



Civil • Structural • Transportation • Surveying

201 Boston Post Rd. West, Ste 101  
Marlborough, MA 01752  
Tel.: (508) 481-7400  
Fax: (508) 481-7406  
www.chappellengineering.com

# Traffic Assessment

## Drinking Water Treatment Plant Chief Justice Cushing Highway Scituate, Massachusetts

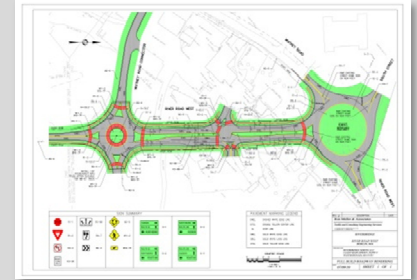
Prepared for:

**Woodard & Curran**  
250 Royall St  
Canton, MA 02021

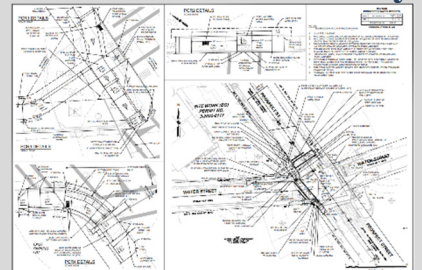
August 9, 2023



### Quality



### Accuracy



### Integrity





---

## Traffic Assessment

To: Ms, Rebecca Paustian  
Woodard & Curran  
250 Royall Street  
Canton, MA 02021

Reg: Drinking Water Treatment Plant  
Chief Justice Cushing Hwy.  
Scituate, MA

From: Kirsten Braun, P.E., Project Manager

Date: August 9, 2023  
Project #: 22123

---

### INTRODUCTION

*Chappell Engineering Associates, LLC* (CEA) has conducted this Traffic Assessment for the proposed Stearns Meadow Drinking Water Treatment Plant to be located on Chief Justice Cushing Highway (Route 3A) south of Old Forge Road in Scituate, Massachusetts. Access to the site is proposed via a full access driveway on the north side of the site and an exit only driveway on the south side of the site onto Chief Justice Cushing Highway. The site location in relation to the surrounding roadways is shown on Figure 1.

This report has been prepared to estimate the project traffic generation, evaluate the safety of the site access points, and provide a qualitative assessment of the impacts of this traffic on the adjacent streets. As documented in this report, both proposed site driveway intersections with Chief Justice Cushing Highway meet or exceed the minimum required sight distances and safe operation can therefore be expected. It is recommended that any proposed landscaping, signs or fencing in the vicinity of the driveways be kept low (maximum 2 feet in height from street level) or set back sufficiently so as not to impede the available sight distances.

Traffic increases on Chief Justice Cushing Highway south of the site, are expected in the range of 39 to 41 additional vehicles during peak hours, or an increase of about one additional vehicle every one and a half minutes. North of the site, 26 to 28 additional vehicles are expected on Chief Justice Cushing Highway during peak hours, representing an increase of one additional vehicle every two to two and a half minutes. These increases are minimal and well within the daily fluctuation of traffic.

Chief Justice Cushing Highway (Route 3A) adjacent to the site is under MassDOT jurisdiction and therefore the project will require a Highway Access Permit from MassDOT for the construction of

the proposed driveways. The project does not exceed any transportation or land thresholds that would require the filing of an Environmental Notification Form (ENF).

**Figure 1**  
**Site Location Map**



## TRAFFIC VOLUMES

Traffic volume and vehicle speed information along Chief Justice Cushing Highway near the site were obtained from an automatic traffic recorder (ATR) count conducted on January 31, 2023 and February 1, 2023. To determine if the count data needed to be adjusted to represent annual average month conditions consistent with Massachusetts Department of Transportation (MassDOT) guidelines for traffic impact assessment, historical traffic volume data were obtained from MassDOT’s Weekday Seasonal Adjustment Factors for the latest year available. This document provides a monthly adjustment factor based on the roadway classification of the study roadways. Chief Justice Cushing Highway is classified as an urban principal arterial (U3). This roadway classification shows that the months of January and February are approximately six and three percent below average month conditions, respectively. To provide a conservative assessment, the counts were upwardly adjusted by six percent to represent average month conditions. The MassDOT Seasonal Adjustment Factors are provided in the Appendix.

The MassDOT *Traffic and Safety Engineering 25% Design Submission Guidelines* were updated on May 31, 2022. These new directives note that traffic volume data collected after March 1, 2022 are no longer subject to any adjustments to represent pre-pandemic traffic volume conditions, except in areas where land use is predominantly office. Therefore, since the traffic volume data were collected in January and February of 2023 and land use in the area is predominantly residential, COVID adjustments do not need to be applied to the data. Table 1 summarizes the 2023 Existing traffic volumes on the study area roadways.

**Table 1**  
**Existing Traffic Volume Summary**

Location	Daily Volume <sup>a</sup>	Peak Hour Volume <sup>b</sup>	K-Factor <sup>c</sup>	Directional Distribution <sup>d</sup>
Chief Justice Cushing Highway Adjacent to the Site	9,378	AM: 934 PM: 838	10.0% 8.9%	61% NB 61% SB

<sup>a</sup> In vehicles per day.

<sup>b</sup> In vehicles per hour.

<sup>c</sup> Percentage of daily traffic occurring during the peak hour.

<sup>d</sup> NB = northbound, SB = southbound.

## VEHICLE SPEEDS

Speed measurements were conducted along Chief Justice Cushing Highway adjacent to the site by measuring the elapsed time for vehicles traveling a short, pre-measured distance between two checkpoints. The travel time was recorded using automatic traffic recorders and the speed is derived by dividing the elapsed time into the measured distance between checkpoints. The results of the speed measurements are summarized in Table 2.

**Table 2**  
**Observed Travel Speeds <sup>a</sup>**

Location/Direction	Posted Speed Limit	Average Speed	85 <sup>th</sup> Percentile Speed <sup>b</sup>
<b>Chief Justice Cushing Highway Adjacent to the Site:</b>			
Northbound	50	47	52
Southbound	50	51	56

<sup>a</sup> In miles per hour (mph).

<sup>b</sup> Speed at, or below which 85 percent of all observed vehicles travel.

As shown, the average travel speeds along Chief Justice Cushing Highway adjacent to the site were found to be comparable to the posted speed limit of 50 miles per hour (mph) with 47 mph traveling northbound and 51 mph traveling southbound. The 85<sup>th</sup> percentile speeds were found to be higher than the posted speed limit with 52 mph traveling northbound and 56 mph traveling southbound. The higher 85<sup>th</sup> percentile travel speeds were accordingly used in the calculation of minimum sight distance requirements, as described below.

## SIGHT DISTANCE

To identify potential safety concerns associated with site access and egress, sight distances have been evaluated at the proposed driveway intersections with Chief Justice Cushing Highway to determine if the available sight distances for vehicles exiting the site meet or exceed the minimum distances required for approaching vehicles to safely stop. The available sight distances were compared with minimum requirements, as established by the American Association of State Highway and Transportation Officials (AASHTO).<sup>1</sup> AASHTO is the national standard by which

<sup>1</sup>A *Policy on Geometric Design of Highways and Streets, 7<sup>th</sup> Edition*; American Association of State Highway and Transportation Officials (AASHTO); 2018.

vehicle sight distance is calculated, measured, and reported. The MassDOT and the Executive Office of Energy and Environmental Affairs (EEA) require the use of AASHTO sight distance standards when preparing traffic impact assessments and studies, as stated in their guidelines for traffic impact assessments.

Sight distance is the length of roadway ahead that is visible to the driver. Stopping Sight Distance (SSD) is the minimum distance required for a vehicle traveling at a certain speed to safely stop before reaching a stationary object in its path. The values are based on a driver perception and reaction time of 2.5 seconds and a braking distance calculated for wet, level pavements. When the roadway is either on an upgrade or downgrade, grade correction factors are applied. Stopping sight distance is measured from an eye height of 3.5 feet to an object height of 2 feet above street level, equivalent to the taillight height of a passenger car. The SSD is measured along the centerline of the traveled way of the major road.

Intersection sight distance (ISD) is provided on minor street approaches to allow the drivers of stopped vehicles a sufficient view of the major roadway to decide when to enter the major roadway. By definition, ISD is the minimum distance required for a motorist exiting a minor street to turn onto the major street, without being overtaken by an approaching vehicle reducing its speed from the design speed to 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet above street level. The use of an object height equal to the driver eye height makes intersection sight distances reciprocal (i.e., if one driver can see another vehicle, then the driver of that vehicle can also see the first vehicle). When the minor street is on an upgrade that exceeds 3 percent, grade correction factors are applied.

SSD is generally more important as it represents the minimum distance required for safe stopping while ISD is based only upon acceptable speed reductions to the approaching traffic stream. However, the ISD must be equal to or greater than the minimum required SSD in order to provide safe operations at the intersection. In accordance with the AASHTO manual, *“If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.”* Accordingly, ISD should be at least equal to the distance required to allow a driver approaching the minor road to safely stop.

The available intersection sight distances at the site driveway intersections with Chief Justice Cushing Highway were measured and compared to minimum requirements as established by AASHTO. Since the requirements are based on the adjacent street speed of traffic, the observed 85<sup>th</sup> percentile speeds on Chief Justice Cushing Highway were used. The required minimum sight distances for these speeds are compared to the available distances, as shown in Table 3.

**Table 3**  
**Sight Distance Summary**

Location/Direction	Sight Distance (feet)		
	Measured	Minimum Required (SSD) <sup>a</sup>	Desirable (ISD) <sup>b</sup>
<b>Chief Justice Cushing Highway at North Site Driveway:</b>			
North of intersection	600+	557	555
South of intersection	600+	418	555
<b>Chief Justice Cushing Highway at South Site Driveway:</b>			
North of intersection	600+	557	555
South of intersection	600+	418	555

<sup>a</sup> Values based on AASHTO SSD requirements for the observed 85<sup>th</sup> percentile travel speed of 52 mph traveling northbound and 56 mph traveling southbound on Chief Justice Cushing Highway. A 5 percent grade factor (traveling uphill in the northbound direction) was applied to the calculation of minimum sight distance requirements.

<sup>b</sup> Values based on AASHTO ISD requirements for posted speed limit of 50 mph on Chief Justice Cushing Highway.

As shown in the table, both the minimum required and desirable sight distances are exceeded at the proposed site driveway intersections with Chief Justice Cushing Highway. To ensure that minimum required sight distances are maintained at both site driveway intersections, it is recommended that any proposed landscaping, fencing, or signs in the vicinity of the driveways be kept low (maximum 2 feet in height from street level), or set back sufficiently (outside the sight triangles as defined by AASHTO) so as not to impede the available sight distances.

**TRIP GENERATION**

The traffic to be generated by the proposed drinking water treatment plant was estimated using the Institute of Transportation Engineering (ITE) *Trip Generation Manual*.<sup>2</sup> As proposed, the entire building will be 35,132 square feet in size with 22,413 square feet of water treatment plant process area, 7,142 square feet of operations space and 5,193 square feet of garage space. The garage portion of the development is expected to be ancillary to the drinking water treatment plant and therefore the total building size was assumed to be 29,939 square feet for trip generation purposes. To present a conservative assessment, the total building square footage was rounded up to 30,000 square feet. Based on a review of the ITE data, Land Use Code (LUC) 170 (Utilities) is most

<sup>2</sup> *Trip Generation Manual, 11<sup>th</sup> Edition*; Institute of Transportation Engineers; Washington, DC; 2021.



appropriate as it includes trip generation data for water supply/control and sewage treatment facilities. Therefore, LUC 170 was used in estimating the traffic generation characteristics of the project, as shown in Table 4. The trip generation calculations are provided in the Appendix.

**Table 4**  
**Trip Generation Summary**

<u>Time Period</u>	<u>Proposed Drinking Water Treatment Plant <sup>a</sup></u>
<b>Weekday Daily</b>	370
<b>Weekday AM Peak Hour</b>	
Enter	60
<u>Exit</u>	<u>9</u>
Total	69
<b>Weekday PM Peak Hour</b>	
Enter	12
<u>Exit</u>	<u>53</u>
Total	65

<sup>a</sup> ITE Land Use Code 170 (Utilities) based on 30,000 square feet.

As shown, the proposed drinking water treatment plant will generate 370 trips (185 in and 185 out) on a weekday daily basis, of which 69 trips (60 in and 9 out) would occur during the weekday AM peak hour and 65 trips (12 in and 53 out) would occur during the weekday PM peak hour.

## **TRIP DISTRIBUTION**

Since the development is expected to function as a workplace, the US Census Bureau's Journey to Work data for the residence of those working in Scituate was used to estimate the expected trip distribution of the site generated trips. Based on these data and the available travel routes, it is expected that 60 percent of the site traffic will be to and from the south on Chief Justice Cushing Highway and the remaining 40 percent would be to and from the north on Chief Justice Cushing Highway. The US Census Bureau's Journey to Work data are included in the Appendix. Since the southern driveway is an egress only, all traffic entering the site will utilize the northern driveway. Based on the site plan, circulation around the building will be in a counterclockwise direction with the rear drive behind the building operating one-way from the northern driveway to the southern

driveway. There is a parking area near the northern driveway where visitors and employees can park and then use the northern driveway to exit the site. Based on this information, traffic bound for both the north and south was split evenly between the northern and southern driveways.

## **TRAFFIC INCREASES**

Based on the traffic generation and distribution patterns, the largest increase in traffic is expected on Chief Justice Cushing Highway south of the site, where an additional 39 to 41 vehicles are expected during peak hours. These increases represent a 4.7 percent increase in traffic over the existing volumes during peak hours, or approximately one additional vehicle every one and a half minutes during peak hours. On Chief Justice Cushing Highway north of the site, an additional 26 to 28 vehicles are expected during peak hours. These increases represent a 3.3 percent increase in traffic over the existing volumes, or approximately one additional vehicle every two to two and a half minutes. These increases are minimal and well within the daily fluctuation of traffic. Furthermore, smaller increases in traffic are expected during all other hours of the day.

In addition, these increases are below the *Transportation Impact Assessment (TIA) Guidelines* established by MassDOT to determine the traffic study area for development projects. These guidelines specify that the study area for analysis of a development's traffic impacts should include any intersection where site-generated trips increase the peak hour traffic volume by a) five percent or more, or b) by more than 100 vehicles per hour. The traffic increases described above are below these thresholds and evaluation of additional intersections beyond the site driveways should not be required.

## **SITE ACCESS**

Access to the proposed site will be provided via two new curb cuts on Chief Justice Cushing Highway. The northern driveway will provide full access while the southern driveway will provide egress only. Both driveways should accordingly be designed to accommodate the largest vehicle expected to use the site providing corner radii that will allow tractor trailers to make turning movements without crossing the Chief Justice Cushing Highway centerline. At a minimum, the northern driveway should be 24 feet wide with 30-foot corner radii consistent with MassDOT standards for commercial driveways. Since the southern driveway is proposed to be an exit-only driveway, it should be no more than 20 feet wide with a minimum 30-foot radius for right turns out, depending on the use of this driveway by tractor trailer trucks. STOP (R1-1) signs and stop lines should be installed at each driveway exit. One-Way (R6-1) signs should be installed at the exit-only driveway along with Do Not Enter (R5-1) signs facing Chief Justice Cushing Highway to assure compliance with the one-way flow pattern.

## **MEPA THRESHOLDS**

The site abuts and proposes to access a state highway, Chief Justice Cushing Highway (Route 3A) and therefore will require a Highway Access Permit from MassDOT. Based on Transportation and Land thresholds established by the Massachusetts Environmental Policy Act (MEPA), review of the project is required if the project requires a Highway Access Permit from MassDOT and exceeds one or more of the following thresholds:

- Generation of 2,000 or more daily vehicle trips
- Creation of 300 or more new parking spaces
- Generation of 1,000 or more daily vehicle trips plus 150 or more parking spaces
- Creation of 5 or more acres of additional impervious surface
- Alteration of 25 or more acres of additional land
- Site is located within an Area of Critical Environmental Concern (ACEC)

As shown in Table 4, the project will generate 370 weekday daily vehicle trips and the site plan shows a total of 18 parking spaces are proposed on site. The transportation review thresholds are accordingly not exceeded. A total of 1.805 acres of impervious surface are proposed and 9.6 acres of land alteration. Accordingly, the land thresholds regarding impervious surface and land alteration will also not be exceeded. Finally, the site is not located within an ACEC as designated by the Secretary of Environmental Affairs. MEPA review of the project is therefore not required based on the transportation and land thresholds.

## **CONCLUSIONS**

- The project consists of constructing a drinking water treatment plant, Stearns Meadow, on vacant land adjacent to Chief Justice Cushing Highway (Route 3A) south of Old Forger Road in Scituate, Massachusetts.
- Access to the site is proposed via two new driveways on Chief Justice Cushing Highway. A full access driveway is proposed on the north side of the site and an egress only driveway on the south side.
- The development project is expected to generate 370 vehicle trips on a typical weekday (half entering and half exiting) of which 69 vehicle trips (60 entering and 9 exiting) occur during the weekday AM peak hour and 65 vehicle trips (12 entering and 53 exiting) occur during the weekday PM peak hour.
- Once distributed onto the adjacent streets, the largest increase in traffic is expected south of the site on Chief Justice Cushing Highway, where an additional 39 to 41 vehicles are expected during peak hours. These increases represent a 4.7 percent increase in traffic over

the existing volumes during peak hours, or approximately one additional vehicle every one and a half minutes.

- North of the site, an additional 26 to 28 vehicles are expected on Chief Justice Cushing Highway during peak hours. These increases represent a 3.3 percent increase in traffic over the existing volumes, or approximately one additional vehicle every two to two and a half minutes.
- The above increases in traffic are minimal and well within the daily fluctuation of traffic. These increases also do not exceed the MassDOT *Transportation Impact Assessment (TIA) Guidelines* that could require evaluation of additional intersections beyond the site driveways.
- Both driveways should be designed to accommodate the largest vehicle expected on site. Depending on the size trucks to use the facility, the northern driveway should be a minimum of 24 feet wide with 30-foot corner radii consistent with MassDOT standards for commercial driveways. Since the southern driveway is proposed to be an exit-only driveway, it should be no more than 20 feet wide with a minimum 30-foot radius for right turns out.
- STOP (R1-1) signs and stop lines should be installed at each driveway exit. One-Way (R6-1) signs should be installed at the exit-only driveway along with Do Not Enter (R5-1) signs facing Chief Justice Cushing Highway to assure compliance with the one-way flow pattern.
- The project proposes access to a state highway, Route 3A, and therefore will require a Highway Access Permit from MassDOT. The Massachusetts Environmental Policy Act (MEPA) transportation and land thresholds are not exceeded and therefore MEPA review of the project is not required based on these parameters.
- Both the minimum required and desirable sight distances are exceeded at the proposed site driveway intersections with Chief Justice Cushing Highway and therefore safe operation can be expected.
- It is recommended that any proposed landscaping or signs in the vicinity of the site driveways be kept low to the ground (less than two feet above street level) or set back sufficiently so as not to impede sight distances for drivers exiting the site.

## **APPENDIX**

---

Traffic Count and Vehicle Speed Data  
Traffic Count Adjustment Data  
Trip Generation Calculations  
Journey-to-Work Data



Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: NB

1/31/2023	0 - 15	> 15 -	> 20 -	> 25 -	> 30 -	> 35 -	> 40 -	> 45 -	> 50 -	> 55 -	> 60 -	> 65 -	> 70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	0	1	1	1	1	0	0	0	0	4
1:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
2:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
3:00	0	0	0	0	0	0	0	1	0	0	2	0	0	3
4:00	0	0	0	0	0	3	2	5	2	1	0	0	0	13
5:00	0	0	0	0	0	4	15	26	5	1	0	0	0	51
6:00	0	0	0	2	3	22	66	74	33	4	0	0	0	204
7:00	0	0	0	0	2	48	191	193	71	7	2	0	0	514
8:00	0	0	0	0	3	25	153	191	95	14	3	0	0	484
9:00	0	1	0	0	5	9	79	111	70	15	0	0	1	291
10:00	0	0	0	0	4	18	104	85	58	15	1	0	0	285
11:00	0	0	0	0	0	16	91	82	56	13	1	2	0	261
12:00 PM	0	0	0	5	12	22	84	85	45	7	0	0	0	260
1:00	0	0	0	0	5	20	71	93	67	7	1	0	0	264
2:00	0	0	0	0	0	12	111	104	74	14	1	0	0	316
3:00	0	0	0	0	3	16	71	127	100	20	2	0	0	339
4:00	0	0	0	0	0	11	69	128	72	18	2	1	1	302
5:00	0	0	0	0	5	27	86	111	42	10	1	1	1	284
6:00	0	0	0	0	2	17	73	77	38	7	0	0	0	214
7:00	0	0	0	0	0	15	36	55	19	2	2	0	0	129
8:00	0	0	0	0	0	5	37	36	17	3	0	0	0	98
9:00	0	0	0	1	0	10	18	30	13	1	2	0	0	75
10:00	0	0	0	0	1	2	7	7	3	0	0	0	0	20
11:00	0	0	0	0	0	2	4	4	7	0	0	0	0	17
Total	0	1	0	8	45	305	1369	1627	889	159	20	4	3	4430

Percentile	15th	50th	85th	95th
Speed	42	47	52	55
Mean Speed (Average)	46.7			
10 MPH Pace Speed	40-49			
Number in Pace	2970			
Percent in Pace	67.0%			
Number > 50 MPH	1075			
Percent > 50 MPH	24.3%			

Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: NB

2/1/2023	0 - 15	> 15 -	> 20 -	> 25 -	> 30 -	> 35 -	> 40 -	> 45 -	> 50 -	> 55 -	> 60 -	> 65 -	> 70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	0	0	2	2	2	0	0	0	0	6
1:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
2:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1
3:00	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:00	0	0	0	0	1	1	5	1	1	0	0	0	0	9
5:00	0	0	0	0	0	16	13	11	3	2	0	0	0	45
6:00	0	0	0	3	17	46	71	34	15	0	0	0	0	186
7:00	0	1	0	8	8	22	164	195	75	12	1	0	0	486
8:00	0	0	0	0	2	42	142	193	130	23	1	0	0	533
9:00	0	1	0	0	3	19	71	129	70	17	1	1	0	312
10:00	0	0	0	0	1	19	63	104	67	13	4	0	0	271
11:00	0	0	0	0	3	28	101	102	51	6	2	0	0	293
12:00 PM	0	0	0	0	1	9	86	85	53	10	0	0	0	244
1:00	0	0	0	0	0	16	71	108	58	8	1	0	0	262
2:00	0	0	0	1	0	10	65	118	64	13	1	0	0	272
3:00	0	0	0	0	1	14	110	133	96	15	2	0	0	371
4:00	0	0	0	0	4	18	68	121	82	13	0	0	0	306
5:00	0	0	0	2	11	65	147	56	15	3	0	0	0	299
6:00	0	0	0	0	3	36	72	41	18	5	0	0	0	175
7:00	0	1	0	0	3	17	53	48	19	3	0	0	0	144
8:00	0	0	0	0	1	12	35	37	21	5	0	0	0	111
9:00	0	0	0	0	0	4	21	21	8	1	0	0	0	55
10:00	0	0	0	0	0	3	13	9	9	0	2	0	0	36
11:00	0	0	0	0	1	0	3	1	1	0	0	0	0	6
Total	0	3	0	14	61	397	1377	1551	858	149	15	1	0	4426

Percentile	15th	50th	85th	95th
Speed	42	46	52	55
Mean Speed (Average)	46.2			
10 MPH Pace Speed	40-49			
Number in Pace	2905			
Percent in Pace	65.6%			
Number > 50 MPH	1023			
Percent > 50 MPH	23.1%			

Grand Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percentile	15th	50th	85th	95th										
Speed	42	47	52	55										
Mean Speed (Average)	46.4													
10 MPH Pace Speed	40-49													
Number in Pace	5874													
Percent in Pace	66.3%													
Number > 50 MPH	2098													
Percent > 50 MPH	23.7%													



Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: SB

1/31/2023	0 - 15	> 15 -	> 20 -	> 25 -	> 30 -	> 35 -	> 40 -	> 45 -	> 50 -	> 55 -	> 60 -	> 65 -	> 70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	0	2	0	0	1	1	1	0	1	6
1:00	0	0	0	0	0	0	0	1	0	1	0	1	0	3
2:00	0	0	0	0	0	0	0	0	0	1	0	1	0	2
3:00	0	0	0	0	0	0	0	0	1	0	0	0	0	1
4:00	0	0	0	0	0	0	1	4	7	3	1	0	0	16
5:00	0	0	0	0	0	1	2	9	13	5	2	0	1	33
6:00	0	0	0	0	0	1	11	45	36	18	2	2	0	115
7:00	0	0	0	2	4	7	27	79	80	36	11	3	0	249
8:00	0	0	0	0	6	9	29	109	97	74	26	2	0	352
9:00	0	0	0	0	5	16	26	90	78	40	16	1	1	273
10:00	0	0	0	0	2	6	16	73	83	49	11	1	0	241
11:00	0	0	0	0	0	1	28	90	96	39	14	0	0	268
12:00 PM	1	0	2	13	12	23	29	72	91	39	7	0	0	289
1:00	0	0	0	0	2	3	20	85	123	44	7	1	1	286
2:00	0	0	0	0	2	6	35	118	141	68	17	3	1	391
3:00	0	0	1	1	1	4	54	168	158	60	17	1	0	465
4:00	0	2	0	0	2	4	40	155	178	48	3	2	0	434
5:00	0	0	1	0	4	7	42	162	121	36	3	0	0	376
6:00	0	0	0	0	2	2	36	95	74	28	10	1	1	249
7:00	0	0	0	0	0	2	5	50	60	33	8	0	1	159
8:00	0	0	0	0	0	2	17	41	47	18	3	0	0	128
9:00	0	0	0	0	0	2	1	11	25	7	3	2	0	51
10:00	0	0	0	0	0	0	3	9	9	3	1	3	0	28
11:00	0	0	0	0	0	0	0	1	3	3	0	0	0	7
Total	1	2	4	16	42	98	422	1467	1522	654	163	24	7	4422

Percentile	15th	50th	85th	95th
Speed	46	51	56	60
Mean Speed (Average)	50.6			
10 MPH Pace Speed	45-54			
Number in Pace	2967			
Percent in Pace	67.1%			
Number > 50 MPH	2370			
Percent > 50 MPH	53.6%			

Accurate Counts  
978-664-2565

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: SB

22123001

2/1/2023 Time	0 - 15 MPH	> 15 - 20 MPH	> 20 - 25 MPH	> 25 - 30 MPH	> 30 - 35 MPH	> 35 - 40 MPH	> 40 - 45 MPH	> 45 - 50 MPH	> 50 - 55 MPH	> 55 - 60 MPH	> 60 - 65 MPH	> 65 - 70 MPH	> 70 MPH	Total
12:00 AM	0	0	0	0	0	1	0	1	1	1	3	1	0	8
1:00	0	0	0	0	0	0	0	1	0	1	0	1	0	3
2:00	0	0	0	0	0	0	0	0	1	0	0	1	1	3
3:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:00	0	0	0	0	0	1	2	4	3	2	0	0	0	12
5:00	0	0	0	0	0	1	3	12	9	7	2	0	0	34
6:00	0	0	1	2	1	9	30	38	16	4	0	0	0	101
7:00	0	0	1	5	4	6	13	71	88	33	10	2	1	234
8:00	0	0	0	1	1	8	44	96	117	67	12	2	0	348
9:00	0	0	0	0	2	5	19	82	114	44	17	0	1	284
10:00	0	0	0	0	4	5	33	64	91	30	13	1	0	241
11:00	0	0	0	0	7	5	18	75	106	32	10	0	0	253
12:00 PM	1	0	0	0	1	5	12	82	103	61	14	1	0	280
1:00	0	0	0	0	0	1	22	94	114	38	10	2	0	281
2:00	0	0	0	0	6	7	21	108	138	53	8	1	0	342
3:00	0	0	0	0	1	12	75	161	172	41	11	3	0	476
4:00	0	0	0	0	0	3	47	198	175	46	12	4	0	485
5:00	0	0	0	0	3	25	105	183	59	17	2	0	0	394
6:00	0	1	0	0	2	4	39	95	80	29	1	2	0	253
7:00	0	0	0	0	1	4	23	63	48	18	10	0	0	167
8:00	0	0	1	0	0	0	13	39	36	13	1	0	0	103
9:00	0	0	0	0	0	1	6	22	21	8	0	0	0	58
10:00	0	0	0	0	0	0	5	9	8	3	6	0	0	31
11:00	0	0	0	0	0	0	0	1	0	0	0	0	0	1
Total	1	1	3	8	33	103	530	1499	1500	548	142	21	3	4392

Percentile	15th	50th	85th	95th
Speed	45	51	56	59
Mean Speed (Average)	50.1			
10 MPH Pace Speed	45-54			
Number in Pace	2980			
Percent in Pace	67.9%			
Number > 50 MPH	2214			
Percent > 50 MPH	50.4%			

Grand Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percentile	15th	50th	85th	95th										
Speed	46	51	56	60										
Mean Speed (Average)	50.4													
10 MPH Pace Speed	45-54													
Number in Pace	5947													
Percent in Pace	67.5%													
Number > 50 MPH	4584													
Percent > 50 MPH	52.0%													

Accurate Counts  
978-664-2565

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: Combined

22123001

1/31/2023	0 - 15	> 15 -	> 20 -	> 25 -	> 30 -	> 35 -	> 40 -	> 45 -	> 50 -	> 55 -	> 60 -	> 65 -	> 70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	0	3	1	1	2	1	1	0	1	10
1:00	0	0	0	0	0	0	0	1	1	1	0	1	0	4
2:00	0	0	0	0	0	0	0	1	0	1	0	1	0	3
3:00	0	0	0	0	0	0	0	1	1	0	2	0	0	4
4:00	0	0	0	0	0	3	3	9	9	4	1	0	0	29
5:00	0	0	0	0	0	5	17	35	18	6	2	0	1	84
6:00	0	0	0	2	3	23	77	119	69	22	2	2	0	319
7:00	0	0	0	2	6	55	218	272	151	43	13	3	0	763
8:00	0	0	0	0	9	34	182	300	192	88	29	2	0	836
9:00	0	1	0	0	10	25	105	201	148	55	16	1	2	564
10:00	0	0	0	0	6	24	120	158	141	64	12	1	0	526
11:00	0	0	0	0	0	17	119	172	152	52	15	2	0	529
12:00 PM	1	0	2	18	24	45	113	157	136	46	7	0	0	549
1:00	0	0	0	0	7	23	91	178	190	51	8	1	1	550
2:00	0	0	0	0	2	18	146	222	215	82	18	3	1	707
3:00	0	0	1	1	4	20	125	295	258	80	19	1	0	804
4:00	0	2	0	0	2	15	109	283	250	66	5	3	1	736
5:00	0	0	1	0	9	34	128	273	163	46	4	1	1	660
6:00	0	0	0	0	4	19	109	172	112	35	10	1	1	463
7:00	0	0	0	0	0	17	41	105	79	35	10	0	1	288
8:00	0	0	0	0	0	7	54	77	64	21	3	0	0	226
9:00	0	0	0	1	0	12	19	41	38	8	5	2	0	126
10:00	0	0	0	0	1	2	10	16	12	3	1	3	0	48
11:00	0	0	0	0	0	2	4	5	10	3	0	0	0	24
Total	1	3	4	24	87	403	1791	3094	2411	813	183	28	10	8852

Percentile	15th	50th	85th	95th
Speed	43	49	55	58
Mean Speed (Average)	48.6			
10 MPH Pace Speed	45-54			
Number in Pace	5493			
Percent in Pace	62.1%			
Number > 50 MPH	3445			
Percent > 50 MPH	38.9%			

Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA  
Direction: Combined

2/1/2023	0 - 15	> 15 -	> 20 -	> 25 -	> 30 -	> 35 -	> 40 -	> 45 -	> 50 -	> 55 -	> 60 -	> 65 -	> 70	Total
Time	MPH	20 MPH	25 MPH	30 MPH	35 MPH	40 MPH	45 MPH	50 MPH	55 MPH	60 MPH	65 MPH	70 MPH	MPH	
12:00 AM	0	0	0	0	0	1	2	3	3	1	3	1	0	14
1:00	0	0	0	0	0	0	0	2	0	1	0	1	0	4
2:00	0	0	0	0	0	0	1	0	1	0	0	1	1	4
3:00	0	0	0	0	1	0	0	1	0	0	0	0	0	2
4:00	0	0	0	0	1	2	7	5	4	2	0	0	0	21
5:00	0	0	0	0	0	17	16	23	12	9	2	0	0	79
6:00	0	0	1	5	18	55	101	72	31	4	0	0	0	287
7:00	0	1	1	13	12	28	177	266	163	45	11	2	1	720
8:00	0	0	0	1	3	50	186	289	247	90	13	2	0	881
9:00	0	1	0	0	5	24	90	211	184	61	18	1	1	596
10:00	0	0	0	0	5	24	96	168	158	43	17	1	0	512
11:00	0	0	0	0	10	33	119	177	157	38	12	0	0	546
12:00 PM	1	0	0	0	2	14	98	167	156	71	14	1	0	524
1:00	0	0	0	0	0	17	93	202	172	46	11	2	0	543
2:00	0	0	0	1	6	17	86	226	202	66	9	1	0	614
3:00	0	0	0	0	2	26	185	294	268	56	13	3	0	847
4:00	0	0	0	0	4	21	115	319	257	59	12	4	0	791
5:00	0	0	0	2	14	90	252	239	74	20	2	0	0	693
6:00	0	1	0	0	5	40	111	136	98	34	1	2	0	428
7:00	0	1	0	0	4	21	76	111	67	21	10	0	0	311
8:00	0	0	1	0	1	12	48	76	57	18	1	0	0	214
9:00	0	0	0	0	0	5	27	43	29	9	0	0	0	113
10:00	0	0	0	0	0	3	18	18	17	3	8	0	0	67
11:00	0	0	0	0	1	0	3	2	1	0	0	0	0	7
Total	1	4	3	22	94	500	1907	3050	2358	697	157	22	3	8818

Percentile	15th	50th	85th	95th
Speed	43	49	54	58
Mean Speed (Average)	48.1			
10 MPH Pace Speed	45-54			
Number in Pace	5399			
Percent in Pace	61.2%			
Number > 50 MPH	3237			
Percent > 50 MPH	36.7%			

Grand Total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Percentile	15th	50th	85th	95th										
Speed	43	49	54	58										
Mean Speed (Average)	48.4													
10 MPH Pace Speed	45-54													
Number in Pace	10892													
Percent in Pace	61.6%													
Number > 50 MPH	6682													
Percent > 50 MPH	37.8%													

Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA

1/31/2023 Time	NB		Hour Totals		SB		Hour Totals		Combined Totals	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	2	72			3	59				
12:15	0	63			2	83				
12:30	0	58			0	81				
12:45	2	67	4	260	1	66	6	289	10	549
1:00	0	65			0	66				
1:15	0	70			2	62				
1:30	1	67			0	82				
1:45	0	62	1	264	1	76	3	286	4	550
2:00	0	77			1	82				
2:15	0	68			0	74				
2:30	1	78			1	97				
2:45	0	93	1	316	0	138	2	391	3	707
3:00	0	80			0	104				
3:15	0	97			0	133				
3:30	1	91			1	101				
3:45	2	71	3	339	0	127	1	465	4	804
4:00	4	57			1	132				
4:15	1	81			4	103				
4:30	2	78			3	117				
4:45	6	86	13	302	8	82	16	434	29	736
5:00	7	71			4	90				
5:15	9	88			8	97				
5:30	15	54			14	102				
5:45	20	71	51	284	7	87	33	376	84	660
6:00	35	88			13	80				
6:15	39	46			21	76				
6:30	56	34			34	48				
6:45	74	46	204	214	47	45	115	249	319	463
7:00	89	31			37	38				
7:15	128	33			47	42				
7:30	138	38			78	44				
7:45	159	27	514	129	87	35	249	159	763	288
8:00	134	22			96	59				
8:15	137	33			99	25				
8:30	116	26			92	30				
8:45	97	17	484	98	65	14	352	128	836	226
9:00	86	16			82	12				
9:15	71	20			77	12				
9:30	74	22			71	15				
9:45	60	17	291	75	43	12	273	51	564	126
10:00	68	9			61	12				
10:15	76	4			49	6				
10:30	74	3			79	6				
10:45	67	4	285	20	52	4	241	28	526	48
11:00	58	4			68	2				
11:15	75	6			66	2				
11:30	61	2			63	1				
11:45	67	5	261	17	71	2	268	7	529	24
Total	2112	2318			1559	2863			3671	5181
Percent	47.7%	52.3%			35.3%	64.7%			41.5%	58.5%

Accurate Counts  
978-664-2565

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA

22123001

2/1/2023 Time	NB		Hour Totals		SB		Hour Totals		Combined Totals	
	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
12:00	1	68			2	75				
12:15	1	77			2	65				
12:30	3	49			1	77				
12:45	1	50	6	244	3	63	8	280	14	524
1:00	1	58			1	72				
1:15	0	61			1	65				
1:30	0	79			0	65				
1:45	0	64	1	262	1	79	3	281	4	543
2:00	0	62			0	72				
2:15	0	78			0	55				
2:30	1	65			1	108				
2:45	0	67	1	272	2	107	3	342	4	614
3:00	0	78			0	120				
3:15	0	90			0	121				
3:30	1	103			0	102				
3:45	1	100	2	371	0	133	0	476	2	847
4:00	2	75			0	138				
4:15	1	76			3	133				
4:30	1	79			2	119				
4:45	5	76	9	306	7	95	12	485	21	791
5:00	4	74			11	110				
5:15	11	83			11	109				
5:30	11	68			5	92				
5:45	19	74	45	299	7	83	34	394	79	693
6:00	23	55			11	83				
6:15	42	40			23	59				
6:30	57	40			35	60				
6:45	64	40	186	175	32	51	101	253	287	428
7:00	96	43			37	53				
7:15	118	37			46	42				
7:30	128	31			66	39				
7:45	144	33	486	144	85	33	234	167	720	311
8:00	112	32			106	39				
8:15	152	36			76	29				
8:30	145	24			67	16				
8:45	124	19	533	111	99	19	348	103	881	214
9:00	117	25			73	23				
9:15	54	13			85	10				
9:30	73	11			62	8				
9:45	68	6	312	55	64	17	284	58	596	113
10:00	84	8			58	12				
10:15	66	17			60	9				
10:30	72	8			70	5				
10:45	49	3	271	36	53	5	241	31	512	67
11:00	68	6			70	1				
11:15	78	2			59	2				
11:30	85	1			59	1				
11:45	62	3	293	12	65	8	253	12	546	24
Total	2145	2287			1521	2882			3666	5169
Percent	48.4%	51.6%			34.5%	65.5%			41.5%	58.5%
Grand Total	4257	4605			3080	5745			7337	10350
Percent	48.0%	52.0%			34.9%	65.1%			41.5%	58.5%

Accurate Counts  
978-664-2565

22123001

Location : Route 3A  
Location : South of Old Forge Road  
City/State: Scituate, MA

1/30/2023	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday		Sunday		Week Average	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	4	6	6	8	*	*	*	*	*	*	*	*	5	7
1:00	*	*	1	3	1	3	*	*	*	*	*	*	*	*	1	3
2:00	*	*	1	2	1	3	*	*	*	*	*	*	*	*	1	2
3:00	*	*	3	1	2	0	*	*	*	*	*	*	*	*	2	0
4:00	*	*	13	16	9	12	*	*	*	*	*	*	*	*	11	14
5:00	*	*	51	33	45	34	*	*	*	*	*	*	*	*	48	34
6:00	*	*	204	115	186	101	*	*	*	*	*	*	*	*	195	108
7:00	*	*	514	249	486	234	*	*	*	*	*	*	*	*	500	242
8:00	*	*	484	352	533	348	*	*	*	*	*	*	*	*	508	350
9:00	*	*	291	273	312	284	*	*	*	*	*	*	*	*	302	278
10:00	*	*	285	241	271	241	*	*	*	*	*	*	*	*	278	241
11:00	*	*	261	268	293	253	*	*	*	*	*	*	*	*	277	260
12:00 PM	*	*	260	289	244	280	*	*	*	*	*	*	*	*	252	284
1:00	*	*	264	286	262	281	*	*	*	*	*	*	*	*	263	284
2:00	*	*	316	391	272	342	*	*	*	*	*	*	*	*	294	366
3:00	*	*	339	465	371	476	*	*	*	*	*	*	*	*	355	470
4:00	*	*	302	434	306	485	*	*	*	*	*	*	*	*	304	460
5:00	*	*	284	376	299	394	*	*	*	*	*	*	*	*	292	385
6:00	*	*	214	249	175	253	*	*	*	*	*	*	*	*	194	251
7:00	*	*	129	159	144	167	*	*	*	*	*	*	*	*	136	163
8:00	*	*	98	128	111	103	*	*	*	*	*	*	*	*	104	116
9:00	*	*	75	51	55	58	*	*	*	*	*	*	*	*	65	54
10:00	*	*	20	28	36	31	*	*	*	*	*	*	*	*	28	30
11:00	*	*	17	7	6	1	*	*	*	*	*	*	*	*	12	4
Total	0	0	4430	4422	4426	4392	0	0	0	0	0	0	0	0	4427	4406
Day	0	0	8852	8818	8818	8818	0	0	0	0	0	0	0	0	8833	8833
AM Peak			7:00	8:00	8:00	8:00									8:00	8:00
Volume			514	352	533	348									508	350
PM Peak			3:00	3:00	3:00	4:00									3:00	3:00
Volume			339	465	371	485									355	470
Comb Total	0	0	8852	8818	8818	8818	0	0	0	0	0	0	0	0	8833	8833
ADT			ADT: 8.847	ADT: 8.847	ADT: 8.847	ADT: 8.847										

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

urban minor arteria

rural major collector

<b>Recreational - East Group</b> - 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.
<b>Recreational - West Group</b> - 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.



**Institute of Transportation Engineers (ITE); 11th Edition  
Land Use Code (LUC) 170 - Utilities**

Average Vehicle Trips Ends vs: 1000 Sq. Feet Gross Floor Area  
Independent Variable (X): 30.000

**AVERAGE WEEKDAY DAILY**

$\ln T = 0.74 \ln (X) + 2.73$   
 $\ln T = 5.25$   
 $T = 189.97$   
 $T = 190$  vehicle trips  
with 50% ( 95 vpd) entering and 50% ( 95 vpd) exiting.

**WEEKDAY DAILY Average Rate**

$T = 12.29 * (X)$   
 $T = 368.70$   
 $T = 369$  vehicle trips  
with 50% ( 185 vpd) entering and 50% ( 184 vpd) exiting.

**WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC**

$T = 2.33 * (X)$   
 $T = 69.90$   
 $T = 69$  vehicle trips  
with 87% ( 60 vpd) entering and 13% ( 9 vpd) exiting.

**WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC**

$\ln T = 0.81 \ln (X) + 0.86$   
 $\ln T = 3.61$   
 $T = 37.15$   
 $T = 37$  vehicle trips  
with 18% ( 7 vpd) entering and 82% ( 30 vpd) exiting.

**WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC**

$T = 2.16 * (X)$   
 $T = 64.80$   
 $T = 65$  vehicle trips  
with 18% ( 12 vpd) entering and 82% ( 53 vpd) exiting.

