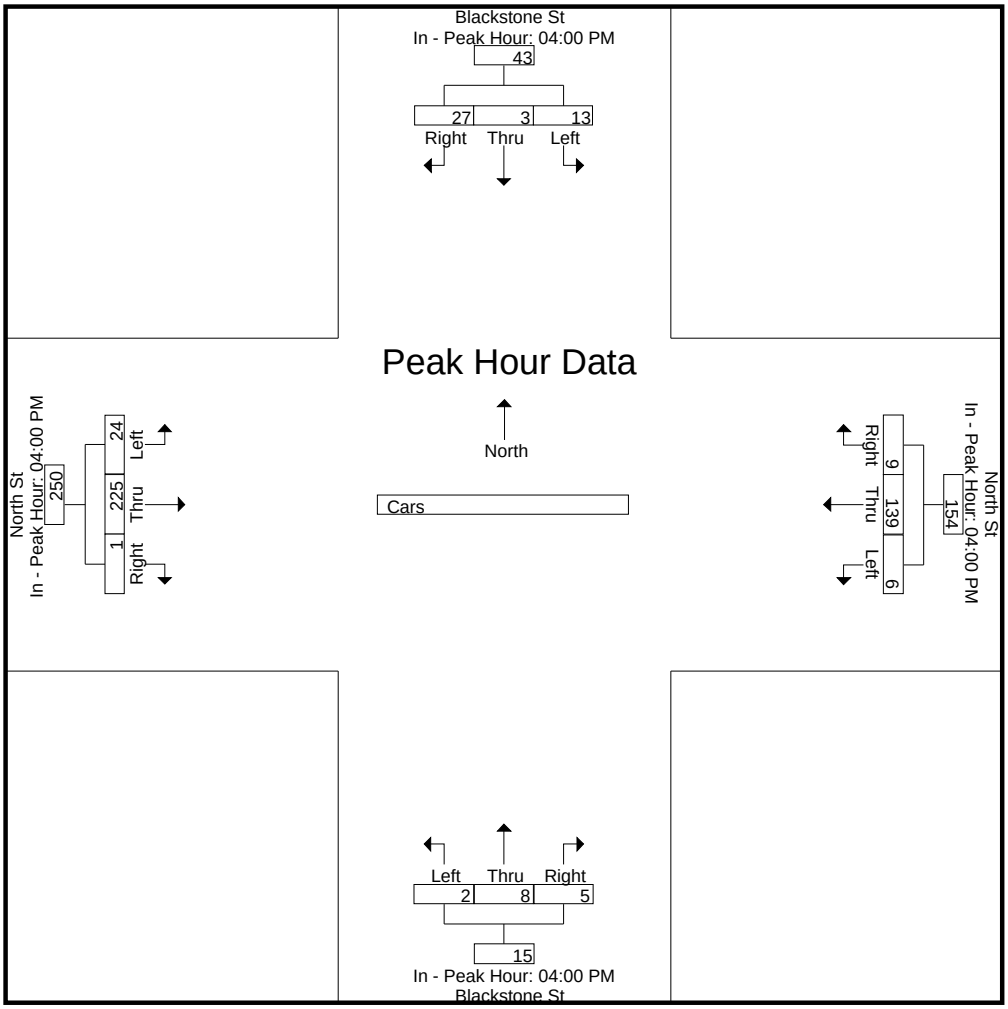
| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | **5** | 0 | 6 | 11 | 1 | **37** | **3** | 41 | 0 | 0 | 1 | 1 | **9** | 63 | 0 | 72 |
| +15 mins. | 4 | **1** | **10** | **15** | 2 | 34 | 3 | 39 | **1** | **4** | 0 | 5 | 4 | **71** | 0 | **75** |
| +30 mins. | 1 | 1 | 8 | 10 | **3** | 36 | 3 | **42** | 0 | 2 | 1 | 3 | 6 | 49 | 0 | 55 |
| +45 mins. | 3 | 1 | 3 | 7 | 0 | 32 | 0 | 32 | 1 | 2 | **3** | **6** | 5 | 42 | **1** | 48 |
| Total Volume | 13 | 3 | 27 | 43 | 6 | 139 | 9 | 154 | 2 | 8 | 5 | 15 | 24 | 225 | 1 | 250 |
| % App. Total | 30.2 | 7 | 62.8 | | 3.9 | 90.3 | 5.8 | | 13.3 | 53.3 | 33.3 | | 9.6 | 90 | 0.4 | |
| PHF | .650 | .750 | .675 | .717 | .500 | .939 | .750 | .917 | .500 | .500 | .417 | .625 | .667 | .792 | .250 | .833 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 6



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 7

Groups Printed- Trucks

| | Blackstone St From North | | | North St From East | | | Blackstone St From South | | | North St From West | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Int. Total |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Apprch % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total % | | | | | | | | | | | | | |

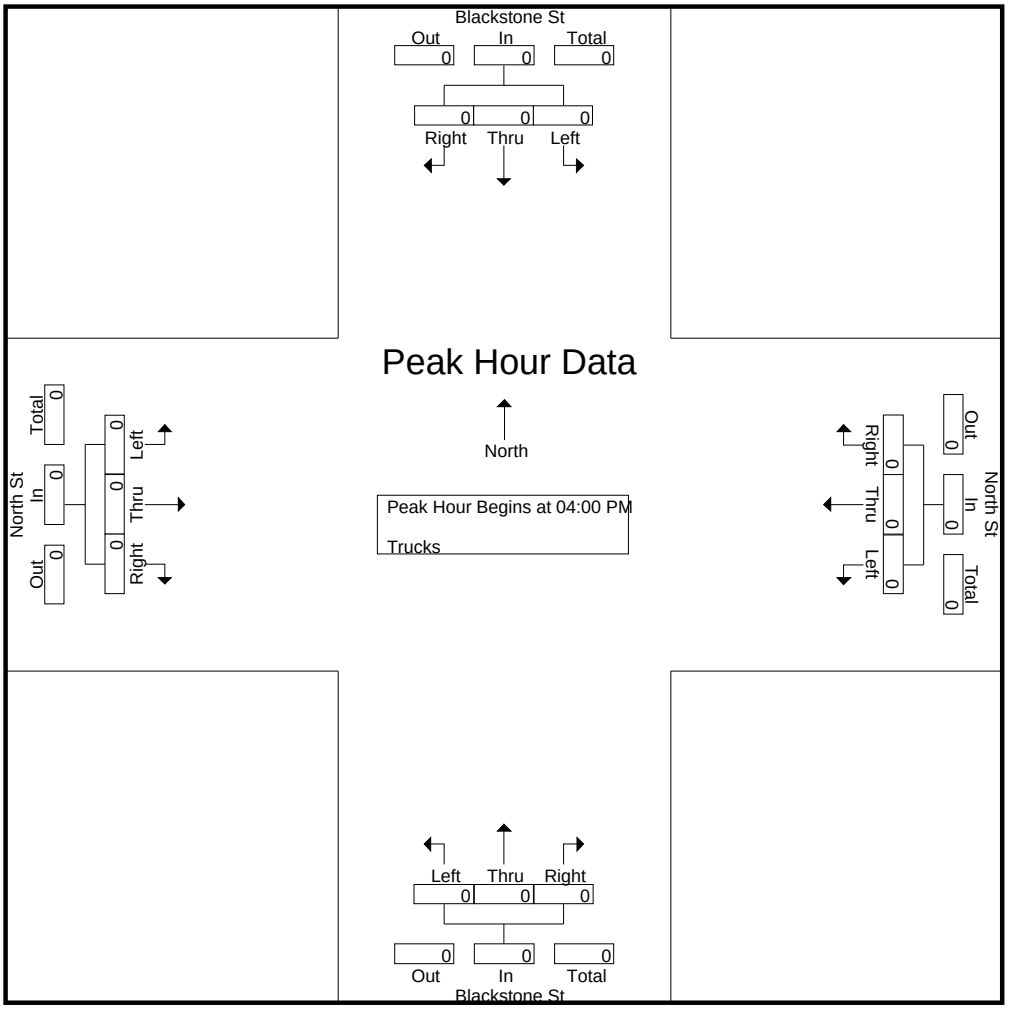
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % App. Total | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 8




Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

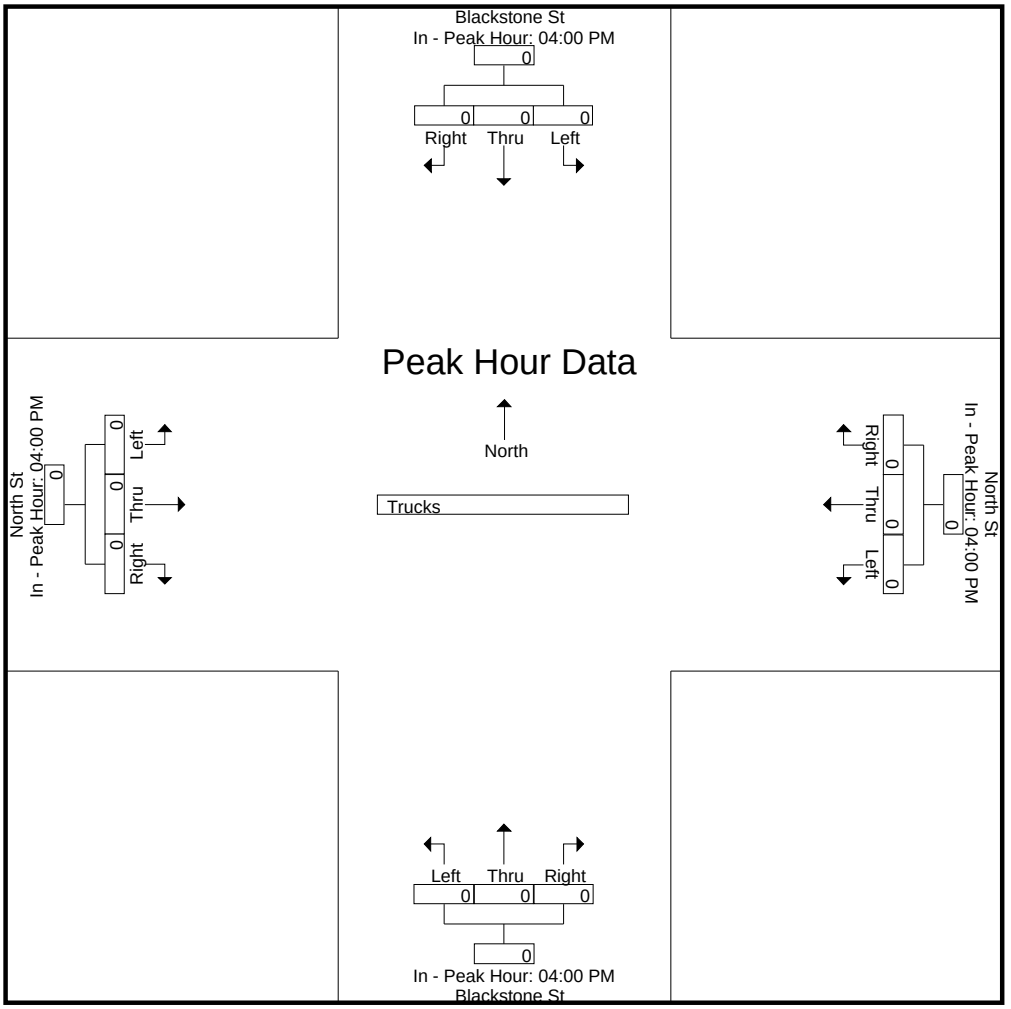
| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| % App. Total | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 9



# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 10

Groups Printed- Bikes Peds

| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Left | Thru | Right | Peds | Exclu. Total | Inclu. Total | Int. Total |
| 04:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| 05:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Grand Total | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 |
| Apprch % | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | | | |
| Total % | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | 0 | 100 | |

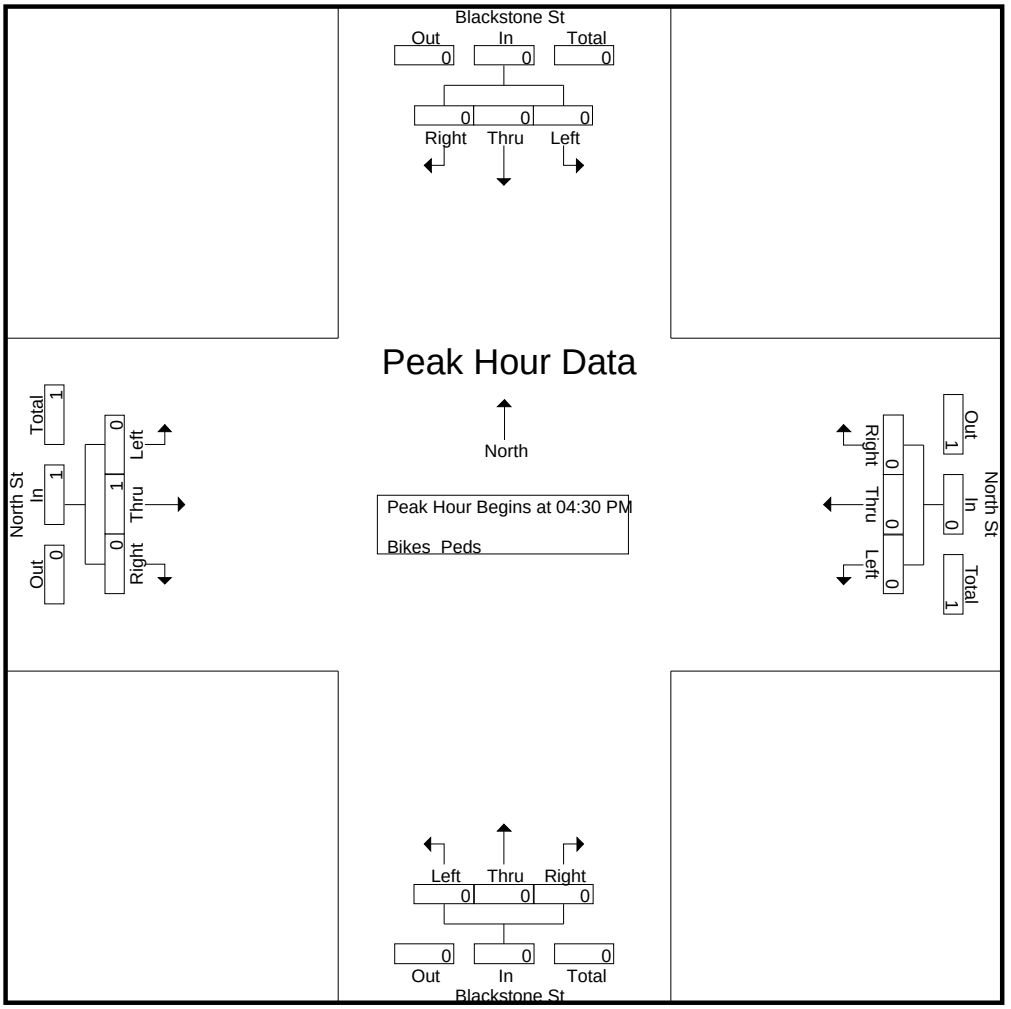
| | Blackstone St From North | | | | North St From East | | | | Blackstone St From South | | | | North St From West | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Start Time | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Left | Thru | Right | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | |
| 04:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 04:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 05:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | **1** | **1** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 |
| % App. Total | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .250 | .250 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 11




Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

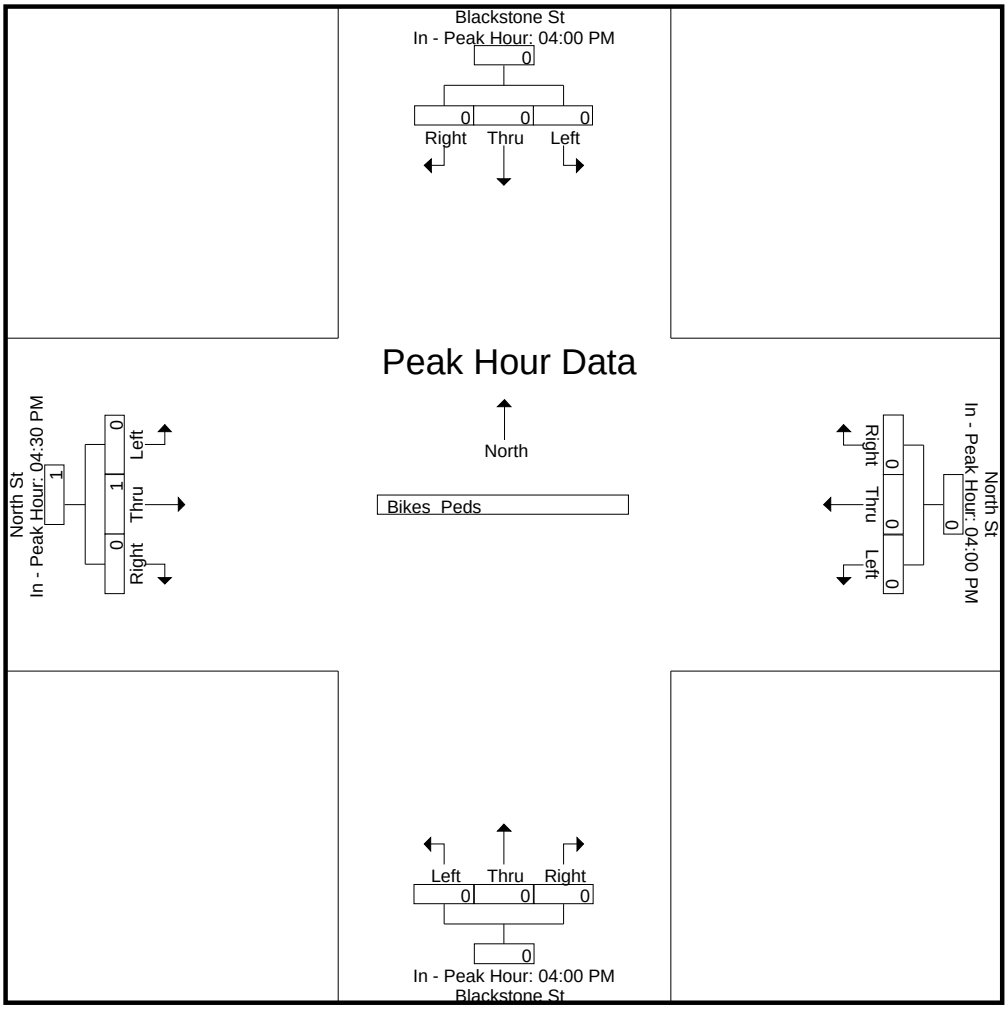
| | 04:00 PM | | | | 04:00 PM | | | | 04:00 PM | | | | 04:30 PM | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| +0 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +15 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | **1** | 0 | **1** |
| Total Volume | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 |
| % App. Total | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 0 | 0 | | 0 | 100 | 0 | |
| PHF | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .250 |

# Accurate Counts

978-664-2565

N/S Street : Blackstone Street
E/W Street : North Street
City/State : Bellingham, MA
Weather : Clear

File Name : 93450001
Site Code : 93450001
Start Date : 8/2/2022
Page No : 12



SEASONAL ADJUSTMENT DATA

Massachusetts Highway Department
Statewide Traffic Data Collection
2019 Weekday Seasonal Factors

| Factor Group | JAN | FEB | MAR | APR | MAY | JUN | JUL | AUG | SEP | OCT | NOV | DEC | Axle Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **R1** | 1.22 | 1.14 | 1.12 | 1.06 | 1.00 | 0.96 | 0.87 | 0.85 | 0.96 | 0.99 | 1.04 | 1.12 | 0.85 |
| **R2** | 0.95 | 0.96 | 0.98 | 0.97 | 0.97 | 0.93 | 0.97 | 0.94 | 0.96 | 0.90 | 0.92 | 0.93 | 0.96 |
| **R3** | 1.15 | 1.06 | 1.07 | 1.00 | 0.89 | 0.88 | 0.89 | 0.89 | 0.95 | 0.92 | 1.02 | 1.01 | 0.97 |
| **R4-R7** | 1.09 | 1.09 | 1.11 | 1.02 | 0.96 | 0.92 | 0.89 | 0.89 | 0.99 | 0.98 | 1.09 | 1.13 | 0.98 |
| **U1-Boston** | 1.03 | 1.01 | 0.98 | 0.94 | 0.94 | 0.92 | 0.95 | 0.93 | 0.94 | 0.94 | 0.97 | 1.04 | 0.96 |
| **U1-Essex** | 1.09 | 1.06 | 1.03 | 0.99 | 0.94 | 0.90 | 0.88 | 0.86 | 0.93 | 0.94 | 0.99 | 1.06 | 0.93 |
| **U1-Southeast** | 1.06 | 1.05 | 1.01 | 0.97 | 0.95 | 0.93 | 0.93 | 0.90 | 0.94 | 0.94 | 0.98 | 1.04 | 0.98 |
| **U1-West** | 1.19 | 1.14 | 1.09 | 0.95 | 0.92 | 0.89 | 0.89 | 0.86 | 0.91 | 0.95 | 0.97 | 1.07 | 0.84 |
| **U1-Worcester** | 1.02 | 1.04 | 0.97 | 0.94 | 0.93 | 0.91 | 0.95 | 0.91 | 0.93 | 0.92 | 0.95 | 1.10 | 0.88 |
| **U2** | 1.01 | 1.00 | 0.94 | 0.93 | 0.91 | 0.89 | 0.93 | 0.90 | 0.90 | 0.91 | 0.94 | 1.02 | 0.99 |
| **U3** | 1.06 | 1.03 | 0.98 | 0.94 | 0.93 | 0.91 | 0.95 | 0.91 | 0.92 | 0.93 | 0.97 | 1.00 | 0.98 |
| **U4-U7** | 1.01 | 1.00 | 0.95 | 0.92 | 0.88 | 0.86 | 0.92 | 0.91 | 0.92 | 0.94 | 0.99 | 1.04 | 0.99 |
| **Rec - East** | 1.04 | 1.16 | 1.12 | 0.98 | 0.92 | 0.88 | 0.77 | 0.81 | 0.94 | 1.02 | 1.08 | 1.12 | 0.99 |
| **Rec - West** | 1.30 | 1.23 | 1.32 | 1.18 | 0.95 | 0.82 | 0.70 | 0.69 | 0.97 | 0.96 | 1.16 | 1.15 | 0.98 |

Round off:
0-999 = 10
>1000 = 100

U = Urban
R = Rural

1 - Interstate
2 - Freeway and Expressway
3 - Other Principal Arterial
4 - Minor Arterial
5 - Major Collector
6 - Minor Collector
7 - Local Road and Street

| |
|---|
| **Recreational - East Group** - Cape Cod (all towns) including the town of Plymouth south of Route 3A (stations 7014,7079,7080,7090,7091,7092,7093,7094,7095,7096,7097,7108 and 7178), Martha's Vineyard and Nantucket. |
| **Recreational - West Group** - Continuous Stations 2 and 189 including stations 1066,1067,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093,1094,1095,1096,1097,1098,1099,1100,1101,1102,1103,1104,1105,1106,1107,1108,1113,1114, 1116,2196,2197 and 2198. |

9/14/2021

# VEHICLE TRAVEL SPEED DATA

# Accurate Counts

978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: SB,

| 8/2/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 0 | 0 | 0 | 3 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 4 | 1 | 0 | 0 | 0 | 11 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 4 | 3 | 4 | 1 | 0 | 0 | 17 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 5 | 11 | 12 | 6 | 4 | 0 | 0 | 43 |
| 8:00 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 5 | 11 | 7 | 4 | 1 | 0 | 0 | 32 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 8 | 5 | 0 | 1 | 0 | 22 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 4 | 7 | 6 | 0 | 0 | 0 | 23 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 8 | 10 | 1 | 1 | 1 | 0 | 23 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 12 | 11 | 5 | 0 | 1 | 0 | 33 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 6 | 4 | 2 | 1 | 0 | 0 | 16 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 7 | 0 | 2 | 1 | 0 | 15 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 21 | 6 | 9 | 0 | 1 | 0 | 42 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 11 | 12 | 8 | 2 | 0 | 0 | 41 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 10 | 5 | 3 | 2 | 1 | 0 | 25 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 8 | 3 | 0 | 1 | 0 | 0 | 18 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 4 | 2 | 3 | 0 | 0 | 0 | 14 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 0 | 1 | 0 | 0 | 0 | 8 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 1 | 0 | 0 | 0 | 1 | 7 |
| 10:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 6 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 2 |
| Total | 0 | 0 | 0 | 0 | 2 | 2 | 26 | 55 | 133 | 104 | 59 | 15 | 6 | 1 | 403 |

| | | | | |
|---|---|---|---|---|
| Percentile | 15th | 50th | 85th | 95th |
| Speed | 23 | 27 | 30 | 34 |

| | |
|---|---|
| Mean Speed (Average) | 27.1 |
| 10 MPH Pace Speed | 23-32 |
| Number in Pace | 314 |
| Percent in Pace | 77.9% |
| Number > 30 MPH | 81 |
| Percent > 30 MPH | 20.1% |

Accurate Counts
978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: SB,

| 8/3/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 2 | 0 | 0 | 0 | 0 | 6 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 10 | 11 | 2 | 1 | 0 | 0 | 28 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 13 | 17 | 8 | 2 | 0 | 0 | 49 |
| 8:00 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 7 | 13 | 13 | 5 | 0 | 0 | 0 | 42 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 7 | 5 | 1 | 3 | 0 | 0 | 19 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 6 | 7 | 8 | 4 | 0 | 0 | 0 | 29 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 8 | 4 | 2 | 1 | 1 | 0 | 26 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 8 | 3 | 0 | 2 | 0 | 0 | 18 |
| 1:00 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 3 | 12 | 4 | 0 | 0 | 0 | 0 | 23 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 8 | 4 | 1 | 1 | 0 | 0 | 21 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 11 | 7 | 6 | 3 | 0 | 0 | 31 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 19 | 9 | 3 | 2 | 0 | 0 | 39 |
| 5:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 5 | 7 | 12 | 4 | 2 | 0 | 0 | 31 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 9 | 6 | 2 | 0 | 0 | 0 | 21 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 6 | 6 | 6 | 2 | 1 | 0 | 0 | 23 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 6 | 5 | 1 | 1 | 0 | 0 | 18 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 5 | 0 | 1 | 0 | 0 | 10 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 1 | 2 | 0 | 0 | 0 | 0 | 6 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 0 | 0 | 1 | 0 | 2 | 4 | 25 | 75 | 152 | 123 | 41 | 20 | 1 | 0 | 444 |
| | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 23 | 26 | 30 | 33 | | | | | | | | |
| | | | Mean Speed (Average) | 26.3 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 21-30 | | | | | | | | | | | |
| | | | Number in Pace | 363 | | | | | | | | | | | |
| | | | Percent in Pace | 81.8% | | | | | | | | | | | |
| | | | Number > 30 MPH | 62 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 14.0% | | | | | | | | | | | |
| Grand Total | 0 | 0 | 1 | 0 | 4 | 6 | 51 | 130 | 285 | 227 | 100 | 35 | 7 | 1 | 847 |
| Stats | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 23 | 27 | 30 | 34 | | | | | | | | |
| | | | Mean Speed (Average) | 26.7 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 21-30 | | | | | | | | | | | |
| | | | Number in Pace | 674 | | | | | | | | | | | |
| | | | Percent in Pace | 79.6% | | | | | | | | | | | |
| | | | Number > 30 MPH | 143 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 16.9% | | | | | | | | | | | |

Accurate Counts
978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: NB,

| 8/2/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 0 | 1 | 0 | 0 | 0 | 5 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 3 | 0 | 0 | 0 | 7 |
| 7:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 4 | 1 | 5 | 2 | 0 | 1 | 14 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 5 | 2 | 3 | 0 | 0 | 12 |
| 9:00 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 5 | 7 | 3 | 4 | 0 | 0 | 22 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 3 | 4 | 3 | 0 | 0 | 0 | 13 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 8 | 2 | 1 | 1 | 23 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 8 | 4 | 0 | 1 | 25 |
| 1:00 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 3 | 10 | 13 | 0 | 4 | 0 | 32 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 8 | 10 | 2 | 0 | 1 | 25 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 11 | 13 | 8 | 4 | 1 | 0 | 38 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 10 | 14 | 15 | 4 | 1 | 0 | 46 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 11 | 6 | 17 | 1 | 1 | 0 | 39 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 7 | 9 | 8 | 2 | 4 | 1 | 36 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 7 | 10 | 3 | 1 | 0 | 29 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 9 | 3 | 8 | 0 | 0 | 0 | 22 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 7 | 4 | 2 | 0 | 1 | 19 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 6 | 2 | 0 | 0 | 0 | 0 | 10 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 0 | 0 | 4 |
| Total | 0 | 0 | 3 | 1 | 0 | 1 | 3 | 21 | 100 | 114 | 127 | 34 | 13 | 6 | 423 |

| | | | | |
|---|---|---|---|---|
| Percentile | 15th | 50th | 85th | 95th |
| Speed | 25 | 29 | 33 | 35 |

| | |
|---|---|
| Mean Speed (Average) | 30.6 |
| 10 MPH Pace Speed | 24-33 |
| Number in Pace | 352 |
| Percent in Pace | 83.2% |
| Number > 30 MPH | 180 |
| Percent > 30 MPH | 42.6% |

# Accurate Counts
978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: NB,

| 8/3/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 0 | 0 | 0 | 0 | 6 |
| 6:00 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 1 | 3 | 1 | 1 | 1 | 0 | 0 | 9 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 3 | 3 | 1 | 1 | 19 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 6 | 9 | 7 | 1 | 0 | 0 | 24 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 9 | 11 | 1 | 3 | 0 | 27 |
| 10:00 | 0 | 0 | 0 | 2 | 0 | 1 | 0 | 3 | 7 | 6 | 9 | 0 | 1 | 0 | 29 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 5 | 7 | 9 | 1 | 1 | 0 | 27 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 16 | 7 | 1 | 0 | 0 | 33 |
| 1:00 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 8 | 4 | 3 | 3 | 0 | 0 | 20 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 6 | 8 | 2 | 2 | 2 | 0 | 22 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 13 | 8 | 7 | 1 | 1 | 36 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 | 17 | 11 | 14 | 4 | 0 | 0 | 50 |
| 5:00 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 2 | 14 | 9 | 6 | 4 | 1 | 0 | 37 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 7 | 8 | 12 | 3 | 1 | 0 | 34 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 4 | 11 | 6 | 2 | 2 | 1 | 28 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 8 | 6 | 2 | 1 | 0 | 20 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 4 | 2 | 6 | 1 | 0 | 0 | 17 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 1 | 0 | 0 | 7 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 0 | 2 | 2 | 1 | 2 | 6 | 26 | 105 | 136 | 115 | 38 | 14 | 3 | 450 |
| | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 25 | 29 | 33 | 35 | | | | | | | | |
| | | | Mean Speed (Average) | 29.5 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 24-33 | | | | | | | | | | | |
| | | | Number in Pace | 368 | | | | | | | | | | | |
| | | | Percent in Pace | 81.8% | | | | | | | | | | | |
| | | | Number > 30 MPH | 170 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 37.8% | | | | | | | | | | | |
| Grand Total | 0 | 0 | 5 | 3 | 1 | 3 | 9 | 47 | 205 | 250 | 242 | 72 | 27 | 9 | 873 |
| Stats | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 25 | 29 | 33 | 35 | | | | | | | | |
| | | | Mean Speed (Average) | 30.0 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 24-33 | | | | | | | | | | | |
| | | | Number in Pace | 720 | | | | | | | | | | | |
| | | | Percent in Pace | 82.5% | | | | | | | | | | | |
| | | | Number > 30 MPH | 350 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 40.1% | | | | | | | | | | | |

Accurate Counts
978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: Combined

| 8/2/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 0 | 0 | 0 | 0 | 4 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 8 | 4 | 2 | 0 | 0 | 0 | 16 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 5 | 6 | 7 | 1 | 0 | 0 | 24 |
| 7:00 | 0 | 0 | 1 | 0 | 0 | 1 | 4 | 5 | 15 | 13 | 11 | 6 | 0 | 1 | 57 |
| 8:00 | 0 | 0 | 0 | 0 | 1 | 0 | 3 | 6 | 12 | 12 | 6 | 4 | 0 | 0 | 44 |
| 9:00 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 13 | 15 | 8 | 4 | 1 | 0 | 44 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 7 | 11 | 9 | 0 | 0 | 0 | 36 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 13 | 16 | 9 | 3 | 2 | 1 | 46 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 18 | 17 | 13 | 4 | 1 | 1 | 58 |
| 1:00 | 0 | 0 | 2 | 0 | 0 | 0 | 2 | 1 | 9 | 14 | 15 | 1 | 4 | 0 | 48 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 5 | 15 | 10 | 4 | 1 | 1 | 40 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 4 | 32 | 19 | 17 | 4 | 2 | 0 | 80 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 8 | 21 | 26 | 23 | 6 | 1 | 0 | 87 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 3 | 21 | 11 | 20 | 3 | 2 | 0 | 64 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 15 | 12 | 8 | 3 | 4 | 1 | 54 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 11 | 9 | 13 | 3 | 1 | 0 | 43 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 4 | 11 | 3 | 9 | 0 | 0 | 0 | 30 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 8 | 4 | 2 | 0 | 2 | 26 |
| 10:00 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 6 | 6 | 2 | 0 | 0 | 0 | 0 | 16 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 1 | 1 | 0 | 0 | 6 |
| Total | 0 | 0 | 3 | 1 | 2 | 3 | 29 | 76 | 233 | 218 | 186 | 49 | 19 | 7 | 826 |

| | | | | |
|---|---|---|---|---|
| Percentile | 15th | 50th | 85th | 95th |
| Speed | 24 | 28 | 32 | 35 |

| | |
|---|---|
| Mean Speed (Average) | 28.9 |
| 10 MPH Pace Speed | 23-32 |
| Number in Pace | 659 |
| Percent in Pace | 79.8% |
| Number > 30 MPH | 261 |
| Percent > 30 MPH | 31.6% |

# Accurate Counts
978-664-2565

Location : Blackstone Street 93450002
Location : North of North Street
City/State: Bellingham, MA
Direction: Combined

| 8/3/2022 Time | 0 - 3 MPH | > 3 - 6 MPH | > 6 - 9 MPH | > 9 - 12 MPH | > 12 - 15 MPH | > 15 - 18 MPH | > 18 - 21 MPH | > 21 - 24 MPH | > 24 - 27 MPH | > 27 - 30 MPH | > 30 - 33 MPH | > 33 - 36 MPH | > 36 - 39 MPH | > 39 MPH | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 2 |
| 1:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 2 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 3 |
| 5:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 7 | 3 | 0 | 0 | 0 | 0 | 12 |
| 6:00 | 0 | 0 | 1 | 0 | 0 | 0 | 3 | 3 | 13 | 12 | 3 | 2 | 0 | 0 | 37 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 6 | 15 | 26 | 11 | 5 | 1 | 1 | 68 |
| 8:00 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 7 | 19 | 22 | 12 | 1 | 0 | 0 | 66 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 1 | 10 | 14 | 12 | 4 | 3 | 0 | 46 |
| 10:00 | 0 | 0 | 0 | 2 | 0 | 2 | 3 | 9 | 14 | 14 | 13 | 0 | 1 | 0 | 58 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 11 | 13 | 11 | 11 | 2 | 2 | 0 | 53 |
| 12:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 16 | 19 | 7 | 3 | 0 | 0 | 51 |
| 1:00 | 0 | 0 | 1 | 0 | 1 | 0 | 3 | 4 | 20 | 8 | 3 | 3 | 0 | 0 | 43 |
| 2:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 7 | 14 | 12 | 3 | 3 | 2 | 0 | 43 |
| 3:00 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 16 | 20 | 14 | 10 | 1 | 1 | 67 |
| 4:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 9 | 36 | 20 | 17 | 6 | 0 | 0 | 89 |
| 5:00 | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 7 | 21 | 21 | 10 | 6 | 1 | 0 | 68 |
| 6:00 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 5 | 16 | 14 | 14 | 3 | 1 | 0 | 55 |
| 7:00 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 7 | 10 | 17 | 8 | 3 | 2 | 1 | 51 |
| 8:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 8 | 13 | 7 | 3 | 1 | 0 | 38 |
| 9:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 6 | 7 | 6 | 2 | 0 | 0 | 27 |
| 10:00 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 4 | 3 | 1 | 0 | 0 | 13 |
| 11:00 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | 0 | 0 | 3 | 2 | 3 | 6 | 31 | 101 | 257 | 259 | 156 | 58 | 15 | 3 | 894 |
| | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 24 | 27 | 32 | 34 | | | | | | | | |
| | | | Mean Speed (Average) | 27.9 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 23-32 | | | | | | | | | | | |
| | | | Number in Pace | 704 | | | | | | | | | | | |
| | | | Percent in Pace | 78.7% | | | | | | | | | | | |
| | | | Number > 30 MPH | 232 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 26.0% | | | | | | | | | | | |
| Grand Total | 0 | 0 | 6 | 3 | 5 | 9 | 60 | 177 | 490 | 477 | 342 | 107 | 34 | 10 | 1720 |
| Stats | | | Percentile | 15th | 50th | 85th | 95th | | | | | | | | |
| | | | Speed | 24 | 28 | 32 | 35 | | | | | | | | |
| | | | Mean Speed (Average) | 28.4 | | | | | | | | | | | |
| | | | 10 MPH Pace Speed | 23-32 | | | | | | | | | | | |
| | | | Number in Pace | 1362 | | | | | | | | | | | |
| | | | Percent in Pace | 79.2% | | | | | | | | | | | |
| | | | Number > 30 MPH | 493 | | | | | | | | | | | |
| | | | Percent > 30 MPH | 28.7% | | | | | | | | | | | |

# MASSDOT CRASH RATE WORKSHEETS AND HIGH CRASH LOCATION MAP

# INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Bellingham COUNT DATE : Aug-22

DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

**~ INTERSECTION DATA ~**

MAJOR STREET : North Street

MINOR STREET(S) : Blackstone Street

**INTERSECTION DIAGRAM**
**(Label Approaches)**

↑ *North*

**PEAK HOUR VOLUMES**

| APPROACH : | 1 | 2 | 3 | 4 | 5 | Total Peak Hourly Approach Volume |
|---|---|---|---|---|---|---|
| DIRECTION : | EB | WB | NB | SB | | |
| PEAK HOURLY VOLUMES (PM) : | 15 | 43 | 156 | 284 | | **498** |

" K " FACTOR : **0.090** INTERSECTION ADT ( **V** ) = TOTAL DAILY APPROACH VOLUME : **5,533**

TOTAL # OF CRASHES : 5 # OF YEARS : 5 AVERAGE # OF CRASHES PER YEAR ( **A** ) : **1.00**

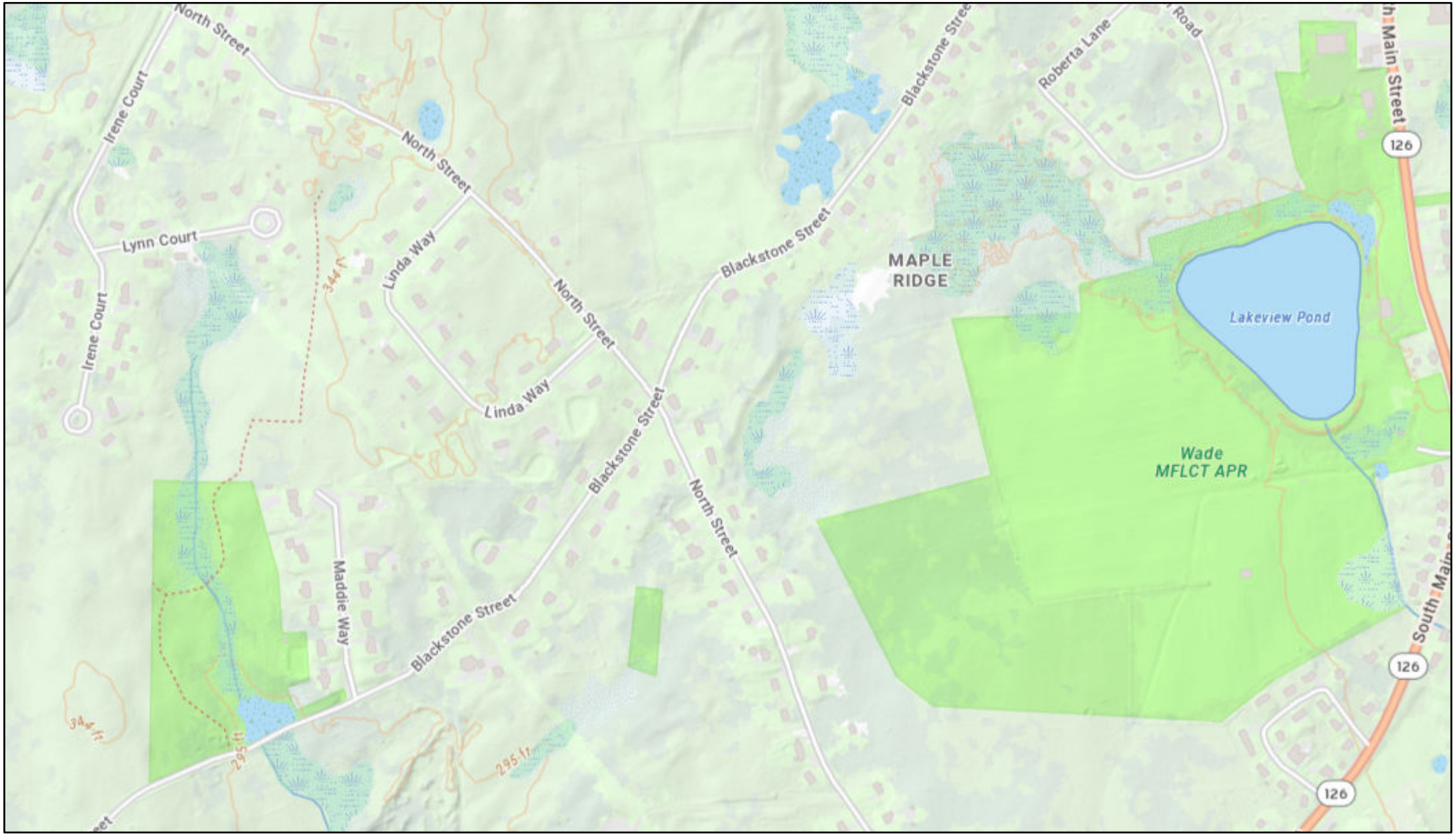
**CRASH RATE CALCULATION : 0.50**

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

Comments : Below Statewide and District Crash Rates

Project Title & Date: Proposed Residential Development

# MassDOT Top Crash Locations




10/27/2023, 2:10:42 PM

1:9,028

0 0.05 0.1 0.2 mi

0 0.07 0.15 0.3 km

MassDOT

# GENERAL BACKGROUND TRAFFIC GROWTH

## General Background Traffic Growth - Daily Traffic Volumes

| CITY/TOWN | ROUTE/STREET | LOCATION | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | Annual Growth |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bellingham | I-495 NB | Franklin Town Line | 69,119 | 81,157 | 80,954 | 82,802 | | | 90,388 | 89,541 | 91,546 | 94,426 | 93,346 | **3.25%** |
| Franklin | I-495 NB | South of Ramp to RT 140 | 72,318 | 72,712 | | 80,371 | 77,245 | 83,722 | 88,584 | 87,263 | | 83,551 | 89,222 | **2.69%** |
| Medway | I-495 | Medway Town Line | 69,544 | 79,369 | 80,561 | 80,541 | 80,320 | | 91,132 | 89,066 | 87,454 | 89,053 | 87,592 | **1.43%** |
| Bellingham | Center Street | South of Cross Street | 3,600 | 5,000 | 5,026 | 4,759 | 4786 | | 4,102 | | | 4,361 | | **8.67%** |
| Bellingham | Mendon Street | Mendon Town Line | 8,500 | 8,530 | 8,668 | 9,188 | 9,227 | | 9,222 | | | | | **2.10%** |
| Bellingham | Hartford Avenue | East of Hixson Street | 16,881 | 16,900 | 17,171 | 17,532 | 17,468 | | | 19,151 | | | | **0.86%** |
| Franklin | Route 140 | West of Beaver Street | 20,620 | 20,846 | 20,217 | 20,697 | 20,719 | 20,109 | | | 21,200 | | | **-0.48%** |
| Hopedale | Route 16 | Mendon Town Line | 14,400 | 14,451 | 14,996 | | 13,824 | 12,886 | 14,095 | 13,691 | | 14,064 | 13,227 | **-0.35%** |
| Blackstone | Blackstone Street | North of Spruce Street | 4,600 | 4,423 | 4,450 | 4,500 | 4,515 | | 6,283 | | | 6,490 | | **-0.45%** |
| Bellingham | Grove Street | North of Hartford Avenue | 1,400 | 1,392 | 1,427 | | 1,477 | | 2,409 | | | 2,555 | | **0.97%** |
| Blackstone | Summer Street | At Elm Street | 6378 | 6322 | 6396 | 6613 | 6631 | 7038 | | | | | | **2.02%** |
| Bellingham | Maple Street | North of I-495 | 5100 | 5069 | 5064 | 5285 | 5438 | | 6286 | | | 5265 | | **1.64%** |
| Milford | South Main Street | North of Fruit Street | 12451 | 12588 | 14104 | 14575 | 14504 | | | | 7048 | | | **4.00%** |
| Blackstone | Route 122 | West of Bridge Street | 8725 | 8638 | 7989 | 8780 | 8727 | 5460 | | | 5959 | | | **-7.33%** |
| Blackstone | Blackstone Street | North of Rte. 122 | 2979 | 4100 | 3838 | 4160 | 3772 | | | 3981 | | | 5080 | **7.58%** |
| Milford | Route 140 | West of Rte. 16 | 12403 | 12700 | 13539 | 14147 | 14074 | | | 12441 | | | 12580 | **3.24%** |
| Milford | Route 140 | East of Rte. 16 | 11754 | 11883 | 11903 | 12412 | 12358 | 12060 | | | 13329 | | | **0.54%** |
| Milford | Route 16 | North of Rte. 140 | 11455 | 11581 | 13073 | 13594 | 13525 | 10889 | | | 11143 | | | **-0.41%** |
| Franklin | Union Street | Hutchinson Street | 11900 | 11942 | 8301 | 8468 | 8507 | 7897 | | | 8395 | | | **-6.97%** |
| | | | | | | | | | | | | | | **1.21%** |

# TRIP-GENERATION CALCULATIONS

# Graph Look Up



Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
215

LAND USE GROUP:
(200-299) Residential

LAND USE :
215 - Single-Family Attached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

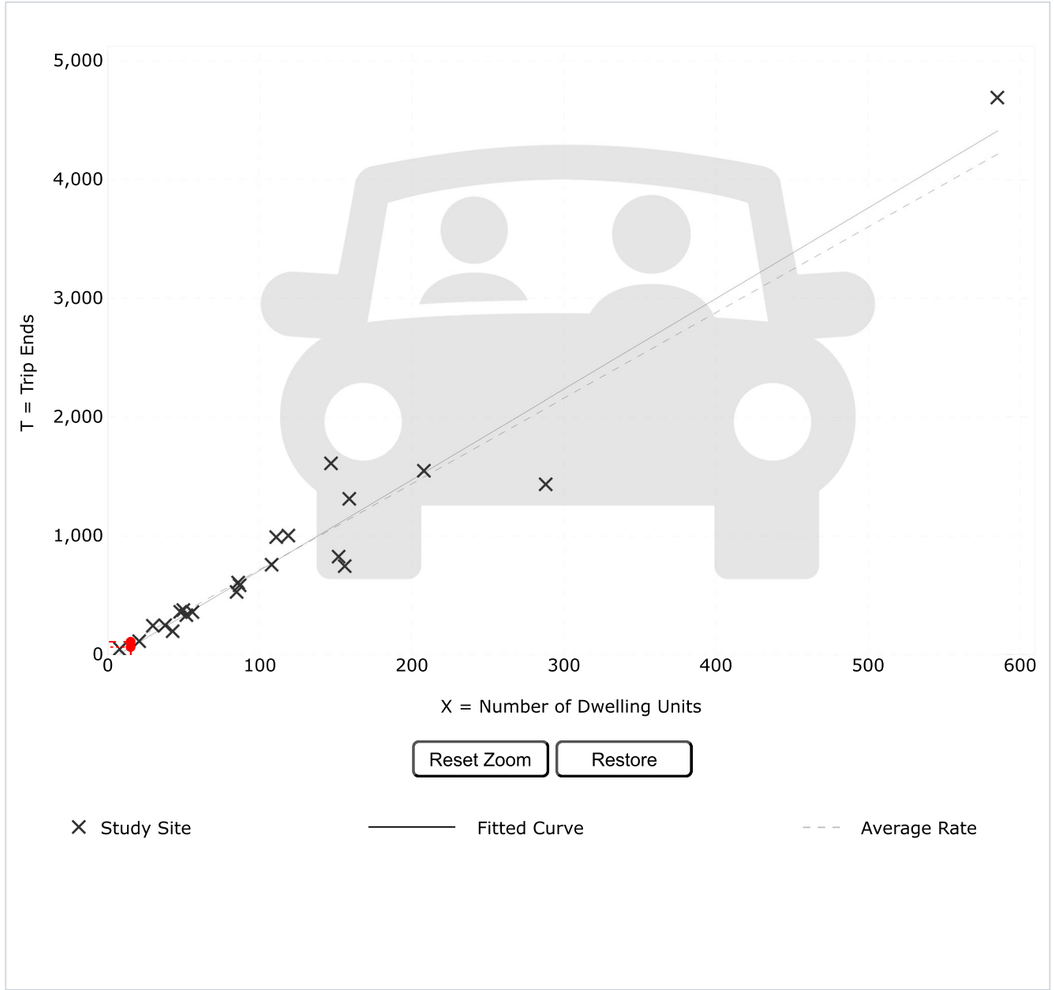
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
15 Calculate

## Data Plot and Equation




**Use the mouse wheel to Zoom Out or Zoom In.**
**Hover the mouse pointer on data points to view X and T values.**

### DATA STATISTICS

**Land Use:**
Single-Family Attached Housing (215) Click for Description and Data Plots

**Independent Variable:**
Dwelling Units

**Time Period:**
Weekday

**Setting/Location:**
General Urban/Suburban

**Trip Type:**
Vehicle

**Number of Studies:**
22

**Avg. Num. of Dwelling Units:**
120

**Average Rate:**
7.20

**Range of Rates:**
4.70 - 10.97

**Standard Deviation:**
1.61

**Fitted Curve Equation:**
T = 7.62(X) - 50.48

**$R^2$:**
0.94

**Directional Distribution:**
50% entering, 50% exiting

**Calculated Trip Ends:**
Average Rate: 108 (Total), 54 (Entry), 54 (Exit)
Fitted Curve: 64 (Total), 32 (Entry), 32 (Exit)



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# Graph Look Up



Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
215

LAND USE GROUP:
(200-299) Residential

LAND USE :
215 - Single-Family Attached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

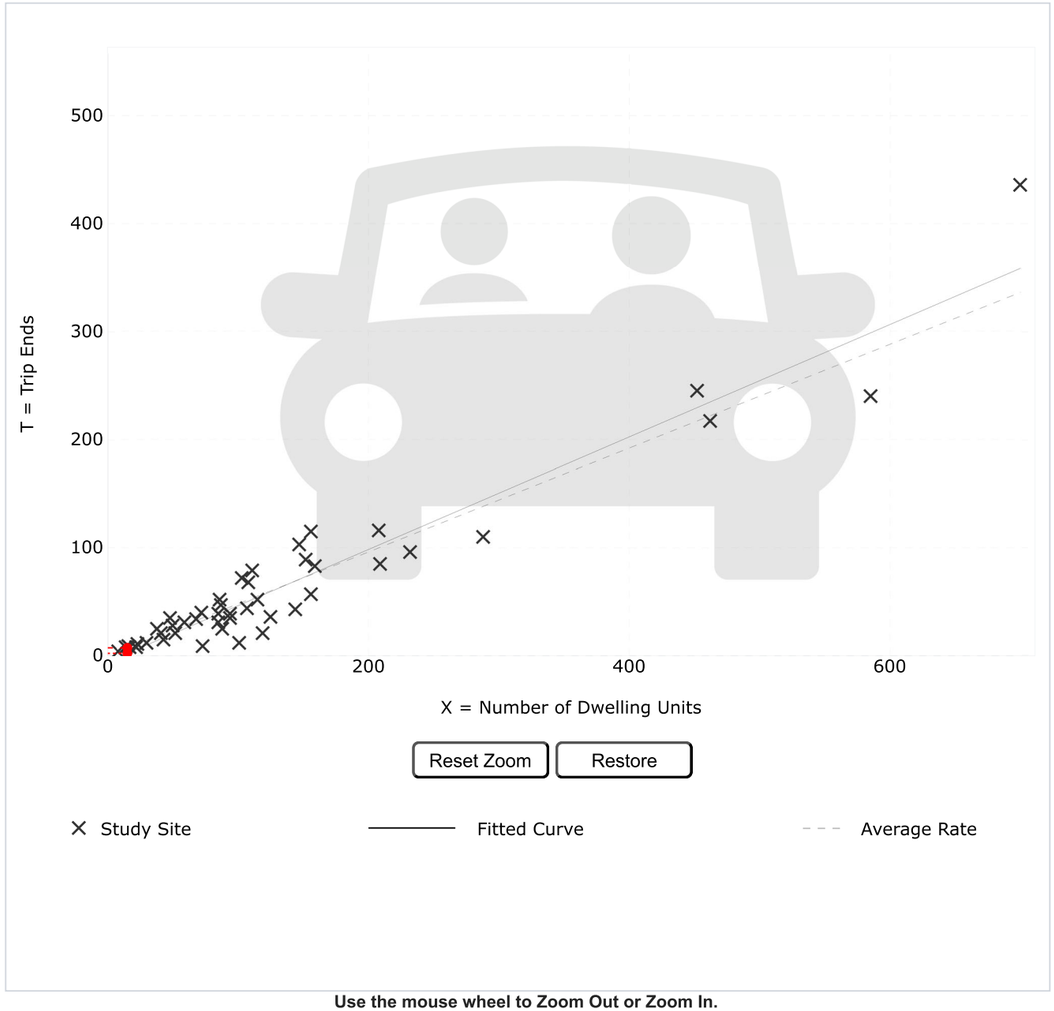
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
15 Calculate

## Data Plot and Equation




**Use the mouse wheel to Zoom Out or Zoom In.**
**Hover the mouse pointer on data points to view X and T values.**

### DATA STATISTICS

**Land Use:**
Single-Family Attached Housing (215) Click for Description and Data Plots

**Independent Variable:**
Dwelling Units

**Time Period:**
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 7 and 9 a.m.

**Setting/Location:**
General Urban/Suburban

**Trip Type:**
Vehicle

**Number of Studies:**
46

**Avg. Num. of Dwelling Units:**
135

**Average Rate:**
0.48

**Range of Rates:**
0.12 - 0.74

**Standard Deviation:**
0.14

**Fitted Curve Equation:**
T = 0.52(X) - 5.70

**$R^2$:**
0.92

**Directional Distribution:**
25% entering, 75% exiting

**Calculated Trip Ends:**
Average Rate: 7 (Total), 2 (Entry), 5 (Exit)
Fitted Curve: 2 (Total), 1 (Entry), 1 (Exit)



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# Graph Look Up



Query Filter

DATA SOURCE:
Trip Generation Manual, 11th Ed

SEARCH BY LAND USE CODE:
215

LAND USE GROUP:
(200-299) Residential

LAND USE :
215 - Single-Family Attached Housing

LAND USE SUBCATEGORY:
All Sites

SETTING/LOCATION:
General Urban/Suburban

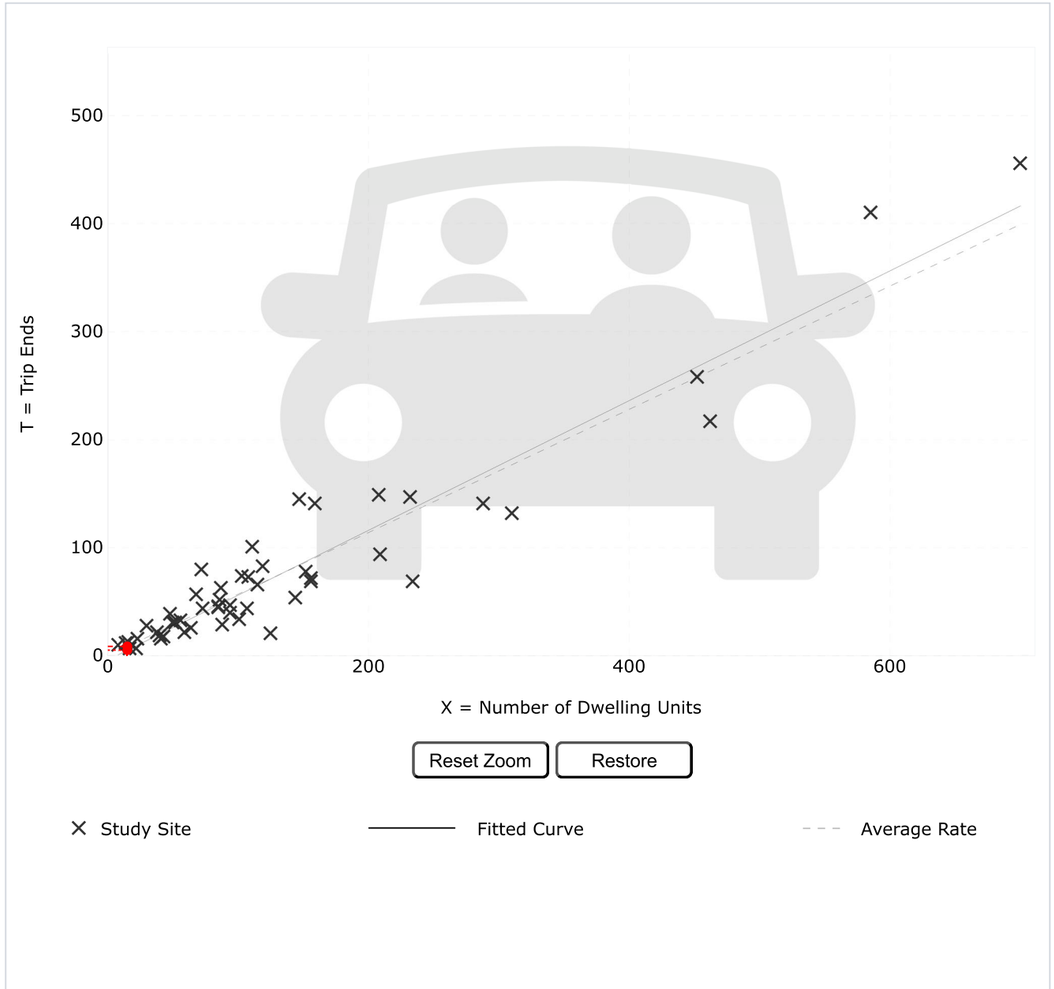
INDEPENDENT VARIABLE (IV):
Dwelling Units

TIME PERIOD:
Weekday, Peak Hour of Adjacent Street Traffic

TRIP TYPE:
Vehicle

ENTER IV VALUE TO CALCULATE TRIPS:
15 Calculate

## Data Plot and Equation




**Use the mouse wheel to Zoom Out or Zoom In.**
**Hover the mouse pointer on data points to view X and T values.**

### DATA STATISTICS

**Land Use:**
Single-Family Attached Housing (215) Click for Description and Data Plots

**Independent Variable:**
Dwelling Units

**Time Period:**
Weekday
Peak Hour of Adjacent Street Traffic
One Hour Between 4 and 6 p.m.

**Setting/Location:**
General Urban/Suburban

**Trip Type:**
Vehicle

**Number of Studies:**
51

**Avg. Num. of Dwelling Units:**
136

**Average Rate:**
0.57

**Range of Rates:**
0.17 - 1.25

**Standard Deviation:**
0.18

**Fitted Curve Equation:**
T = 0.60(X) - 3.93

**$R^2$:**
0.91

**Directional Distribution:**
59% entering, 41% exiting

**Calculated Trip Ends:**
Average Rate: 9 (Total), 5 (Entry), 4 (Exit)
Fitted Curve: 5 (Total), 3 (Entry), 2 (Exit)



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# TRIP DISTRIBUTION DATA

Proposed Multifamily Residential Development
Bellingham, Massachusetts

| Residence | Workplace | Number | North Street (West) | | Blackstone Street (North) | | North Street (East) | |
|---|---|---|---|---|---|---|---|---|
| Bellingham town | Bellingham town | 1,751 | | 0 | 50% | 876 | 50% | 876 |
| Bellingham town | Franklin Town city | 888 | 50% | 444 | 50% | 444 | | 0 |
| Bellingham town | Milford town | 602 | 100% | 602 | | 0 | | 0 |
| Bellingham town | Boston city | 534 | | 0 | 100% | 534 | | 0 |
| Bellingham town | Framingham town | 451 | | 0 | 100% | 451 | | 0 |
| Bellingham town | Natick town | 267 | | 0 | 100% | 267 | | 0 |
| Bellingham town | Medway town | 237 | 50% | 119 | 50% | 119 | | 0 |
| Bellingham town | Hopkinton town | 199 | | 0 | 100% | 199 | | 0 |
| Bellingham town | Wellesley town | 182 | | 0 | 100% | 182 | | 0 |
| Bellingham town | Needham town | 161 | | 0 | 100% | 161 | | 0 |
| Bellingham town | Norwood town | 153 | | 0 | 100% | 153 | | 0 |
| Bellingham town | Westborough town | 124 | 50% | 62 | 50% | 62 | | 0 |
| Bellingham town | Woonsocket city | 122 | | 0 | | 0 | 100% | 122 |
| Bellingham town | Walpole town | 121 | | 0 | 100% | 121 | | 0 |
| Bellingham town | Sharon town | 109 | | 0 | 100% | 109 | | 0 |
| Bellingham town | Marlborough city | 108 | | 0 | 100% | 108 | | 0 |
| Bellingham town | Mansfield town | 108 | | 0 | 50% | 54 | 50% | 54 |
| Bellingham town | Sudbury town | 102 | | 0 | 100% | 102 | | 0 |
| Bellingham town | Worcester city | 102 | 50% | 51 | 50% | 51 | | 0 |
| Bellingham town | Holliston town | 98 | | 0 | 100% | 98 | | 0 |
| Bellingham town | Quincy city | 88 | | 0 | 50% | 44 | 50% | 44 |
| Bellingham town | North Smithfield town | 84 | | 0 | | 0 | 100% | 84 |
| Bellingham town | Wrentham town | 80 | | 0 | 50% | 40 | 50% | 40 |
| Bellingham town | Providence city | 79 | | 0 | | 0 | 100% | 79 |
| Bellingham town | Medfield town | 77 | | 0 | 100% | 77 | | 0 |
| Bellingham town | Billerica town | 73 | | 0 | 100% | 73 | | 0 |
| Bellingham town | Medford city | 73 | | 0 | 100% | 73 | | 0 |
| Bellingham town | Newton city | 73 | | 0 | 100% | 73 | | 0 |
| Bellingham town | Shrewsbury town | 74 | 50% | 37 | 50% | 37 | | 0 |
| Bellingham town | Dedham town | 69 | | 0 | 100% | 69 | | 0 |
| Bellingham town | Norfolk town | 68 | | 0 | 50% | 34 | 50% | 34 |
| Bellingham town | Braintree Town city | 66 | | 0 | 50% | 33 | 50% | 33 |
| Bellingham town | Fall River city | 66 | | 0 | 50% | 33 | 50% | 33 |
| | | | | 0 | | 0 | | 0 |
| | | | | 0 | | 0 | | 0 |
| | | | | 0 | | 0 | | 0 |
| | | | | 0 | | 0 | | 0 |
| | | | | 0 | | 0 | | 0 |
| | | | | 0 | | 0 | | 0 |
| | | 7,389 | | 1,315 | | 4,676 | | 1,399 |
| | | | | 17.8% | | 63.3% | | 18.9% |
| | | SAY | | **20%** | | **60%** | | **20%** |

CAPACITY ANALYSIS WORKSHEETS

North Street at Blackstone Street
Blackstone Street at the Project Site Driveway

North Street at Blackstone Street

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 5 | 4 | 0 | 2 | 11 | 0 | 231 | 7 | 25 | 113 | 0 |
| Future Volume (vph) | 1 | 5 | 4 | 0 | 2 | 11 | 0 | 231 | 7 | 25 | 113 | 0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.946 | | | 0.884 | | | 0.996 | | | | |
| Flt Protected | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1729 | 0 | 0 | 1568 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Flt Permitted | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1729 | 0 | 0 | 1568 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Adj. Flow (vph) | 2 | 10 | 8 | 0 | 4 | 24 | 0 | 251 | 8 | 29 | 130 | 0 |
| Lane Group Flow (vph) | 0 | 20 | 0 | 0 | 28 | 0 | 0 | 259 | 0 | 0 | 159 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.6 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 11 | 0 | 231 | 7 | 25 | 113 | 0 |
| Future Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 11 | 0 | 231 | 7 | 25 | 113 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 50 | 50 | 50 | 46 | 46 | 46 | 92 | 92 | 92 | 87 | 87 | 87 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Mvmt Flow | 2 | 10 | 8 | 0 | 4 | 24 | 0 | 251 | 8 | 29 | 130 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 457 | 447 | 130 | 452 | 443 | 255 | 130 | 0 | 0 | 259 | 0 | 0 |
| Stage 1 | 188 | 188 | - | 255 | 255 | - | - | - | - | - | - | - |
| Stage 2 | 269 | 259 | - | 197 | 188 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 517 | 509 | 925 | 521 | 512 | 789 | 1468 | - | - | 1317 | - | - |
| Stage 1 | 818 | 748 | - | 754 | 700 | - | - | - | - | - | - | - |
| Stage 2 | 741 | 697 | - | 809 | 748 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 489 | 497 | 925 | 499 | 500 | 789 | 1468 | - | - | 1317 | - | - |
| Mov Cap-2 Maneuver | 489 | 497 | - | 499 | 500 | - | - | - | - | - | - | - |
| Stage 1 | 818 | 730 | - | 754 | 700 | - | - | - | - | - | - | - |
| Stage 2 | 714 | 697 | - | 772 | 730 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.1 | 10.2 | 0 | 1.4 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1468 | - | - | 609 | 725 | 1317 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.033 | 0.039 | 0.022 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.1 | 10.2 | 7.8 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0.1 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 8 | 5 | 13 | 3 | 27 | 6 | 141 | 9 | 24 | 259 | 1 |
| Future Volume (vph) | 2 | 8 | 5 | 13 | 3 | 27 | 6 | 141 | 9 | 24 | 259 | 1 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.955 | | | 0.914 | | | 0.992 | | | | |
| Flt Protected | | 0.994 | | | 0.985 | | | 0.998 | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1743 | 0 | 0 | 1597 | 0 | 0 | 1818 | 0 | 0 | 1829 | 0 |
| Flt Permitted | | 0.994 | | | 0.985 | | | 0.998 | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1743 | 0 | 0 | 1597 | 0 | 0 | 1818 | 0 | 0 | 1829 | 0 |
| Adj. Flow (vph) | 3 | 13 | 8 | 18 | 4 | 38 | 7 | 153 | 10 | 29 | 312 | 1 |
| Lane Group Flow (vph) | 0 | 24 | 0 | 0 | 60 | 0 | 0 | 170 | 0 | 0 | 342 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.1 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 8 | 5 | 13 | 3 | 27 | 6 | 141 | 9 | 24 | 259 | 1 |
| Future Vol, veh/h | 2 | 8 | 5 | 13 | 3 | 27 | 6 | 141 | 9 | 24 | 259 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 63 | 63 | 63 | 72 | 72 | 72 | 92 | 92 | 92 | 83 | 83 | 83 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 13 | 8 | 18 | 4 | 38 | 7 | 153 | 10 | 29 | 312 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 564 | 548 | 313 | 553 | 543 | 158 | 313 | 0 | 0 | 163 | 0 | 0 |
| Stage 1 | 371 | 371 | - | 172 | 172 | - | - | - | - | - | - | - |
| Stage 2 | 193 | 177 | - | 381 | 371 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 439 | 447 | 732 | 447 | 450 | 893 | 1259 | - | - | 1428 | - | - |
| Stage 1 | 653 | 623 | - | 835 | 760 | - | - | - | - | - | - | - |
| Stage 2 | 813 | 756 | - | 645 | 623 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 408 | 433 | 732 | 422 | 436 | 893 | 1259 | - | - | 1428 | - | - |
| Mov Cap-2 Maneuver | 408 | 433 | - | 422 | 436 | - | - | - | - | - | - | - |
| Stage 1 | 649 | 607 | - | 830 | 755 | - | - | - | - | - | - | - |
| Stage 2 | 770 | 751 | - | 609 | 607 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 12.6 | 11.3 | 0.3 | 0.6 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1259 | - | - | 497 | 633 | 1428 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.048 | 0.094 | 0.02 | - | - |
| HCM Control Delay (s) | 7.9 | 0 | - | 12.6 | 11.3 | 7.6 | 0 | - |
| HCM Lane LOS | A | A | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.3 | 0.1 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Future Volume (vph) | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.946 | | | 0.883 | | | 0.996 | | | | |
| Flt Protected | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1729 | 0 | 0 | 1566 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Flt Permitted | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1729 | 0 | 0 | 1566 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Adj. Flow (vph) | 2 | 10 | 8 | 0 | 4 | 26 | 0 | 279 | 9 | 32 | 144 | 0 |
| Lane Group Flow (vph) | 0 | 20 | 0 | 0 | 30 | 0 | 0 | 288 | 0 | 0 | 176 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Future Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 50 | 50 | 50 | 46 | 46 | 46 | 92 | 92 | 92 | 87 | 87 | 87 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Mvmt Flow | 2 | 10 | 8 | 0 | 4 | 26 | 0 | 279 | 9 | 32 | 144 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 507 | 496 | 144 | 501 | 492 | 284 | 144 | 0 | 0 | 288 | 0 | 0 |
| Stage 1 | 208 | 208 | - | 284 | 284 | - | - | - | - | - | - | - |
| Stage 2 | 299 | 288 | - | 217 | 208 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 479 | 478 | 909 | 484 | 481 | 760 | 1451 | - | - | 1286 | - | - |
| Stage 1 | 799 | 734 | - | 727 | 680 | - | - | - | - | - | - | - |
| Stage 2 | 714 | 677 | - | 790 | 734 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 450 | 465 | 909 | 462 | 468 | 760 | 1451 | - | - | 1286 | - | - |
| Mov Cap-2 Maneuver | 450 | 465 | - | 462 | 468 | - | - | - | - | - | - | - |
| Stage 1 | 799 | 714 | - | 727 | 680 | - | - | - | - | - | - | - |
| Stage 2 | 685 | 677 | - | 751 | 714 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.5 | 10.4 | 0 | 1.4 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1451 | - | - | 576 | 698 | 1286 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.035 | 0.044 | 0.025 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.5 | 10.4 | 7.9 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0.1 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 8 | 5 | 15 | 3 | 30 | 6 | 157 | 10 | 27 | 287 | 1 |
| Future Volume (vph) | 2 | 8 | 5 | 15 | 3 | 30 | 6 | 157 | 10 | 27 | 287 | 1 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.955 | | | 0.915 | | | 0.992 | | | | |
| Flt Protected | | 0.994 | | | 0.985 | | | 0.998 | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1743 | 0 | 0 | 1598 | 0 | 0 | 1818 | 0 | 0 | 1829 | 0 |
| Flt Permitted | | 0.994 | | | 0.985 | | | 0.998 | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1743 | 0 | 0 | 1598 | 0 | 0 | 1818 | 0 | 0 | 1829 | 0 |
| Adj. Flow (vph) | 3 | 13 | 8 | 21 | 4 | 42 | 7 | 171 | 11 | 33 | 346 | 1 |
| Lane Group Flow (vph) | 0 | 24 | 0 | 0 | 67 | 0 | 0 | 189 | 0 | 0 | 380 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 8 | 5 | 15 | 3 | 30 | 6 | 157 | 10 | 27 | 287 | 1 |
| Future Vol, veh/h | 2 | 8 | 5 | 15 | 3 | 30 | 6 | 157 | 10 | 27 | 287 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 63 | 63 | 63 | 72 | 72 | 72 | 92 | 92 | 92 | 83 | 83 | 83 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 13 | 8 | 21 | 4 | 42 | 7 | 171 | 11 | 33 | 346 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 627 | 609 | 347 | 614 | 604 | 177 | 347 | 0 | 0 | 182 | 0 | 0 |
| Stage 1 | 413 | 413 | - | 191 | 191 | - | - | - | - | - | - | - |
| Stage 2 | 214 | 196 | - | 423 | 413 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 399 | 412 | 701 | 407 | 415 | 871 | 1223 | - | - | 1405 | - | - |
| Stage 1 | 620 | 597 | - | 815 | 746 | - | - | - | - | - | - | - |
| Stage 2 | 793 | 742 | - | 613 | 597 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 367 | 398 | 701 | 382 | 400 | 871 | 1223 | - | - | 1405 | - | - |
| Mov Cap-2 Maneuver | 367 | 398 | - | 382 | 400 | - | - | - | - | - | - | - |
| Stage 1 | 616 | 580 | - | 810 | 742 | - | - | - | - | - | - | - |
| Stage 2 | 746 | 738 | - | 576 | 580 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 13.3 | 11.9 | 0.3 | 0.7 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1223 | - | - | 459 | 591 | 1405 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.052 | 0.113 | 0.023 | - | - |
| HCM Control Delay (s) | 8 | 0 | - | 13.3 | 11.9 | 7.6 | 0 | - |
| HCM Lane LOS | A | A | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.4 | 0.1 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Future Volume (vph) | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.946 | | | 0.883 | | | 0.996 | | | | |
| Flt Protected | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (prot) | 0 | 1729 | 0 | 0 | 1566 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Flt Permitted | | 0.995 | | | | | | | | | 0.991 | |
| Satd. Flow (perm) | 0 | 1729 | 0 | 0 | 1566 | 0 | 0 | 1829 | 0 | 0 | 1791 | 0 |
| Adj. Flow (vph) | 2 | 10 | 8 | 0 | 4 | 26 | 0 | 279 | 9 | 32 | 144 | 0 |
| Lane Group Flow (vph) | 0 | 20 | 0 | 0 | 30 | 0 | 0 | 288 | 0 | 0 | 176 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 1.5 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Future Vol, veh/h | 1 | 5 | 4 | 0 | 2 | 12 | 0 | 257 | 8 | 28 | 125 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 50 | 50 | 50 | 46 | 46 | 46 | 92 | 92 | 92 | 87 | 87 | 87 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 |
| Mvmt Flow | 2 | 10 | 8 | 0 | 4 | 26 | 0 | 279 | 9 | 32 | 144 | 0 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 507 | 496 | 144 | 501 | 492 | 284 | 144 | 0 | 0 | 288 | 0 | 0 |
| Stage 1 | 208 | 208 | - | 284 | 284 | - | - | - | - | - | - | - |
| Stage 2 | 299 | 288 | - | 217 | 208 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 479 | 478 | 909 | 484 | 481 | 760 | 1451 | - | - | 1286 | - | - |
| Stage 1 | 799 | 734 | - | 727 | 680 | - | - | - | - | - | - | - |
| Stage 2 | 714 | 677 | - | 790 | 734 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 450 | 465 | 909 | 462 | 468 | 760 | 1451 | - | - | 1286 | - | - |
| Mov Cap-2 Maneuver | 450 | 465 | - | 462 | 468 | - | - | - | - | - | - | - |
| Stage 1 | 799 | 714 | - | 727 | 680 | - | - | - | - | - | - | - |
| Stage 2 | 685 | 677 | - | 751 | 714 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 11.5 | 10.4 | 0 | 1.4 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1451 | - | - | 576 | 698 | 1286 | - | - |
| HCM Lane V/C Ratio | - | - | - | 0.035 | 0.044 | 0.025 | - | - |
| HCM Control Delay (s) | 0 | - | - | 11.5 | 10.4 | 7.9 | 0 | - |
| HCM Lane LOS | A | - | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.1 | 0.1 | 0.1 | - | - |

| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 2 | 8 | 5 | 16 | 3 | 30 | 6 | 157 | 11 | 27 | 287 | 1 |
| Future Volume (vph) | 2 | 8 | 5 | 16 | 3 | 30 | 6 | 157 | 11 | 27 | 287 | 1 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | 0.955 | | | 0.917 | | | 0.991 | | | | |
| Flt Protected | | 0.994 | | | 0.984 | | | 0.998 | | | 0.996 | |
| Satd. Flow (prot) | 0 | 1743 | 0 | 0 | 1600 | 0 | 0 | 1816 | 0 | 0 | 1829 | 0 |
| Flt Permitted | | 0.994 | | | 0.984 | | | 0.998 | | | 0.996 | |
| Satd. Flow (perm) | 0 | 1743 | 0 | 0 | 1600 | 0 | 0 | 1816 | 0 | 0 | 1829 | 0 |
| Adj. Flow (vph) | 3 | 13 | 8 | 22 | 4 | 42 | 7 | 171 | 12 | 33 | 346 | 1 |
| Lane Group Flow (vph) | 0 | 24 | 0 | 0 | 68 | 0 | 0 | 190 | 0 | 0 | 380 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 2.2 |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Vol, veh/h | 2 | 8 | 5 | 16 | 3 | 30 | 6 | 157 | 11 | 27 | 287 | 1 |
| Future Vol, veh/h | 2 | 8 | 5 | 16 | 3 | 30 | 6 | 157 | 11 | 27 | 287 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 63 | 63 | 63 | 72 | 72 | 72 | 92 | 92 | 92 | 83 | 83 | 83 |
| Heavy Vehicles, % | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mvmt Flow | 3 | 13 | 8 | 22 | 4 | 42 | 7 | 171 | 12 | 33 | 346 | 1 |

| Major/Minor | Minor2 | | | Minor1 | | | Major1 | | | Major2 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Conflicting Flow All | 627 | 610 | 347 | 614 | 604 | 177 | 347 | 0 | 0 | 183 | 0 | 0 |
| Stage 1 | 413 | 413 | - | 191 | 191 | - | - | - | - | - | - | - |
| Stage 2 | 214 | 197 | - | 423 | 413 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | - | - | 4.1 | - | - |
| Critical Hdwy Stg 1 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.1 | 5.5 | - | 6.1 | 5.5 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.5 | 4 | 3.3 | 3.5 | 4 | 3.3 | 2.2 | - | - | 2.2 | - | - |
| Pot Cap-1 Maneuver | 399 | 412 | 701 | 407 | 415 | 871 | 1223 | - | - | 1404 | - | - |
| Stage 1 | 620 | 597 | - | 815 | 746 | - | - | - | - | - | - | - |
| Stage 2 | 793 | 742 | - | 613 | 597 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 367 | 398 | 701 | 382 | 400 | 871 | 1223 | - | - | 1404 | - | - |
| Mov Cap-2 Maneuver | 367 | 398 | - | 382 | 400 | - | - | - | - | - | - | - |
| Stage 1 | 616 | 580 | - | 810 | 742 | - | - | - | - | - | - | - |
| Stage 2 | 746 | 738 | - | 576 | 580 | - | - | - | - | - | - | - |

| Approach | EB | WB | NB | SB |
|---|---|---|---|---|
| HCM Control Delay, s | 13.3 | 12 | 0.3 | 0.7 |
| HCM LOS | B | B | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1 | WBLn1 | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|
| Capacity (veh/h) | 1223 | - | - | 459 | 585 | 1404 | - | - |
| HCM Lane V/C Ratio | 0.005 | - | - | 0.052 | 0.116 | 0.023 | - | - |
| HCM Control Delay (s) | 8 | 0 | - | 13.3 | 12 | 7.6 | 0 | - |
| HCM Lane LOS | A | A | - | B | B | A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.2 | 0.4 | 0.1 | - | - |

Blackstone Street at the Project Site Driveway

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 0 | 41 | 14 | 1 | 1 | 0 |
| Future Volume (vph) | 0 | 41 | 14 | 1 | 1 | 0 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.992 | | | |
| Flt Protected | | | | | 0.950 | |
| Satd. Flow (prot) | 0 | 1863 | 1848 | 0 | 1711 | 0 |
| Flt Permitted | | | | | 0.950 | |
| Satd. Flow (perm) | 0 | 1863 | 1848 | 0 | 1711 | 0 |
| Adj. Flow (vph) | 0 | 45 | 15 | 1 | 1 | 0 |
| Lane Group Flow (vph) | 0 | 45 | 16 | 0 | 1 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.2 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 0 | 41 | 14 | 1 | 1 | 0 |
| Future Vol, veh/h | 0 | 41 | 14 | 1 | 1 | 0 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 45 | 15 | 1 | 1 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 16 | 0 | - | 0 | 61 | 16 |
| Stage 1 | - | - | - | - | 16 | - |
| Stage 2 | - | - | - | - | 45 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1602 | - | - | - | 945 | 1063 |
| Stage 1 | - | - | - | - | 1007 | - |
| Stage 2 | - | - | - | - | 977 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1602 | - | - | - | 945 | 1063 |
| Mov Cap-2 Maneuver | - | - | - | - | 945 | - |
| Stage 1 | - | - | - | - | 1007 | - |
| Stage 2 | - | - | - | - | 977 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0 | 0 | 8.8 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1602 | - | - | - | 945 |
| HCM Lane V/C Ratio | - | - | - | - | 0.001 |
| HCM Control Delay (s) | 0 | - | - | - | 8.8 |
| HCM Lane LOS | A | - | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |

| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (vph) | 1 | 45 | 48 | 2 | 1 | 1 |
| Future Volume (vph) | 1 | 45 | 48 | 2 | 1 | 1 |
| Lane Util. Factor | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Frt | | | 0.995 | | 0.932 | |
| Flt Protected | | 0.999 | | | 0.976 | |
| Satd. Flow (prot) | 0 | 1861 | 1853 | 0 | 1638 | 0 |
| Flt Permitted | | 0.999 | | | 0.976 | |
| Satd. Flow (perm) | 0 | 1861 | 1853 | 0 | 1638 | 0 |
| Adj. Flow (vph) | 1 | 49 | 52 | 2 | 1 | 1 |
| Lane Group Flow (vph) | 0 | 50 | 54 | 0 | 2 | 0 |
| Sign Control | | Free | Free | | Stop | |

| Intersection Summary |
|---|
| Control Type: Unsignalized |

| Intersection | |
|---|---|
| Int Delay, s/veh | 0.3 |

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 1 | 45 | 48 | 2 | 1 | 1 |
| Future Vol, veh/h | 1 | 45 | 48 | 2 | 1 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 1 | 49 | 52 | 2 | 1 | 1 |

| Major/Minor | Major1 | | Major2 | | Minor2 | |
|---|---|---|---|---|---|---|
| Conflicting Flow All | 54 | 0 | - | 0 | 104 | 53 |
| Stage 1 | - | - | - | - | 53 | - |
| Stage 2 | - | - | - | - | 51 | - |
| Critical Hdwy | 4.12 | - | - | - | 6.42 | 6.22 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.42 | - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.42 | - |
| Follow-up Hdwy | 2.218 | - | - | - | 3.518 | 3.318 |
| Pot Cap-1 Maneuver | 1551 | - | - | - | 894 | 1014 |
| Stage 1 | - | - | - | - | 970 | - |
| Stage 2 | - | - | - | - | 971 | - |
| Platoon blocked, % | | - | - | - | | |
| Mov Cap-1 Maneuver | 1551 | - | - | - | 893 | 1014 |
| Mov Cap-2 Maneuver | - | - | - | - | 893 | - |
| Stage 1 | - | - | - | - | 969 | - |
| Stage 2 | - | - | - | - | 971 | - |

| Approach | EB | WB | SB |
|---|---|---|---|
| HCM Control Delay, s | 0.2 | 0 | 8.8 |
| HCM LOS | | | A |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 |
|---|---|---|---|---|---|
| Capacity (veh/h) | 1551 | - | - | - | 950 |
| HCM Lane V/C Ratio | 0.001 | - | - | - | 0.002 |
| HCM Control Delay (s) | 7.3 | 0 | - | - | 8.8 |
| HCM Lane LOS | A | A | - | - | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0 |