Sunset City

A Proposed Campground and Motocross / Offroad Park
Brookfield Road
Charlton, MA

Traffic Impact Analysis

January 13, 2015

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1. INTRODUCTION

This report documents the findings and conclusions of a traffic impact analysis conducted for Sunset City, a proposed 150 ± site campground with a Motocross Track/Offroad Park submitted to the Charlton Planning Board for site plan approval. This facility is to be located on a large tract of land (Charlton Assessors' Map 26. Block D, Parcels 13 through 16), located south of Brookfield Road and east of Route 49. The entrance / exit driveway is to be located on Brookfield Road across the street from house # 216 Brookfield Road.

The parcel has frontage on both Brookfield Road in Charlton and State Route 49 (Podunk Pike) in Sturbridge, however only the portion of the property within Charlton is included in this development. (See Appendix E Site Plan). Access to the site will be restricted to Brookfield Road, with a secondary "emergency only" connection to Bond Sawmill Road, with non-emergency use of that connection to Route 49 prohibited . This access will only be available if an emergency occurs that totally prohibits entry onto Brookfield Road from the site.

A Campground and Motocross / Offroad Park compliment each other when studying traffic generated by both sites. During the busiest period of the Motocross or Offroad Park usage, many of the participants will be staying at the campground whether recreational riders or entered in a competition, thus those riders vehicles will not be arriving or leaving before or after an event or daily ride. This significantly reduces the trips generated by the recreational facilities. Also both uses are typically utilized more extensively on the weekends during the peak periods when Brookfield Road traffic volumes are approximately 40%+ lower than on weekdays. The site users also tend to arrive or depart during non-commuter peak traffic hours during the weekdays as well, thus not adding to the highest travel hours on Brookfield Road.

Currently the site property is mostly undeveloped with the exception of the entryway at Brookfield Road where an existing equipment yard stores tractor trailer boxes and miscellaneous equipment and a single family house at the southern end near the campground area. A linear gravel driveway will extend to the main site from Brookfield Road to both the Campground and Motocross site as shown on the plans found in Appendix E, with loop driveways surrounding both portions of the recreational uses. All site traffic will utilize the Brookfield Road driveway intersection to enter and exit the site.

The anticipated build-out would likely occur within a year or two, and certainly within five years full traffic use will be developed for the area. See Figure 1 - Location Map for project location. discussions with the Town Planner it was agreed that an in-depth analysis of the site driveway intersection on Brookfield Road would be conducted to determine any impacts to that intersection. Other major intersections are approximately 1.8 to 2 miles from the site driveway and are considered remote from the site access/egress. Therefore the site driveway, where all site trips will enter Brookfield Road, is to be the concentration of this study. For future site trips we will also show the estimated number of peak hour site trips passing through intersections spanning to State Route 20 to the east and State Route 49 to the west.

This traffic report has been prepared for submission to the Town of Charlton Planning Board, the review agent for Site Plan projects. The traffic related issues addressed in this report are:

- Collect new traffic and speed counts on Brookfield Road near the proposed site driveway intersection for 48 hours during weekdays and 48 hours for a weekend.
- Adjustment of the new counts for time of year adjusting to an average month per areawide MDOT monthly count statistics.
- Analyze the existing road / site driveway intersection capacity to handle existing traffic volumes without the project, during the peak AM, MD, PM periods in the year 2014 as counted for weekday and weekend.
- Project future traffic in 5 years 2019 with and without full build-out using a local increase of 1% growth per year for the background traffic at the study intersection during AM, MD and PM peak weekday and weekend travel hours.
- Estimate site generated traffic volumes and their anticipated distribution onto Brookfield Road at the site intersection for future 2019 Build traffic volumes.
- Analyze 2019 traffic operations with and without this development's traffic at the site Driveway / Brookfield Road intersection(2019 Build vs. No-Build) to determine any degradation of level of service if beyond acceptable limits.
- Review of accident history at the Brookfield Road / Site Driveway intersection and any accidents along Brookfield Road nearby to the Study Intersection.
- Measurement of available sight distance for site driveway onto Brookfield Road.

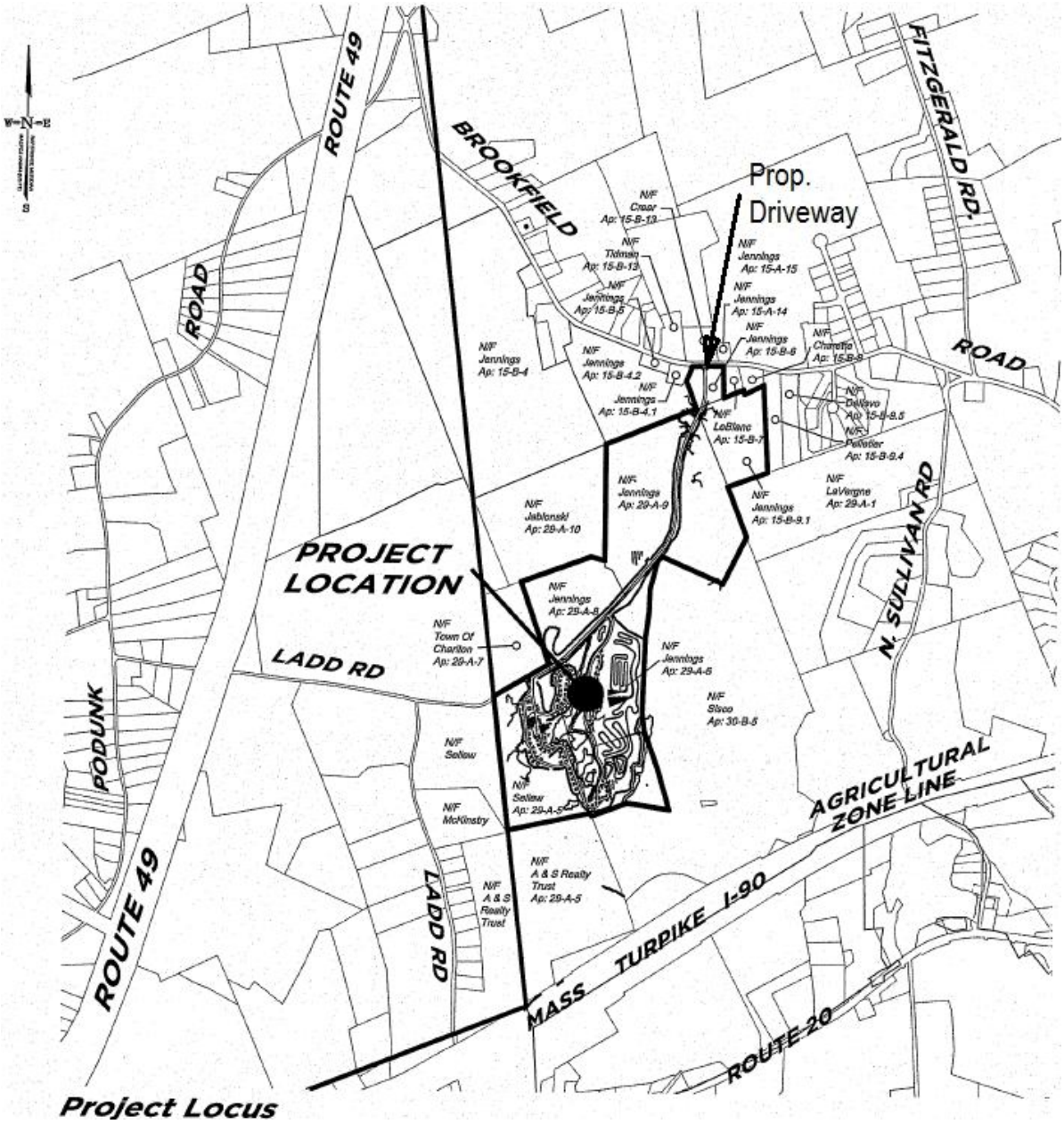
1.1 Scope of Study

Evaluation and analysis of this project included a field review of existing conditions (i.e. lane widths, road layout and alignments), collection of new 5 Day 2-way traffic 24 Hour counts on Brookfield Road, creation of AM, MidDay(MD) and PM peak hour weekday and weekend intersectional turning movement counts (TMC's) from the 24 Hour counts. Since the study intersection does not exist today the 24 Hour counts include all traffic to be analyzed for the No-Build scenario. Capacity analyses of pre- versus post-construction with and without the site traffic is to be conducted to determine what effect the site will have on Brookfield Road's ability to accommodate the new site traffic. A review of accident data for the study intersection and Brookfield Road to the Sturbridge Town Line, 0.75 Miles north and to Osgood Road, 1.0 mile to the south is included. Based on a discussion with the Charlton Planner, the traffic analysis concentrated on the single intersection that is most likely to be impacted by the proposed development, namely:

- Brookfield Road at Proposed Site Driveway.

1.2 *Area Previous Development Proposals & Filings*

Previously several projects have been proposed in Charlton, generally along the Route 20 corridor and various roadways. However, discussions with Charlton Planner indicates that those projects will not likely impact the traffic levels on Brookfield Road, a connector commuter route between Route 49 and Route 20. Therefore it was agreed that those remote site development's traffic projections are not expected to travel along Brookfield Road.



Locus Copied from Cover Sheet of Plans Submitted to Charlton Planning Board

Drawn By Bertin Engineering Dated 12-09-14

Scale: N.T.S.

BTTC

Proposed Campground & Motocross Park

Entrance Driveway Off Brookfield Road

CHARLTON, MASSACHUSETTS

FIGURE 1

LOCUS

BRISTOL TRAFFIC & TRANSPORTATION CONSULTING, LLC N. BROOKFIELD, MA

2. EXISTING CONDITIONS

The existing roadway and intersection adjacent to the site were evaluated including land uses, geometrics and traffic volumes.

2.1 Land Uses

Located within the vicinity of the proposed development along Brookfield Road there are mainly residential frontage lots with several relatively minor new residential developments. At the site driveway there exists an equipment yard.

2.2 Existing Roadways

The roadways serving the study area, which may be most impacted by the proposed project include Brookfield Road and the site driveway.

Brookfield Road

Brookfield Road is a town owned 2 lane 2-way rural roadway approximately 24 to 25 feet in width, spanning between the Sturbridge Town Line near Route 49 to the northwest and Route 20 to the southeast, a length of approximately 3 miles. The site driveway is approximately 2 miles from Route 20 and 1 mile from Route 49. Route 49 to the west provides access to Route 20 not far from the Mass Turnpike Sturbridge interchange and near to the northern end of Route 84 traveling south through Hartford toward New York City and the Connecticut shore. Route 49 also connects to the north to Route 9, an east-west collector roadway connecting many towns to the northeast and northwest.

Several minor roads intersect Brookfield Road within a mile of the site study intersection with minor traffic volumes added to the Brookfield Road commuter traffic during weekday AM and PM peak travel hours east of the site driveway. Appendix A shows the hourly and daily traffic volumes counted adjacent to the site driveway, with 24 Hr December 2014 Volume graphs indicating a heavier weekday commuter pattern southbound in the AM and northbound in the PM peak hours. Midday weekday traffic volumes drop significantly.

Weekend travel slowly peaks midday to about 40+% fewer vehicles than normal weekday peak volumes. Weekend volumes also do not show a

pronounced AM and PM reversed peak travel direction as the graphs show in Appendix A.

The posted speed limit on Brookfield Road is 35 mph approaching the study intersection for both directions. Brookfield Road climbs a small hill approaching from both directions, reaching it's crest at the proposed site driveway. Brookfield Road speed is reduced to a posted speed of 30 MPH to the southeast, well beyond the site driveway location.

Proposed Site Driveway

The proposed site driveway is to be a 24 foot wide gravel surface intersecting Brookfield Road slightly west of the current gravel driveway to the equipment storage area. The site driveway will traverse the site to the Campground and Motocross / Offroad Park approximately 3/4 of a mile into the undeveloped site.

2.3 Existing Intersection

Brookfield Road at Proposed Site Driveway

The existing study intersection will consist of the 2-lane 2-way paved Brookfield Road with a new 24 foot wide gravel driveway to be constructed slightly west of the existing equipment yard driveway. Shifting the proposed driveway west, into what is currently part of the existing wooden barn to be removed, provides an intersection located at the crest of a small hill. This chosen location provides the optimum lines of sight in both directions, while avoiding exiting vehicle headlights being cast directly into the house across the street.

Stopping sight distance measurements at this intersection are provided later in this report.

2.4 Existing Traffic Operations

2.4.1 Traffic Counts

In order to quantify existing traffic conditions and identify predominant traffic patterns, since there is no site traffic using the driveway today, BTTC had 24 hour 2-way Automatic Traffic Recorder (ATR) counts performed during both weekdays and weekend days, with peak periods utilized as turning movement traffic counts at the proposed driveway

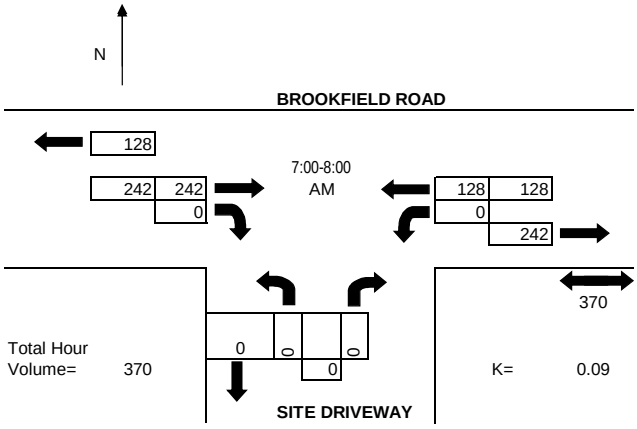
study intersection. ATR counts were collected for the three weekdays of December 17, 2014 (Weds.) through the 19th and weekend ATR counts continued on December 20 (Sat.) through the 21st. Those counts were adjusted for average month based on the MDOT historical 24 hour monthly data included in Appendix A. Since this site will have the greatest use in summer months, the counts were also adjusted to the average for month June-August for the turning movement count Figures 2-12 used for analysis.

Intersection turning movement counts were created showing no side street traffic for the Wednesday and Saturday peak hours, to be utilized for a capacity analysis of the new driveway intersection. Wednesday had virtually equal 24 hour traffic volumes at 3,880 vehicles versus Thursday with 3,902 vehicles, yet Wednesday had a higher 2-Way AM and PM peak hour than Thursday. Friday showed approximately 100 more total daily volume, however once again the highest 2-Way peak hour volumes were on Wednesday. Wednesday, peak hours were between 7:00 AM and 8:00 AM, 12:30 PM and 1:30 PM, then again between 4:15 and 5:15 PM. The seasonally adjusted weekday 2014 existing turning movement count data can be found in Figure 2.

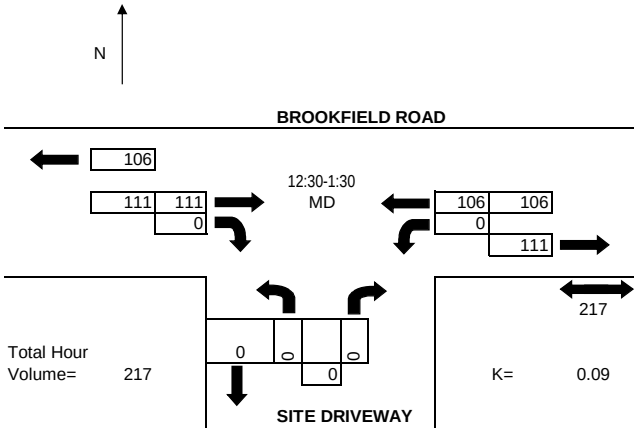
The weekend Saturday count was utilized to create peak hour intersection counts for analysis, since it had a significantly higher volume over Sundays volume. The Saturday count showed more than 700 fewer vehicles than weekday 24 hour counts. Saturday peak hours were between 7:00 AM and 8:00 AM, 12:30 PM and 1:30 PM, and between 4:15 and 5:15 PM. The 2014 seasonally adjusted weekend peak hour turning movement count data can be found in Figure 3.

Brookfield Road / Site Driveway
Existing No-Build 2014 Weekday Peak Hour Turning Movement Counts
(Adjusted to Average Month and to Summer Increased Volumes)

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 7:00 AM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 12:30 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 4:15 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain

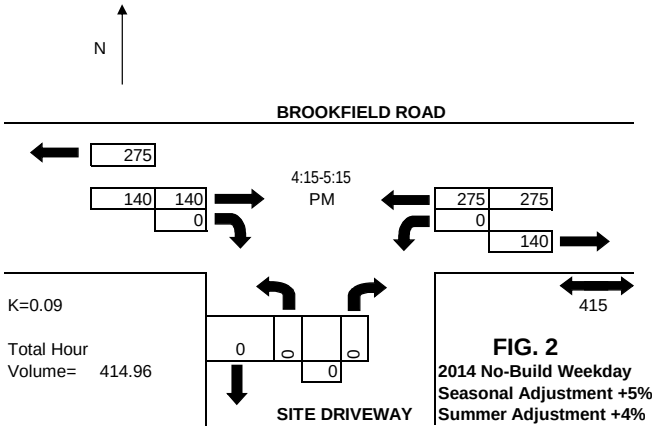
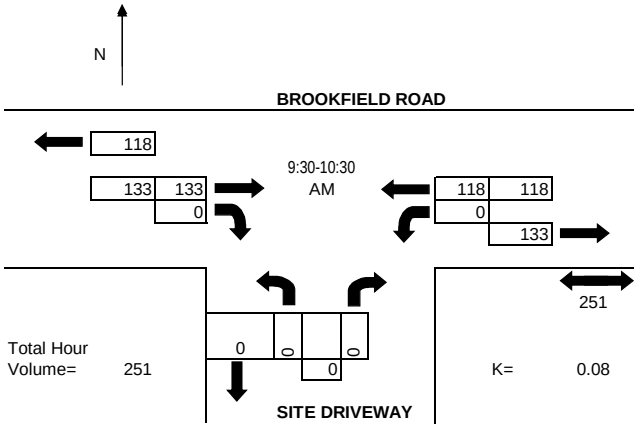


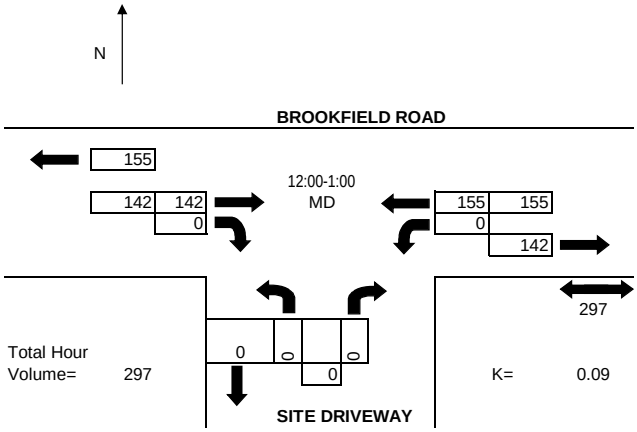
FIG. 2
2014 No-Build Weekday
Seasonal Adjustment +5%
Summer Adjustment +4%

Brookfield Road / Site Driveway
Existing No-Build 2014 Weekend Peak Hour Turning Movement Counts
(Adjusted to Average Month and to Summer Increased Volumes)

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 9:30 AM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with 12:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with 2:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear

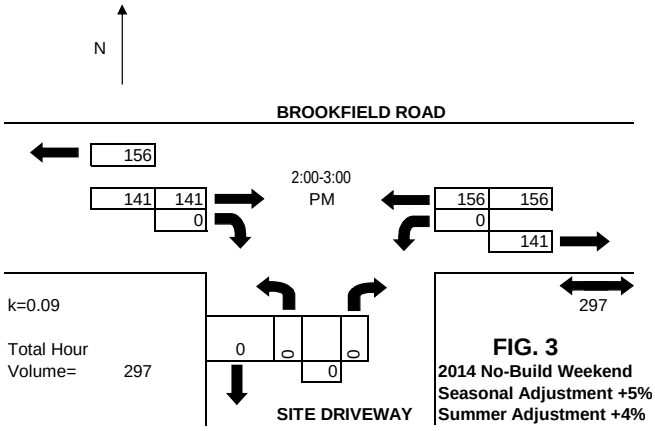


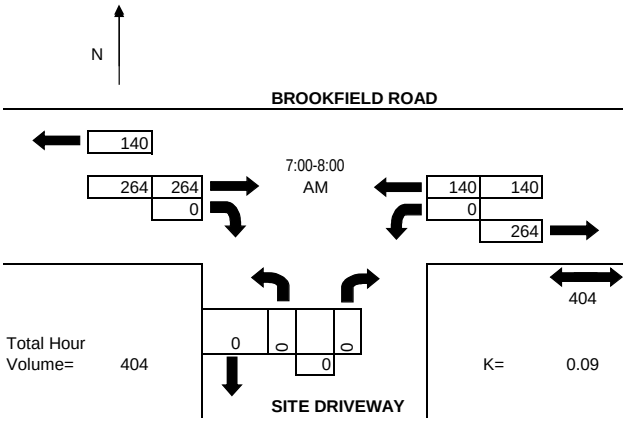
FIG. 3
2014 No-Build Weekend
Seasonal Adjustment +5%
Summer Adjustment +4%

Future Year (2019) No-Build Traffic Volumes

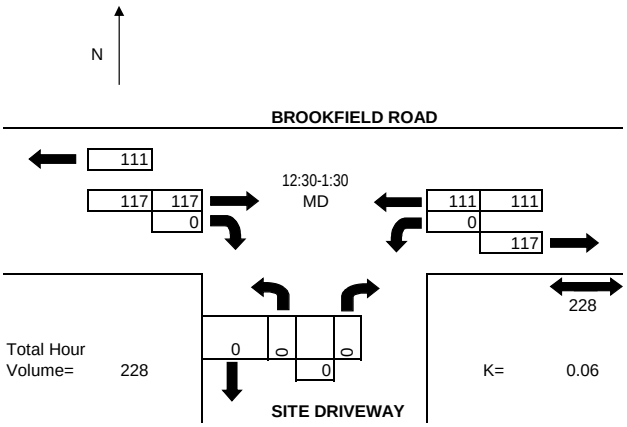
Based on the 1.0% annual growth rate assumed for the project area, existing background traffic data was projected five years into the future (5.1% increase). This traffic was added to the 2014 seasonally adjusted count data to arrive at the Future (2019) "No Build" traffic volumes. Those traffic volumes for weekday AM, MD and PM peak hours are illustrated in Figure 4. 2019 No-Build weekend volumes follow in Figure 5.

Brookfield Road / Site Driveway
Future No-Build 2019 Weekday Peak Hour Turning Movement Counts
(Annual Growth Rate +1%)

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 7:00 AM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 12:30 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 4:15 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain

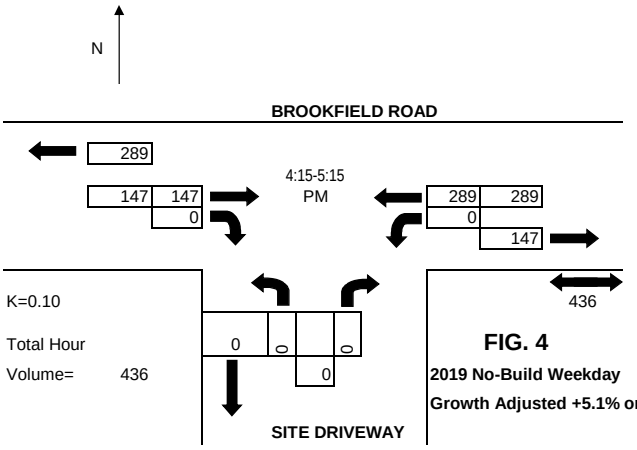


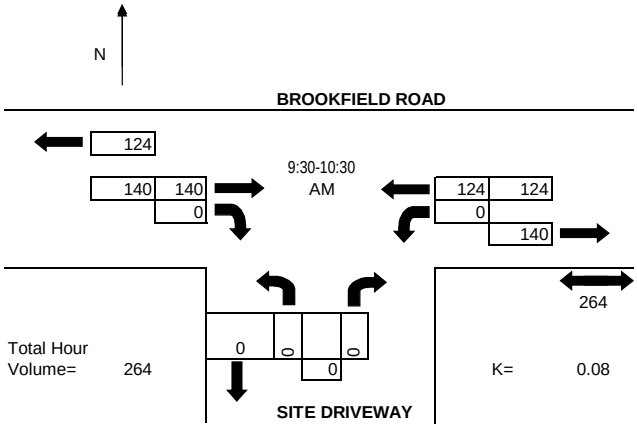
FIG. 4

2019 No-Build Weekday

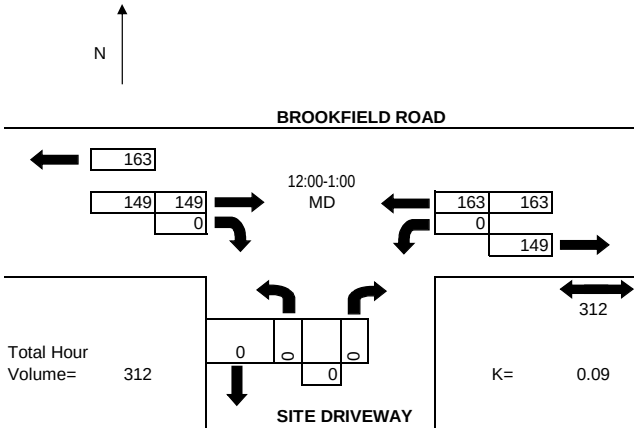
Growth Adjusted +5.1% onto 2014

Brookfield Road / Site Driveway
Future No-Build 2019 Weekend Peak Hour Turning Movement Counts
(Annual Growth Rate +1%)

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 9:30 AM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with 12:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with 2:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear

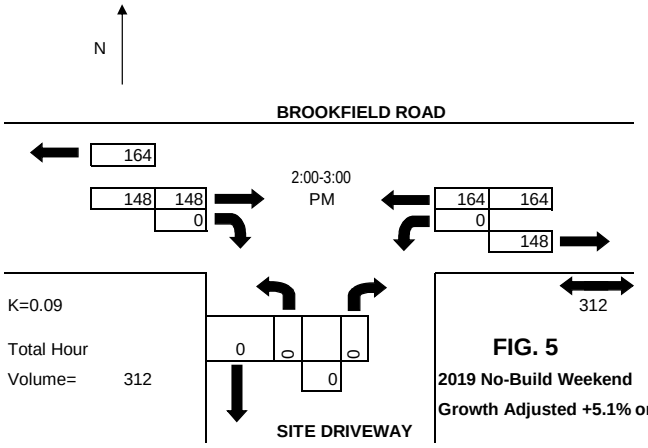


FIG. 5

2019 No-Build Weekend

Growth Adjusted +5.1% onto 2014

2.4.2 Capacity Analysis

Using the turning movement traffic counts shown on Figures 2 and 3, existing conditions capacity analyses were performed for the existing study intersection. The analyses were performed using the Synchro Highway Capacity Software by Trafficware.

Capacity analysis assesses traffic operations in terms of Level of Service (LOS), which is a concept that was developed by transportation engineers to quantify the level of operation of intersections and roadways. LOS measures are classified in grades "A" through "F" indicating a range of operation from LOS "A", signifying the least congested level of operation, to "F", the worst, which is considered failure.

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. Specifically in the HCM, level-of-service (LOS) criteria are stated in terms of the average control delay per vehicle for the analysis period. Control delay includes initial deceleration delay, queue move up time, stopped delay and final deceleration delay. The criteria is given in Table 1. Delay may be measured in the field or estimated using procedures presented in the HCM. Delay is a complex measure and is dependent upon a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question. The average control delay for any particular minor movement is a function of the capacity of the approach and the degree of saturation.

Level of Service Definitions for Signalized Intersections

- LOS A describes operations with very low delay, up to 10 seconds per vehicle. This level of service occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

- LOS B describes operations with delay greater than 10 and up to 20 seconds per vehicle. This level generally occurs with good progression, short cycle lengths, or both. More vehicles stop than with LOS "A", causing higher levels of average delay.

- LOS C describes operations with delay greater than 20 and up to 35 seconds per vehicle. These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many still pass through the intersection without stopping.

- LOS D describes operations with delay greater than 35 and up to 55 seconds per vehicle. At Level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.

- LOS E describes operations with delay greater than 55 and up to 80 seconds per vehicle. This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

- LOS F describes operations with delay in excess of 80 seconds per vehicle. This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be a major contributing cause to such delay levels.

Table 1 - Level-of-Service Criteria for Unsignalized Intersections

LEVEL OF SERVICE (LOS)	CONTROL DELAY PER VEHICLE (SEC)
A	0-10
B	>10 and ≤15
C	>15 and ≤25
D	>25 and ≤35
E	>35 and ≤50
F	>50

Generally, LOS "D" is considered the threshold limit of acceptable operation for intersections.

The 2014 existing conditions (No-Build) LOS calculations (found in Appendix B) for the study intersection has been evaluated for the previously defined weekday and weekend AM and PM peak hours. The findings of the existing conditions capacity analyses are summarized in Table 2.

Table 2
Existing Conditions No-Build (2014) Capacity Analyses

	Weekday AM Peak			Weekday PM Peak		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site Dr./Brookfield Rd:						
NB Left	-	-	-	-	-	-
NB Approach	-	-	-	-	-	-
EB Through	-	0	A	0	0	A
EB Approach	0.17	0	A	0.1	0	A
WB Through	0	0	A	0	0	A
WB Approach	0	0	A	0	0	A
Overall Intersection	0	0	A	0	0	A

[a] HCM Volume to capacity ratio.
[b] HCM Average Control Delay in seconds per vehicle.
[c] HCM Level of Service.

Based on the information provided in Table 2 above, we can see that all Brookfield Road movements experience excellent levels of service at the highest LOS possible, "A". Volumes on this road during weekdays peak at morning and evening commute hours, however the volumes are relatively low with sizable reserve capacity to accommodate significantly more traffic before delays are noticeable

Table 3
Existing Conditions No-Build (2014) Capacity Analyses

	Weekend AM Peak			Weekend PM Peak		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site Dr./Brookfield Rd:						
NB Left	-	-	-	-	-	-
NB Approach	-	-	-	-	-	-
EB Through	-	0	A	-	0	A
EB Approach	.09	0	A	0.1	0	A
WB Through	-	0	A	0	0	A
WB Approach	0	0	A	0	0	A
Overall Intersection	0	0	A	0.1	0	A

[a] HCM Volume to capacity ratio.
[b] HCM Average Control Delay in seconds per vehicle.
[c] HCM Level of Service.

Based on the information provided in Table 3 above, the same discussion as noted above for Table 2 pertains to this analysis period as well.

2.4.3 Accident Data

Accident data for the years 2010 through 2012 was retrieved from the Massachusetts Highway Department's Accident Record System for the 3/4 mile to the Sturbridge town line and for 1 mile south to Osgood Road to calculate a segment crash rate. Those accidents are highlighted in grey on the printout of all Brookfield Road accidents extending to Route 20, provided for general information along the remaining length of Brookfield Road. Given the existing relatively low volume of traffic shown in the traffic counts, the average accident rate for the intersection was computed based on the MDOT Highway Division Crash Rate Worksheet Standard Procedures (Calculation worksheets of this accident rate and the accident data can be found in Appendix C).

Accidents were included based on their listed intersection or coordinate location. When reviewing accident statistics for a given intersection, one must not only look at the total number of accidents, but also the volume of vehicles passing through the intersection. Generally speaking, the higher the traffic volumes the more accidents one can expect to see, since there are more vehicles interacting, resulting in more opportunities for inattentive drivers to collide. Thus the Crash Rate Worksheet calculates a "rate" based on Millions of Vehicles entering the intersection during a year. This calculation allows one to compare the study intersection to the average rate for District wide intersections.

The results of the accident analysis are shown below in Table 3. Since the new driveway does not yet exist, we looked for any accidents close to the proposed driveway location and found none.

Table 4
Accident Analysis

Intersection	2010-2012 Average # of Accidents/Year	Crash Rate (Accidents/Million Entering Vehicles (MEV)
Site Drive/Brookfield Rd	0	0

From review of Table 3, the crash rate for the study intersection is below the MDOT Highway Division District 3 average rate of 0.66 accidents per Million Entering Vehicles for unsignalized intersections.

For the 1.75 mile road segment spanning between the Sturbridge Town Line and Osgood Road, we found 14 accidents to the east and 3 accidents to the west of the proposed site driveway. The Segment Crash Rate is also calculated using the MDOT worksheet form and is found in Appendix C.

The segment crash rate of 2.27 Accidents per Million Miles Driven is above the MDOT Average Crash Rate of 1.61 for a Rural Major Collector (such as Brookfield Road). Interestingly, of the 14 easterly accidents, only 5 accidents involved another vehicle with no injuries. The other 9 accidents involved off the road accidents hitting 5 utility poles, 2 embankments, a curbing and a ditch. Only the Curbing involved an injury. To the west the 3 accidents involved hitting 2 utility poles with both including injuries and 1 non-injury property damage vehicle accident.

Guidelines in the Federal Highway Administration's (FHWA) Handbook for Highway Engineering Studies state that intersection accident rates of 3.0 or greater indicate a need for mitigation at the intersection while rates between 1.0 and 2.9 indicate a need to monitor or study these locations for possible future increases. Because the calculated intersection rates are less than the District average, further mitigation appears unnecessary at this time. However the 1.75 mile segment rate is higher than the MDOT average. Likely due to speeding and loss of vehicle control.

Table 5
1.75 Mile Segment Accidents by Type

Intersection	Accidents by Type		Total Accident Count			
Brookfield Road	Angle Vehs.	UP, Ditch, Curb, Bank	Fatal	Injury	PDO	Total
2010	1	7	0	2	6	8
2011	5	0	0	0	5	5
2012	0	4	0	1	3	4
3 Years	6	11	0	3	14	17

2.4.4 Existing Sight Distance

Existing sight distances at intersecting roadways or driveways are an important factor in the safety of both an exiting vehicle and an approaching vehicle. As part of this report, BTTC has measured in the field sight distance at the location of the proposed site driveway on Brookfield Road. The measured sight distance for a vehicle exiting the site driveway is shown in Table 6.

Two types of sight distance requirements for intersecting roadways or driveways as recommended by the American Association of State Highway and Transportation Officials (AASHTO) are the Intersectional Sight Distance (ISD) and Stopping Sight Distance (SSD). ISD is the distance for a vehicle, entering or exiting an intersection or driveway, to anticipate and avoid potential conflicts, based on perception and reaction

times and the maneuverability of each vehicle. SSD is based on the time it takes an approaching vehicle to come to a complete stop once he has seen an object. Even though ISD is desirable, the minimum requirement to be satisfied is the SSD to satisfy safety concerns. ISD is considered desirable from an operational standard, not a safety standard.

The minimum sight distance requirements are set forth in the American Association of State Highway and Transportation Officials (AASHTO) publication titled A Policy on Geometric Design of Highways and Streets, 2011. For a 35 mph speed limit, the stopping sight distance (SSD) for oncoming traffic to safely stop is 250 feet on a flat roadway, however Brookfield Road rises at approximately a 4.5% slope to the site intersection from the east and 3.3% from the west, reducing the needed SSD for 35 mph to 233 and 237 feet. For a 40 mph speed limit, the stopping sight distance for oncoming traffic to safely stop is 283 from the east and 289 from the west. Table 5 below shows the comparison between the required sight distance and the actual field measurements for the posted 35mph speed limit.

Table 6
Summary of Sight Distance Analysis

Location	Stopping Sight Distance (Feet) – 35MPH				
	AASHTO Criteria		Measured SSD / ISD Distance		SSD Criteria Met?
Site Driveway at Brookfield Road	**SSD**	ISD	SSD	ISD	
From the West	**233**	390	445+	525	Yes
From the East	**237**	390	295	335	Yes

Based on the information provided in Table 5, the sight distance measured at the proposed site driveway exceeds the criteria set forth by AASHTO for both the posted 35mph and a 40mph approach speed, 5 MPH over the current 35 MPH posted speed limit, indicating that oncoming vehicles can safely stop if needed. To the west, the limiting factor is the horizontal curve to the north, while to the south the trees on the site property, all of which are to be removed, and the crest of the small hill in Brookfield Road.

It should be pointed out that the traffic count and speed results in Appendix A indicate that the 85th percentile speed on Brookfield Road is 46-47mph. That speed should be police controlled and it is recommended that the speed limit be reduced to 30mph as it is already posted to the east of the project area. A speed well above the posted 35mph may explain why so many accidents result from running off the road into Utility Poles, ditches and embankments, not collisions with other vehicles along 1.75 miles of Brookfield Road between the Sturbridge Town Line and Osgood

Road. Again there were no reported accidents in the immediate vicinity of the proposed site driveway study intersection.

3. PROPOSED DEVELOPMENT TRAFFIC IMPACTS

3.1 Analysis Methodology and Assumptions

Traffic impacts have been estimated in order to determine the extent of change in traffic conditions caused by the development of this project. In order to make this determination, the following assumptions and methodology were employed:

- *The proposed development will be built out within five years.*
- *Existing background traffic in the site area will grow by 1.0% per year for the 5 year study period. This growth rate was discussed with the Town Planner and is similar to accepted rate of growth that MDOT uses for a 5 year period.*
- *The existing year 2014 counts were expanded by 5.1% to arrive at the Future 2019 No-Build traffic volumes. Analysis of these future volumes without the site trips helps determine how well the intersection will operate even if the project is not constructed.*
- *Traffic generation estimates from the project were prepared for the critical weekday and weekend AM, MD and PM peak periods, based on Institute of Transportation Engineers (ITE) Trip Generation data and calculated estimates for the use of the recreational site. Those estimates can be viewed in Appendix D.*
- *Cumulative traffic impacts of the proposed project were then determined by superimposing the project-generated traffic onto the Future 2019 No-Build background adjusted traffic, to create the "2019 Build" scenario for the study intersection.*

3.2 Trip Generation And Distribution

Trip generation estimates were prepared for the proposed development. The traffic estimates were determined using the *Institute of Transportation Engineer's* Publication "*Trip Generation Manual, Ninth Edition"* (TGM) for the 150 site Campground and knowledge of the Motocross and Offroad Park operation and event planning based on other similar active sites. Various studies have determined that particular land uses such as supermarkets, office buildings, and residential and recreational land uses, exhibit certain traffic volume characteristics. Some of these characteristics include: 1) Total entering and exiting volume within a 24-hour period; and 2) Peak hour traffic characteristics. The traffic generation data is then compared to specific land use characteristics such as: the number of

dwelling units, the number of parking spaces, and/or the gross square footage of proposed buildings. This data was then utilized to develop site specific traffic volume estimates for this project.

From the TGM it can be assumed there are three basic trip types associated with any development. They are described as follows:

- ***Pass-by Trips*** - Trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on an adjacent street that contains direct access to the generator. These trips do not require a diversion from another roadway.

- ***Diverted Linked Trips*** - Trips attracted from traffic volume on roadways within the vicinity of the generator, but which require a diversion from that roadway to another roadway to gain access to the site.

- ***Primary Trips*** - Trips made for the specific purpose of visiting the generator. The stop at that generator is the primary reason for the trip.

For a Campground and Motocross / Offroad Park use, only the Primary Trips pertain since the site is the users destination, not a commercial site that tends to draw vehicles that happen to be passing through the area. The TGM provides information on the percentage of trips exiting and entering a Campground site for land use and time period. The other use is a calculated estimate of riders and known scheduled events. The site generation trip calculations can be found in Appendix D.

The ITE land use code utilized to compute the anticipated vehicle trips for the proposed campground complex is Land Use Code (416) – Campground / Recreational Vehicle Park. The calculated trips anticipated to be generated are shown below in Tables 6 and 7 and combined with estimated site trips from the Motocross and Offroad Park based on typical usage at two other active facilities. BTTC shows typical TGM data, which was collected for independent campgrounds whereas this campground will be utilized by users at the Motocross and Offroad Park, thus will generate considerably fewer trips, however for this report, we assume only 33% of the sites will be used by those participants in the Park on event weekends and only 20% are used by riders on weekdays. ITE does not collect midday data so for this analysis it is assumed that the daily trip count minus the peak hour trips are spread out over a 9 hour period with

midday weighted by +20% over the average for non-event days and by +40% for event days.

Table 7
Summary of Project Weekday Peak Hour Trip Generation

Weekday Peak Hour		[a]Primary Trips
AM Peak Hour:	In	16
	Out	22
	Total Trip Ends	38
MD Peak Hour:	In	27
	Out	15
	Total Trip Ends	42
PM Peak Hour:	In	30
	Out	25
	Total Trip Ends	55

[a] ITE Land Use Code (416) – Campground/Recreational Vehicle Park (150 Sites, 90% occupied.) + Estimates for Motocross and Offroad Park usage.

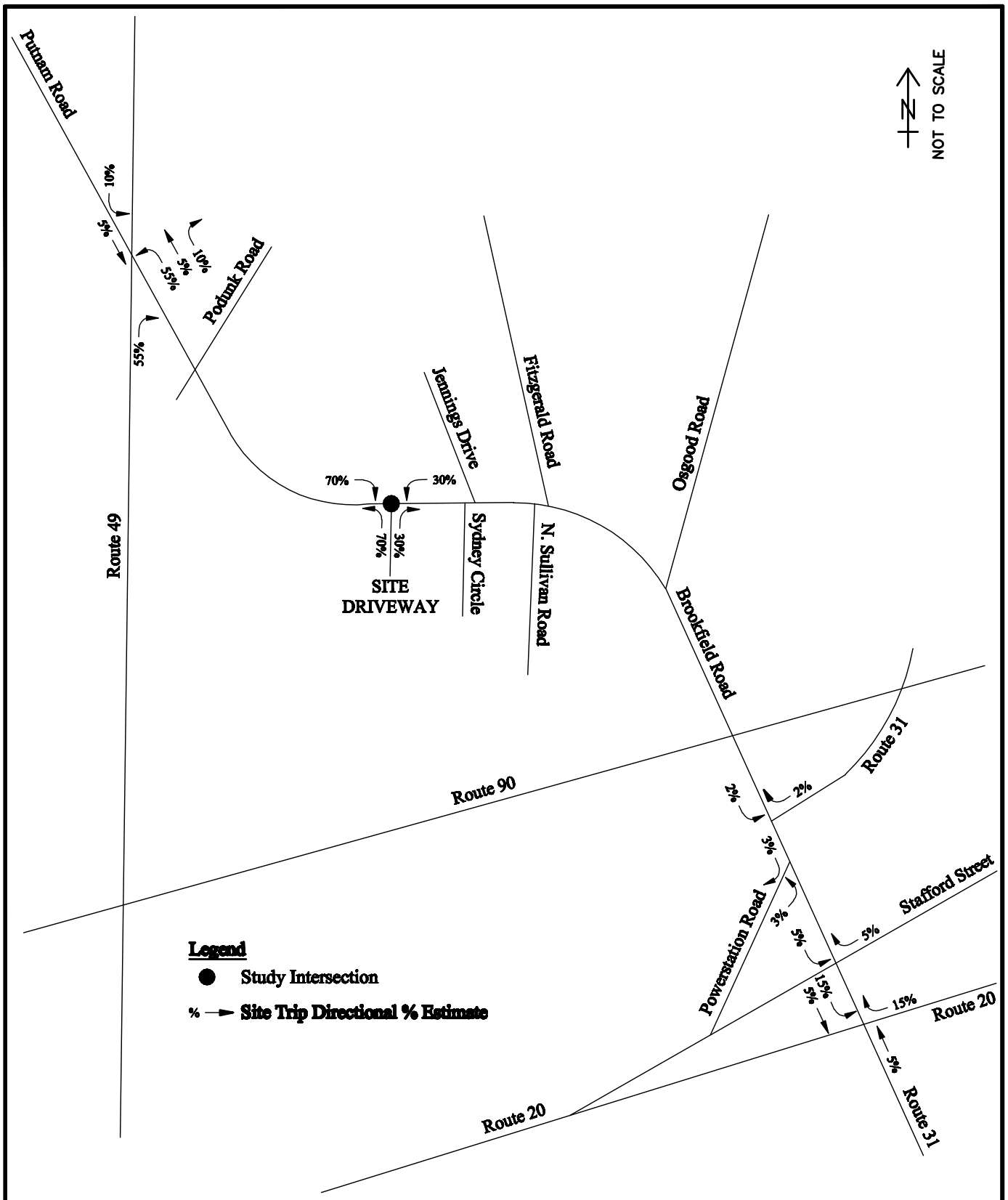
The distribution of the site generated trips onto roads in the vicinity of the project were estimated based on the knowledge of the nearby highway system. The distribution percentages for site generated traffic splits are shown in Figure 6.

The site generated trips were then distributed onto the intersections in the vicinity of the project, based on the Figure 6 distribution percentages. The traffic distribution of only the site generated trips is shown in Figures 8 and 10. These graphics were created to accentuate how low the vehicle count is estimated to be for any given local road, with peak hour volumes not significant. The majority of site drivers are anticipated to use Rte 49 within the immediate area to access shopping, food and long distance access from Connecticut, western and eastern Mass., Towns northeast or northwest.

Table 8
Summary of Event Weekend Peak Hour Trip Generation

Weekday Peak Hour		[a]Primary Trips
AM Peak Hour:	In	135
	Out	44
	Total Trip Ends	179
MD Peak Hour:	In	47
	Out	21
	Total Trip Ends	68
PM Peak Hour:	In	74
	Out	113
	Total Trip Ends	187

[a] ITE Land Use Code (416) – Campground/Recreational Vehicle Park (150 Sites, 90% occupied) + Estimates for Motocross and Offroad Park usage.



BTTC

SUNSET CITY TRAFFIC ESTIMATES

CHARLTON, MASSACHUSETTS

FIGURE 6

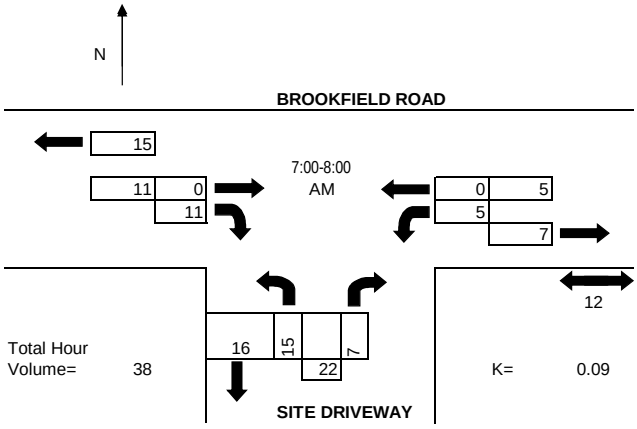
Trip Distribution %
Percentage Splits

BRISTOL TRAFFIC & TRANSPORTATION CONSULTING, LLC N. BROOKFIELD, MA

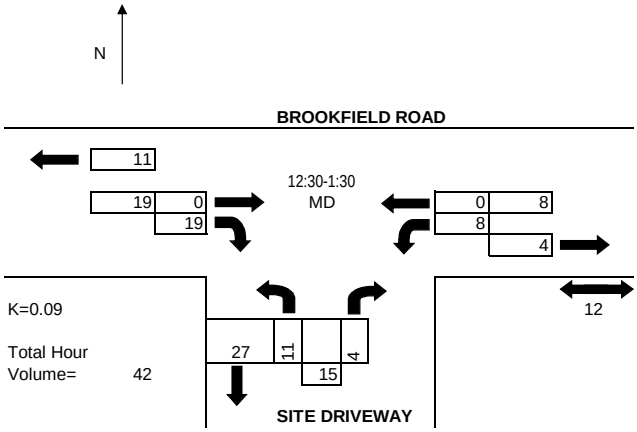
Brookfield Road / Site Driveway
Estimated Weekday Site Trip Distribution Peak Hour Turning Movement Counts

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 7:00 AM

Weather: Light Rain



Turning Movements for One hour Starting with 12:30 PM
0
Weather: Light Rain



Turning Movements for One hour Starting with 4:15 PM
0
Weather: Light Rain

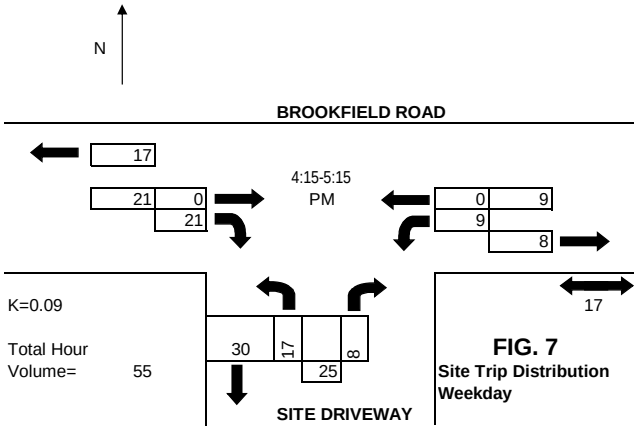
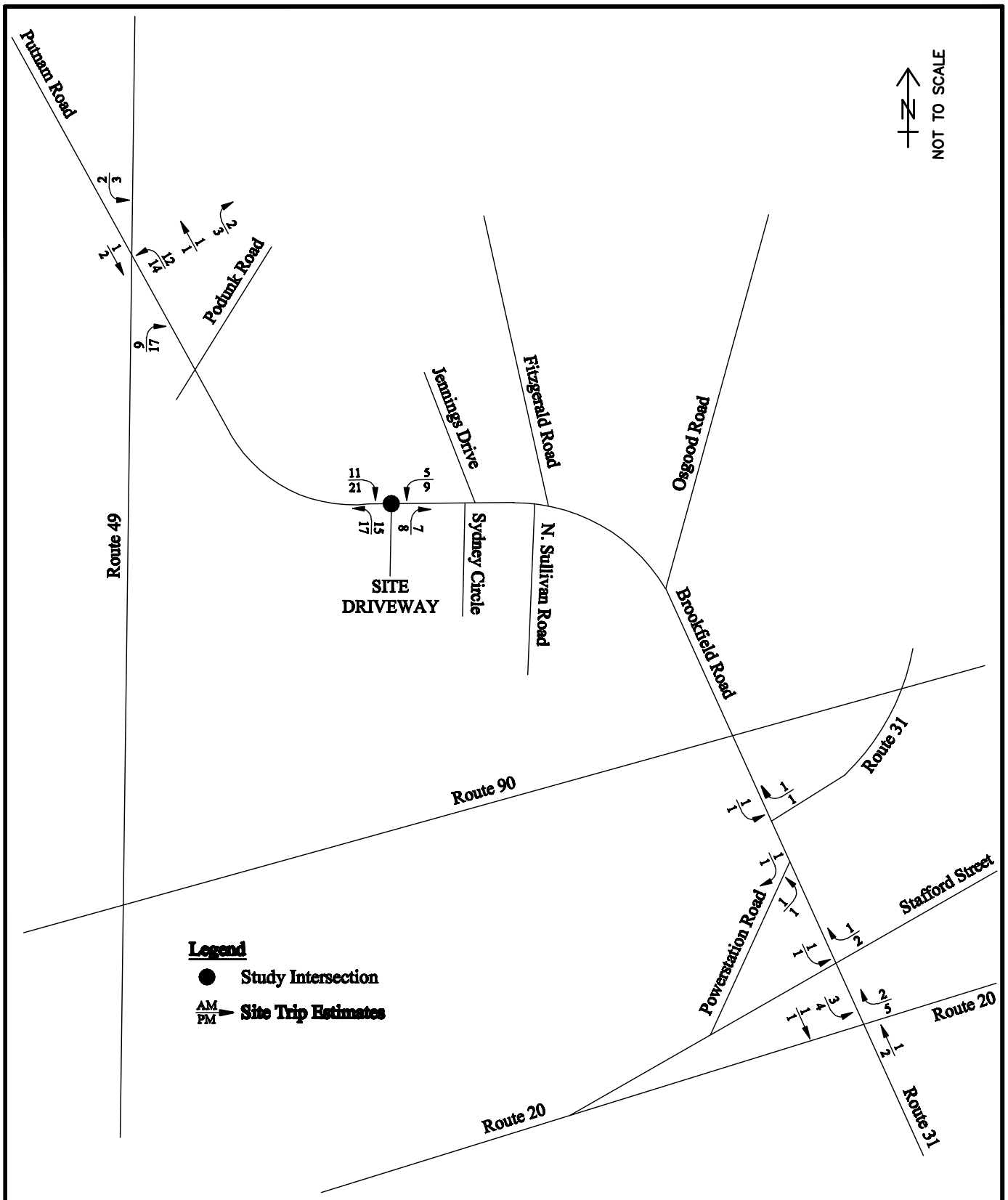


FIG. 7
Site Trip Distribution
Weekday



BTTC

SUNSET CITY TRAFFIC ESTIMATES

CHARLTON, MASSACHUSETTS

FIGURE 8

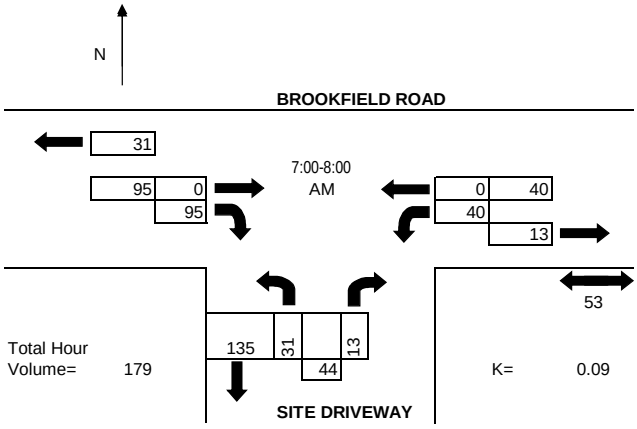
Site Trip Estimates
Weekday Peak Hours
AM & PM

BRISTOL TRAFFIC & TRANSPORTATION CONSULTING, LLC N. BROOKFIELD, MA

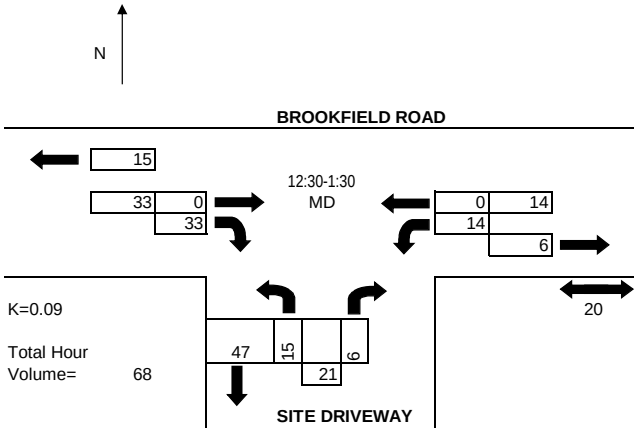
Brookfield Road / Site Driveway
Estimated Event Weekend Site Trip Distribution Peak Hour Turning Movement Counts

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 7:00 AM

Weather: Light Rain



Turning Movements for One hour Starting with 12:30 PM
0
Weather: Light Rain



Turning Movements for One hour Starting with 4:15 PM
0
Weather: Light Rain

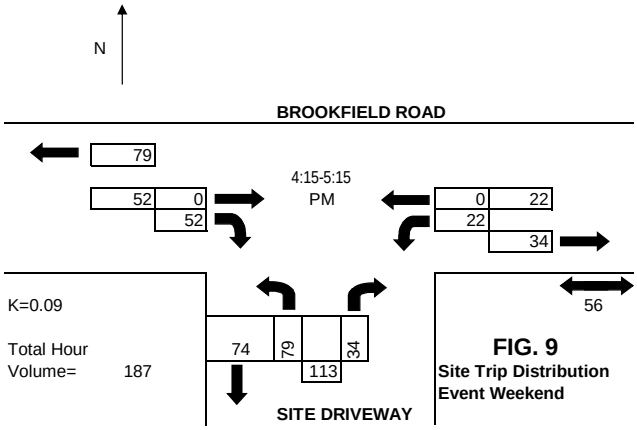
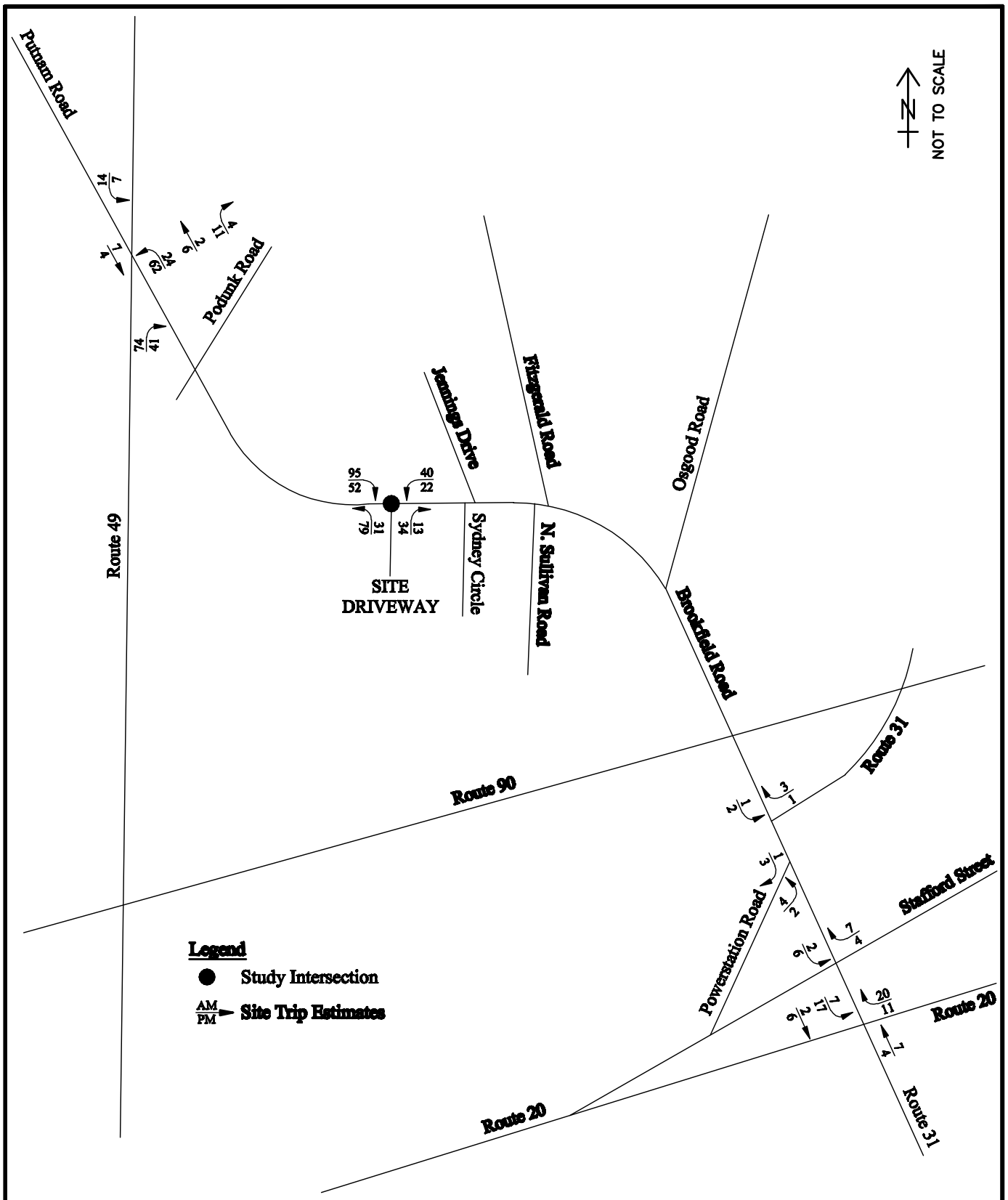


FIG. 9
Site Trip Distribution
Event Weekend



BTTC

SUNSET CITY TRAFFIC ESTIMATES

CHARLTON, MASSACHUSETTS

FIGURE 10

Site Trip Estimates
Event Weekend Peak Hours
AM & PM

BRISTOL TRAFFIC & TRANSPORTATION CONSULTING, LLC N. BROOKFIELD, MA

3.3 Future Year (2019) Traffic Impacts

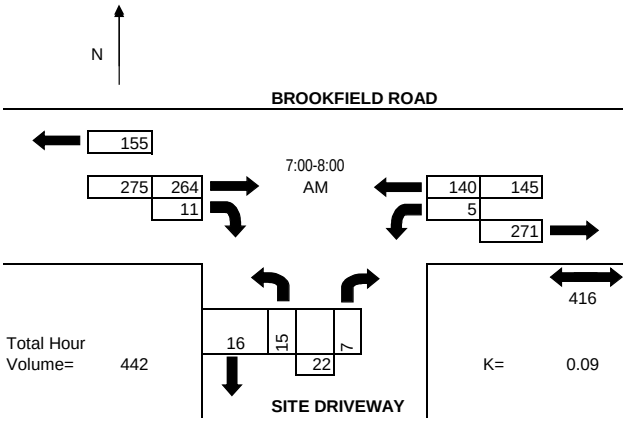
3.3.1 Future Year (2019) Build Traffic Volumes

Site generated trips from this development (See Appendix D) were added to the Future (2019) "No-Build" traffic volumes to arrive at Future (2019) "Build" traffic volumes. Those AM, MD and PM "Build" peak hour traffic volumes first generated by the site show alone are illustrated in Figures 7-8 for weekday and Figures 9-10 for Event weekends.

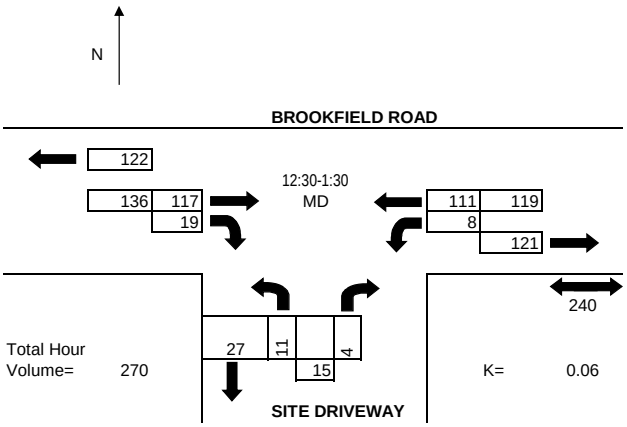
Following this page are Figures 11-12 for (2019) Future Brookfield Road peak volumes, with the site trips added at the study intersection for both weekday and Event weekends analysis.

Brookfield Road / Site Driveway
Future Build 2019 Weekday Peak Hour Turning Movement Counts With Site Trips

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 7:00 AM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 12:30 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain



Turning Movements for One hour Starting with 4:15 PM
Counts conducted by Precision Data Industries - Wednesday, December 17, 2014
Weather: Light Rain

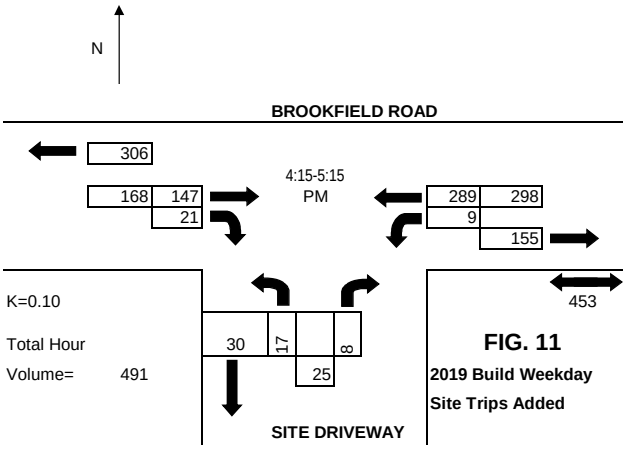
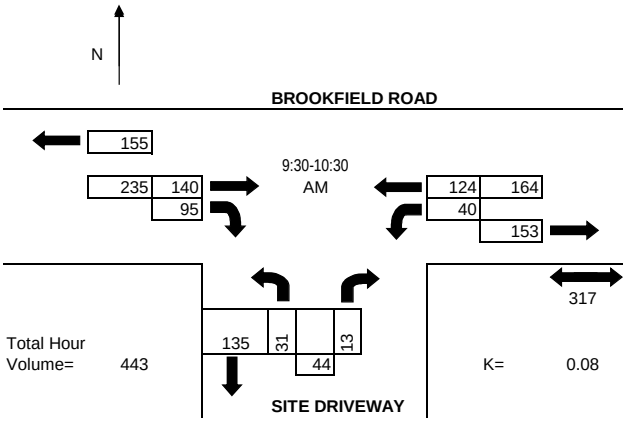


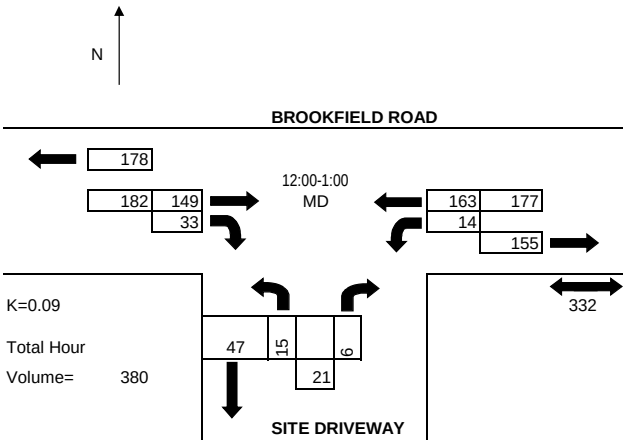
FIG. 11
2019 Build Weekday
Site Trips Added

Brookfield Road / Site Driveway
Future Build 2019 Event Weekend Peak Hour Turning Movement Counts With Site Trips

Charlton, MA - Brookfield Road @ Site Driveway
Turning Movements for One hour Starting with 9:30 AM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with 12:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear



Turning Movements for One hour Starting with2:00 PM
Counts conducted by Precision Data Industries - Saturday, December 20, 2014
Weather: Clear

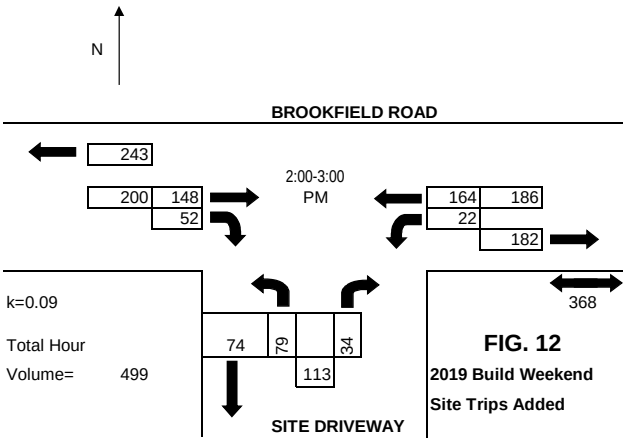


FIG. 12
2019 Build Weekend
Site Trips Added

3.3.2 Future Year (2019) Capacity Analyses

The future year traffic volumes were used to perform capacity analyses for both the Future Year "No-Build"and"Build". The results of these analyses are shown in Tables 9 - 12 for Weekday and Weekend peak periods in a side by side manner to show the minor changes under the 2019 Build traffic. The capacity analyses printouts can be found in Appendix B.

Table 9
Weekday Morning AM Peak Hour Capacity Analysis

	2019 No-Build			2019 Build		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site Driveway:						
NB Left	-	-	-	.04	11.6	B
NB Approach	-	-	-	.04	11.6	B
EB Through	-	0	A	-	0	A
EB Approach	0.18	0	A	0.19	0	A
WB Through	-	0	A	0.01	0.3	A
WB Approach	0	0	A	0.01	0.3	A
Overall Intersection	0	0	A	1.07	0.6	A

[a] HCM Volume to capacity ratio.
[b]HCM Average Control Delay in seconds per vehicle.
[c]HCM Level of Service.

Table 10
Weekday Evening PM Peak Hour Capacity Analysis

	2019 No-Build			2019 Build		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site driveway						
NB Left	-	-	-	0.05	11.4	B
NB Approach	-	-	-	0.05	11.4	B
EB Through	-	0	A	0.12	0	A
EB Approach	0.11	0	A	0.12	0	A
WB Through	-	0	A	0.01	0.3	A
WB Approach	0	0	A	0.01	0.3	A
Overall Intersection	011	0	A	0.12	0.7	A

[a] HCM Volume to capacity ratio.
[b]HCM Average Control Delay in seconds per vehicle.
[c]HCM Level of Service.

From review of Tables 9 it can be seen that during all peak periods, under future No-Build and Build conditions, there are only minor changes in the operation due to the project traffic. During all periods the Brookfield Road LOS remains at LOS A, the best level with no delays.

Table 11
Weekend Morning AM Peak Hour Capacity Analysis

	2019 No-Build			2019 Build		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site Driveway:						
NB Left	-	-	-	0.08	11.4	B
NB Approach	-	-	-	0.08	11.4	B
EB Through	-	0	A	-	0	A
EB Approach	0.09	0	A	0.16	0	A
WB Through	-	0	A	0.03	2.2	A
WB Approach	0	0	A	0.03	2.2	A
Overall Intersection	0	0	A	0.16	1.9	A

[a] HCM Volume to capacity ratio.
[b] HCM Average Control Delay in seconds per vehicle.
[c] HCM Level of Service.

Table 12
Weekend Evening PM Peak Hour Capacity Analysis

	2019 No-Build			2019 Build		
Intersection / Critical Movement	**V/C[a]**	**Delay[b]**	**LOS[c]**	**V/C[a]**	**Delay[b]**	**LOS[c]**
Site Driveway:						
NB Left	-	-	-	0.2	12.5	B
NB Approach	-	-	-	0.2	12.5	B
EB Through	-	0	A	0.14	0	A
EB Approach	0.10	0	A	0.14	0	A
WB Through	-	0	A	0.02	1.1	A
WB Approach	0	0	A	0.02	1.1	A
Overall Intersection	0	0	A	0.14	3.0	A

[a] HCM Volume to capacity ratio.
[b] HCM Average Control Delay in seconds per vehicle.
[c] HCM Level of Service.

3.4 Pedestrian Activity

It is not anticipated that any pedestrian traffic will be generated by this development. For pedestrians to enter the site at Brookfield Road and walk 3/4 of a mile to view an event is unlikely. During filed investigations there were no pedestrians observed on Brookfield Road.

4. STUDY CONCLUSIONS

The analysis indicates that Brookfield Road has sufficient capacity to accommodate the estimated traffic from this proposed Campground and Motocross / Offroad Park project with little to no increased delay. The Weekday volumes traveling on Brookfield Road indicate a commuter pattern of morning peak traffic heading south and a return peak flow during the evening commuter hours heading north. Due to this commuter traffic the 24 hour weekday volume exceed weekend volumes by approximately 700 vehicles. Weekend traffic does not peak during morning or evening period as shown by the graphs found in Appendix A. Weekend traffic volumes gradually increase from morning until midday then decrease slowly toward evening hours. The peak hour traffic on weekends is significantly lower than weekday peaks.

This proposed project has low traffic generation rates for weekdays, especially during the peak commuter hours, yet the busiest times for site traffic are the weekend periods when Brookfield Road traffic is the lowest volumes. Another traffic mitigation for the site traffic is that it is a seasonal use, with summer camping and good weather Motocross and Offroad Park usage during the summer months.

Brookfield Road in the vicinity of the site driveway intersection has no recent history of accidents. the proposed driveway location has been placed on top of a small hill on Brookfield Road, to maximize sight distance for both oncoming traffic to safely stop should a vehicle exit the driveway and this location also provides good intersection sight lines so exiting drivers are aware of oncoming traffic.

A review of accidents within a 1.75 mile segment of Brookfield Road indicates that the majority of accident involved drivers leaving the road and crashing into utility poles, embankments, ditches and curbing. Only 1/3 of the recorded accident for the most recent 3 years of available data included 2 vehicles. This may well indicate that speed is the cause. A speed limit of 35mph is posted within this segment yet the speed study indicates a higher average speed. It is recommended that the Police monitor speeds on Brookfield Road and perhaps the speed limit be reduced to 30mph to help eliminate the high percentage of off-road accidents, none of which occurred near the site driveway location.

This report documents that the proposed intersection of Brookfield Road at the Site Driveway can accomodate the proposed site traffic with little noticeable change in operational efficiency and safety.

REFERENCES

1. *Highway Capacity Manual, HCM2010*, Updated 2010, Transportation Research Board of the National Academies.

2. *Trip Generation Manual, Ninth Edition*, 2012, Institute of Transportation Engineers.

3. *Manual on Uniform Traffic Control Devices*, 2009, Federal Highway Administration.

4. *A Policy on The Geometric Design of Highways and Streets, 6th Edition*, 2011, American Association of State Highway and Transportation Officials.

APPENDIX A

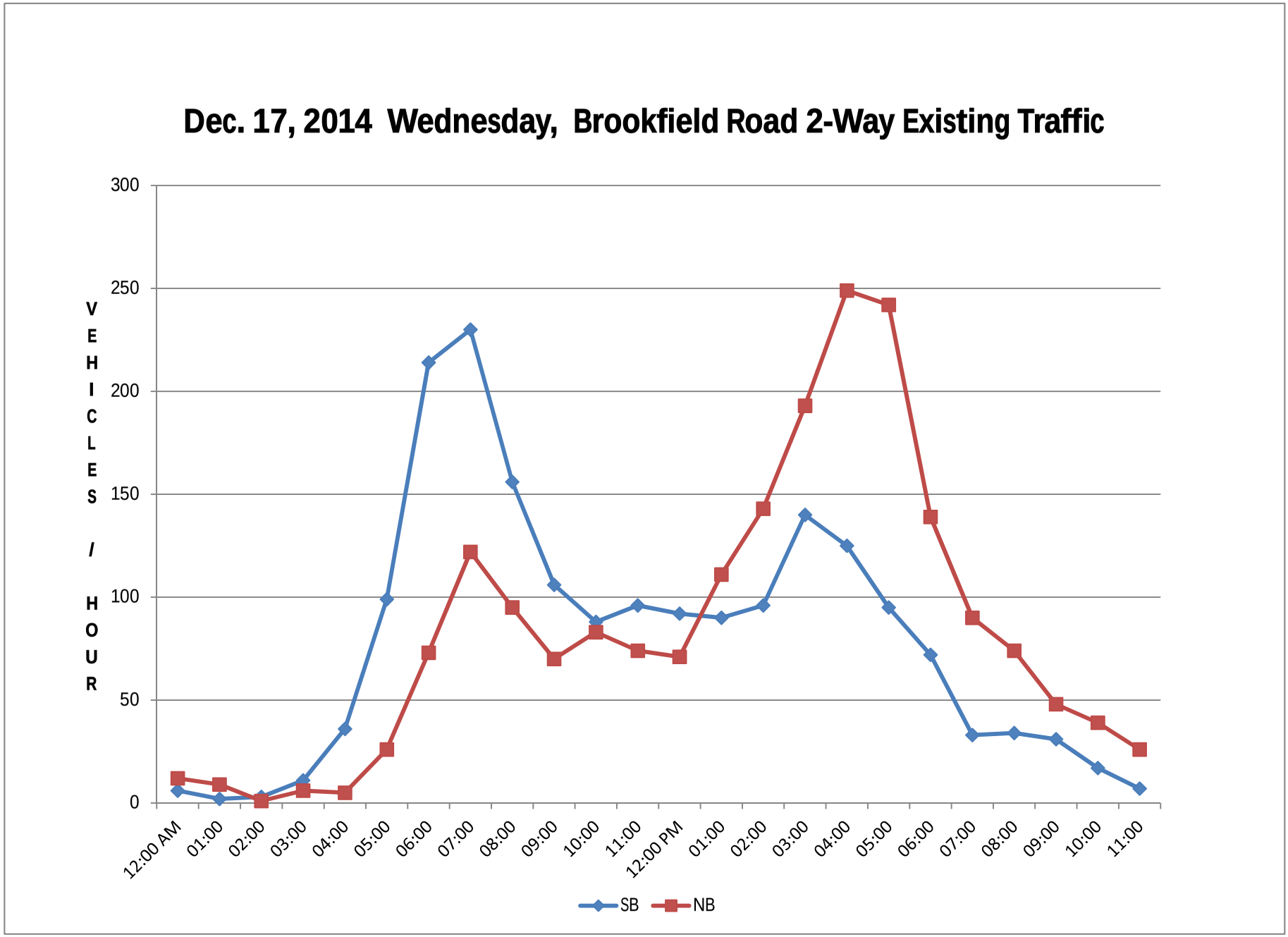
TRAFFIC COUNTS

5 Day Graphical Plots of Automatic Traffic Recorder (ATR) Counts

Seasonal and Summer Adjustment MDOT Data

Automatic Traffic Recorder (ATR) Counts with:
24 Hour Counts
Heavy Vehicle Counts
Speed Data

5 Day Graphical Plots of Automatic Traffic Recorder (ATR) Counts


Dec. 17, 2014 Wednesday, Brookfield Road 2-Way Existing Traffic
VEHICLES / HOUR
300
250
200
150
100
50
0
12:00 AM
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00 PM
01:00
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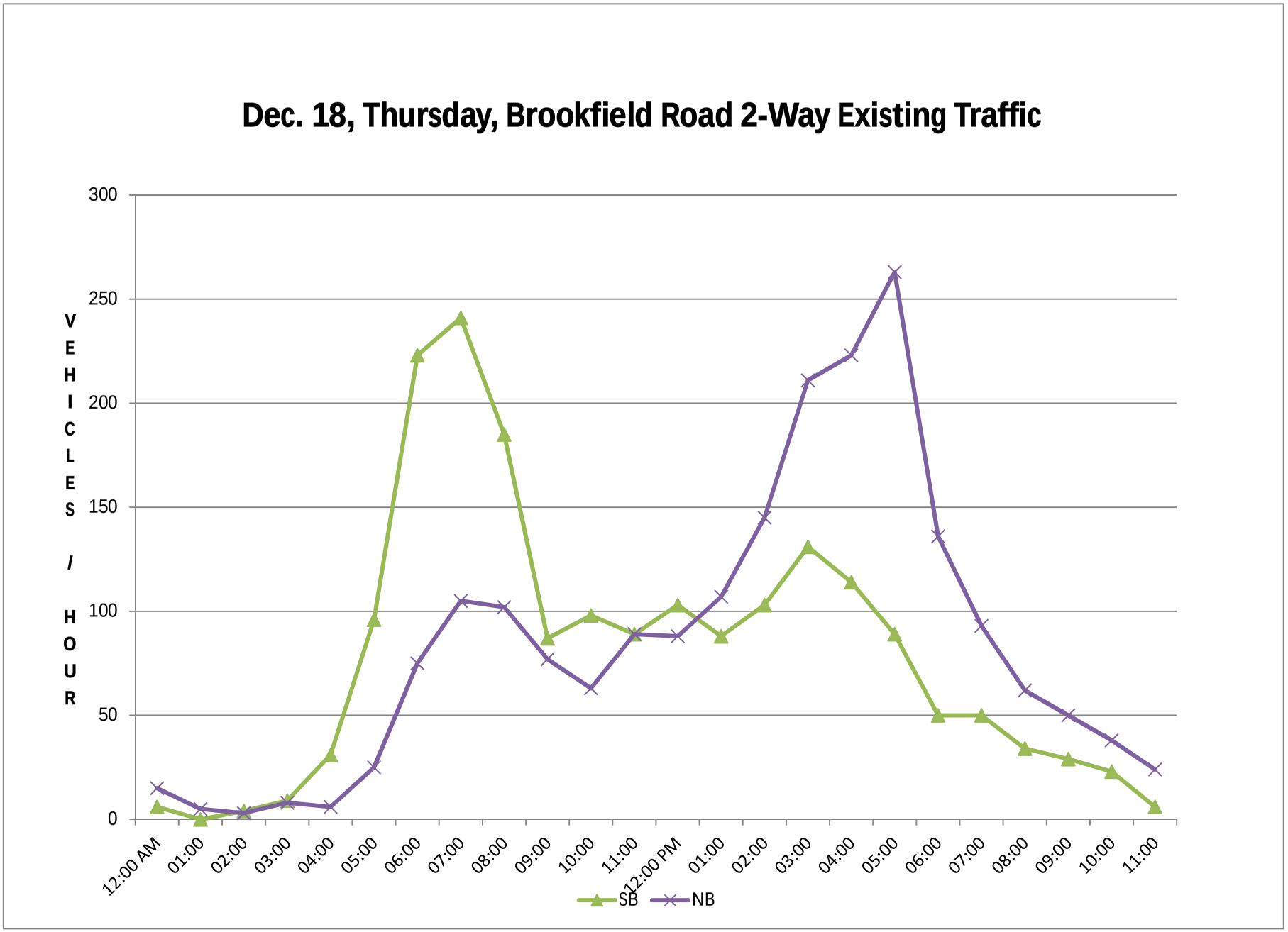
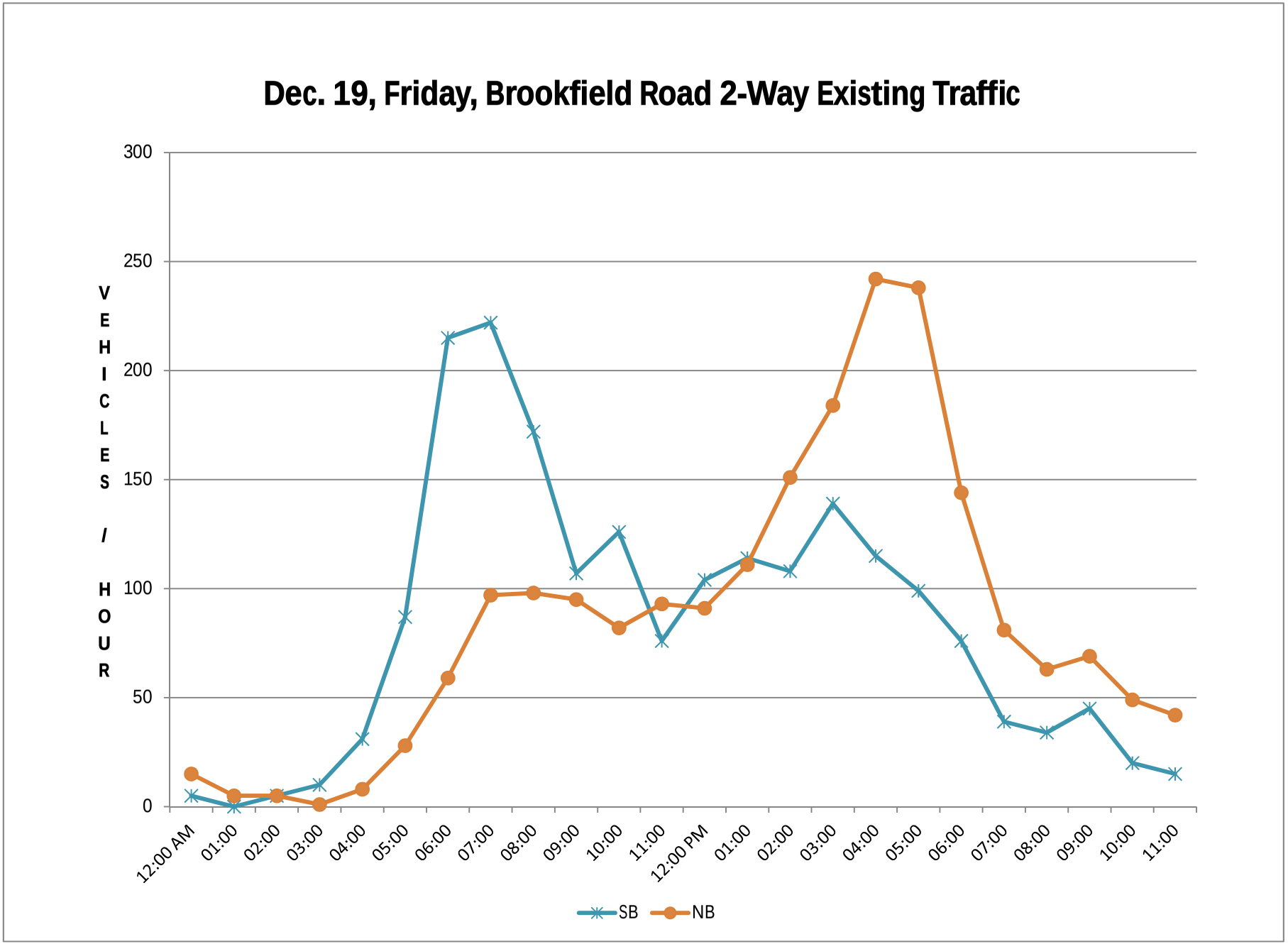
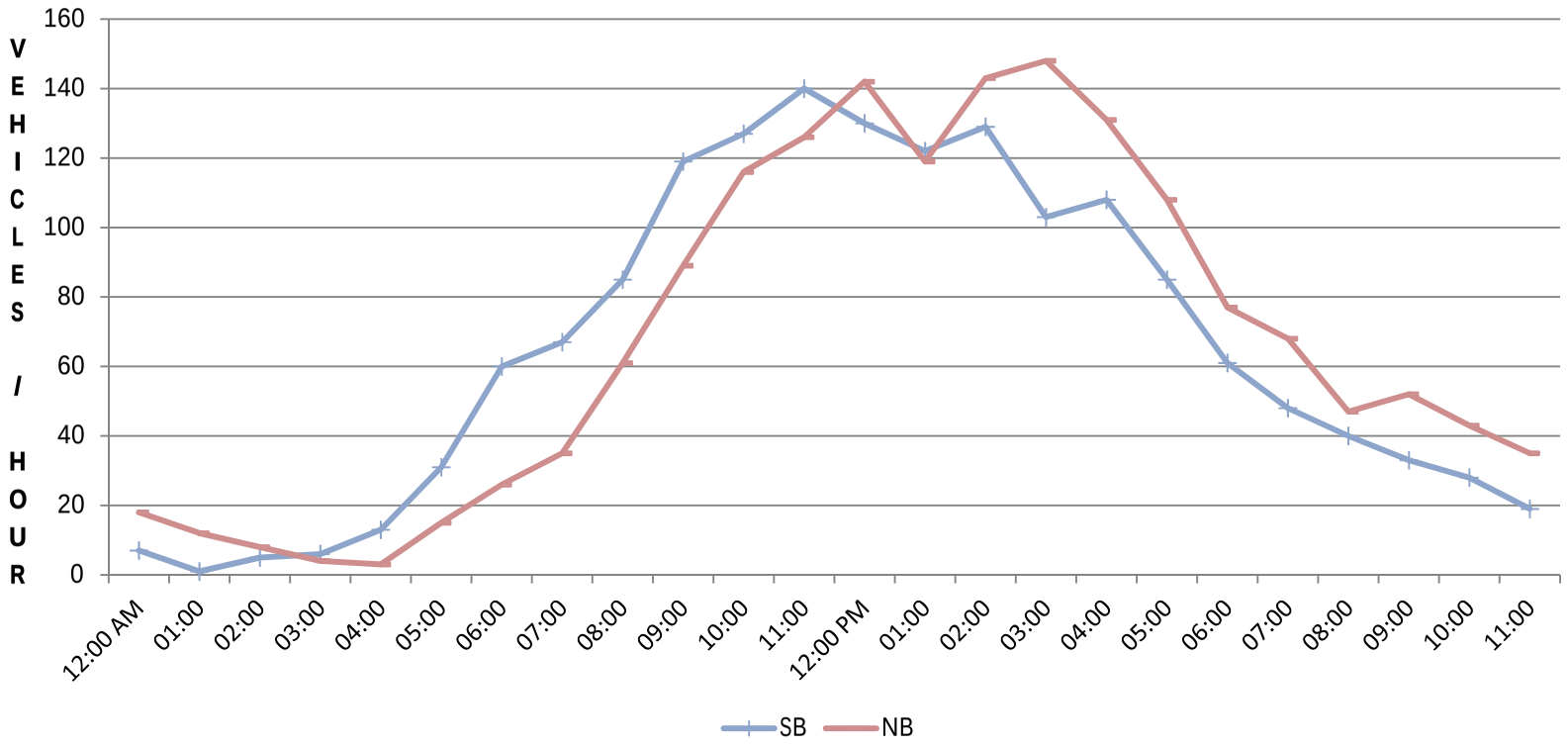
10:00
11:00
SB
NB

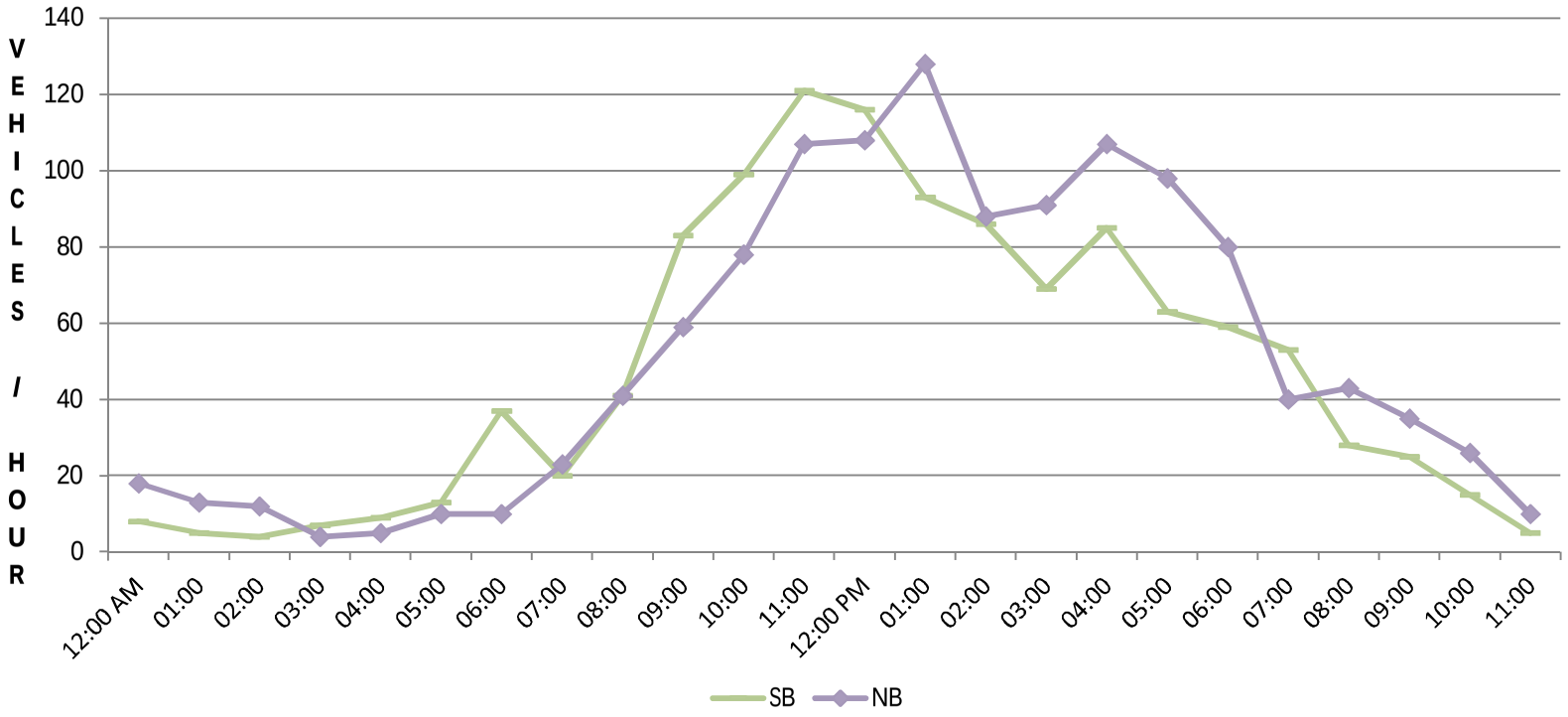

Dec. 18, Thursday, Brookfield Road 2-Way Existing Traffic
VEHICLES / HOUR
300
250
200
150
100
50
0
12:00 AM
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00 PM
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
SB
NB


Dec. 19, Friday, Brookfield Road 2-Way Existing Traffic
VEHICLES / HOUR
300
250
200
150
100
50
0
12:00 AM
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00 PM
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
SB
NB

Dec. 20, Saturday, Brookfield Road 2-Way Existing Traffic



Dec. 21, Sunday, Brookfield Road 2-Way Existing Traffic



Seasonal and Summer Adjustment MDOT Data

SECTION I - CONTINUOUS COUNTING STATION MONTHLY AVERAGE DAILY TRAFFIC - Taken from MDOT Online File madtcomp09.xls 1-5-15

STATION 5 - STERLING - RTE.12 - NORTH OF RTE.I-190

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
05	7,333	8,200	8,308	8,194	9,300	9,439	8,516	8,669	8,559	8,500	8,300	8,100	8,452
	6%	-4%	3%	4%	-6%	-4%	-4%	-1%	-1%	-2%	-3%	-3%	-1%
06	7,800	7,909	8,517	8,504	8,752	9,024	8,197	8,580	8,507	8,291	8,019	7,838	8,328
	-2%	-3%	-5%	-2%	3%	0%	6%	2%	2%	6%	2%	-1%	1%
07	7,615	7,693	8,091	8,322	8,987	8,988	*8,700*	8,742	8,658	8,754	8,169	7,767	8,374
	8%	4%	3%	10%	1%	0%	-1%	-4%	-2%	-4%	-4%	-1%	1%
08	8,243	7,993	8,296	9,168	9,115	8,992	8,578	8,425	8,482	8,400	7,839	7,700	8,436
	-7%	0%	-1%	-4%	-3%	0%	1%	1%	0%	0%	2%	2%	-1%
09	7,685	8,011	8,189	8,776	8,819	8,997	8,654	8,533	8,519	8,434	7,969	7,858	8,370
						45,440	**42,645**	**42,949**		**DEC=**	**-6.4%**	**39,263**	**41,960**

STATION 211 - DEERFIELD - RTES.5 AND 10 - NORTH OF THE WHATELY T.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
05	7,142	7,800	7,860	8,529	8,907	9,070	8,969	10,099	10,152	9,137	8,880	8,880	8,785
07	8,004	8,318	8,158	*9,300*	9,452	9,195	*9,250*	9,098	*8,700*	*8,248*	7,636	7,636	8,583
	-4%	-9%	-5%	-9%	-7%	-10%	-11%	-9%	3%	12%	2%	0%	-4%
08	7,671	7,610	7,733	8,505	8,800	8,288	*8,200*	8,314	8,932	*9,228*	7,823	7,633	8,228
	-6%	6%	-1%	-1%	-3%	2%	3%	-2%	1%	-6%	9%	8%	1%
09	7,208	8,037	7,663	8,441	8,555	8,432	*8,422*	8,145	8,978	*8,700*	8,500	8,215	8,275
						34985	**34841**	**35656**		**DEC=**	**-4.4%**	**32364**	**33871**

STATION 307 - WESTBOROUGH - RTE.9 - EAST OF NORTHBOROUGH T.L.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
05	45,180	49,366	50,060	52,971	53,408	55,189	52,365	50,468	50,556	50,848	47,901	*48,515*	50,569
	-2%	-9%	1%	-3%	-3%	-5%	-8%	0%	1%	-1%	4%	3%	-2%
06	44,301	44,854	50,326	51,170	51,729	52,438	48,052	50,270	50,998	50,194	50,043	*50,032*	49,534
	7%	5%	-2%	-4%	-3%	-1%	10%	4%	-4%	1%	-1%	-6%	0%
07	47,505	47,283	49,268	49,136	*50,000*	*52,000*	*53,000*	52,322	49,031	50,571	49,662	47,007	49,732
	-4%	-2%	-3%	1%	1%	-4%	-8%	-7%	-1%	-3%	-4%	-1%	-3%
08	45,614	46,112	47,829	49,816	*50,518*	*49,936*	*48,629*	48,759	48,531	49,009	47,490	46,696	48,245
	-3%	1%	-3%	-2%	-2%	0%	-2%	-3%	-2%	-1%	0%	2%	-1%
09	44,103	46,434	46,455	49,049	*49,474*	*49,934*	*47,638*	47,056	47,762	48,663	47,379	47,564	47,626
						259,497	**249,684**	**248,875**		**DEC=**	**-2.4%**	**239,814**	**245,706**

STATION 310 - SUTTON - RTE.146 - SOUTH OF PURGATORY ROAD

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
05	29,600	29,800	30,000	30,091	30,571	32,009	31,477	32,505	30,362	30,000	29,000	27,000	30,201
	-6%	-4%	0%	2%	3%	1%	2%	1%	6%	2%	7%	6%	2%
06	27,942	28,570	29,913	30,757	31,353	32,274	32,010	32,876	32,157	30,715	30,961	28,654	30,682
	-3%	-2%	3%	4%	6%	5%	5%	8%	-3%	-11%	3%	3%	2%
07	*26,982*	27,863	30,788	31,934	33,297	33,965	33,481	35,503	31,235	27,268	31,910	29,582	31,151
	11%	8%	1%	1%	-2%	-4%	-2%	-4%	4%	22%	0%	-6%	2%
08	*30,000*	30,102	31,021	32,235	32,718	32,715	32,707	34,088	32,529	33,273	31,779	27,892	31,755
						130,963	**129,675**	**134,972**		**DEC=**	**-8.6%**	**113,128**	**123,789**

STATION 2265 - DEERFIELD - RTE. 116 - SOUTH OF SOUTH MILL RIVER ROAD

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
05	3,162	3,200	3,427	3,717	3,924	3,870	3,599	3,555	3,728	3,721	3,533	3,367	3,567
	4%	2%	2%	-3%	-3%	-4%	2%	-1%	-1%	2%	5%	-2%	0%
06	3,277	3,271	3,510	3,621	3,790	3,700	3,658	3,523	3,700	3,779	3,700	3,313	3,570
	-5%	-6%	-10%	-9%	0%	3%	-2%	1%	-5%	-10%	-9%	8%	-4%
07	3,113	3,091	3,168	3,298	3,781	3,797	3,584	3,569	*3,500*	*3,400*	3,367	3,592	3,438
	2%	-4%	1%	2%	-4%	-6%	-6%	-7%	0%	10%	-3%	-31%	-4%
08	3,173	2,972	3,200	3,350	3,647	3,574	3,373	3,328	*3,505*	*3,743*	3,252	2,484	3,300
	-10%	3%	-3%	2%	-1%	3%	4%	2%	2%	-4%	-1%	29%	2%
09	2,853	3,050	3,111	3,431	3,616	3,676	3,506	3,402	*3,562*	*3,610*	3,220	3,200	3,353
						18,617	**17,720**	**17,377**		**DEC=**	**-7.4%**	**15,956**	**17,229**

STATION 3329 - BRIMFIELD - RTE.20 - EAST OF HOLLAND RD.

YR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	**DEC**	**YEAR**
06	6,714	6,783	7,300	7,947	9,184	8,249	8,773	8,291	8,822	8,090	7,637	7,947	7,978
	10%	-1%	14%	7%	3%	1%	2%	-1%	9%	1%	1%	-11%	3%
07	7,385	6,741	8,315	*8,516*	9,428	8,338	8,963	8,175	9,656	8,187	7,705	7,036	8,204
	-6%	1%	-10%	-11%	-3%	-12%	-2%	3%	-9%	30%	-5%	1%	-2%
08	6,916	6,795	7,500	*7,612*	9,150	7,331	8,797	8,428	8,776	10,663	7,288	7,080	8,028
						23,918	**26,533**	**24,894**		**DEC=**	**-8.9%**	**22,063**	**24,210**

				SUMMER TOTALS=	513,420	501,098	504,723				**TOTALS=**	**462,588**	**486,764**
					+5.5%	+2.9%	+3.7%			**DEC. AVG.=**	**-5.0%**		
For TMC's & ATR's Increase 5% to Avg. Mo. +4% for Summer.					**Summer Avg.**	**506,413**	**= +4.0%**			**For TMC's & ATR's Increase 5% for avg. month.**			

ITALICS = ESTIMATED DATA

MADT

Automatic Traffic Recorder (ATR) Counts

24 Hour Counts
Heavy Vehicle Counts
Speed Data

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

144239 A Volume
Site Code: 21400121

Start	17-Dec-14		18-Dec-14		19-Dec-14		20-Dec-14		21-Dec-14		22-Dec-14		23-Dec-14		Week Average	
Time	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB
12:00 AM	6	12	6	15	5	15	7	18	8	18	*	*	*	*	6	16
01:00	2	9	0	5	0	5	1	12	5	13	*	*	*	*	2	9
02:00	3	1	4	3	5	5	5	8	4	12	*	*	*	*	4	6
03:00	11	6	9	8	10	1	6	4	7	4	*	*	*	*	9	5
04:00	36	5	31	6	31	8	13	3	9	5	*	*	*	*	24	5
05:00	99	26	96	25	87	28	31	15	13	10	*	*	*	*	65	21
06:00	214	73	223	75	215	59	60	26	37	10	*	*	*	*	150	49
07:00	**230**	**122**	**241**	**105**	**222**	97	67	35	20	23	*	*	*	*	**156**	76
08:00	156	95	185	102	172	**98**	85	61	41	41	*	*	*	*	128	79
09:00	106	70	87	77	107	95	119	89	83	59	*	*	*	*	100	78
10:00	88	83	98	63	126	82	127	116	99	78	*	*	*	*	108	84
11:00	96	74	89	89	76	93	**140**	**126**	**121**	**107**	*	*	*	*	104	**98**
12:00 PM	92	71	103	88	104	91	**130**	142	**116**	108	*	*	*	*	109	100
01:00	90	111	88	107	114	111	122	119	93	**128**	*	*	*	*	101	115
02:00	96	143	103	145	108	151	129	143	86	88	*	*	*	*	104	134
03:00	**140**	193	**131**	211	**139**	184	103	**148**	69	91	*	*	*	*	**116**	165
04:00	125	**249**	114	223	115	**242**	108	131	85	107	*	*	*	*	109	**190**
05:00	95	242	89	**263**	99	238	85	108	63	98	*	*	*	*	86	190
06:00	72	139	50	136	76	144	61	77	59	80	*	*	*	*	64	115
07:00	33	90	50	93	39	81	48	68	53	40	*	*	*	*	45	74
08:00	34	74	34	62	34	63	40	47	28	43	*	*	*	*	34	58
09:00	31	48	29	50	45	69	33	52	25	35	*	*	*	*	33	51
10:00	17	39	23	38	20	49	28	43	15	26	*	*	*	*	21	39
11:00	7	26	6	24	15	42	19	35	5	10	*	*	*	*	10	27
Total	1879	2001	1889	2013	1964	2051	1567	1626	1144	1234	0	0	0	0	1688	1784
Day	3880		3902		4015		3193		2378		0		0		3472	
AM Peak	07:00	07:00	07:00	07:00	07:00	08:00	11:00	11:00	11:00	11:00	-	-	-	-	07:00	11:00
Vol.	230	122	241	105	222	98	140	126	121	107	-	-	-	-	156	98
PM Peak	15:00	16:00	15:00	17:00	15:00	16:00	12:00	15:00	12:00	13:00	-	-	-	-	15:00	16:00
Vol.	140	249	131	263	139	242	130	148	116	128	-	-	-	-	116	190

Comb. Total	3880	3902	4015	3193	2378	0	0	3472

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

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144239 A Volume
Site Code: 21400121

Start		SB				NB				Combined			17-Dec-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	3		23		5		14		8		37		
12:15	3		15		1		16		4		31		
12:30	0		28		2		19		2		47		
12:45	0	6	26	92	4	12	22	71	4	18	48	163	
01:00	0		20		3		28		3		48		
01:15	0		28		5		28		5		56		
01:30	2		23		1		23		3		46		
01:45	0	2	19	90	0	9	32	111	0	11	51	201	
02:00	1		24		0		27		1		51		
02:15	1		24		0		36		1		60		
02:30	1		23		0		37		1		60		
02:45	0	3	25	96	1	1	43	143	1	4	68	239	
03:00	0		39		0		47		0		86		
03:15	2		35		1		46		3		81		
03:30	6		35		2		53		8		88		
03:45	3	11	31	140	3	6	47	193	6	17	78	333	
04:00	3		29		2		64		5		93		
04:15	7		39		1		62		8		101		
04:30	12		36		1		57		13		93		
04:45	14	36	21	125	1	5	66	249	15	41	87	374	
05:00	13		32		7		67		20		99		
05:15	26		22		4		68		30		90		
05:30	27		20		11		57		38		77		
05:45	33	99	21	95	4	26	50	242	37	125	71	337	
06:00	37		21		14		46		51		67		
06:15	63		23		16		36		79		59		
06:30	53		13		21		24		74		37		
06:45	61	214	15	72	22	73	33	139	83	287	48	211	
07:00	58		6		22		19		80		25		
07:15	67		9		21		18		88		27		
07:30	53		12		39		26		92		38		
07:45	52	230	6	33	40	122	27	90	92	352	33	123	
08:00	39		6		27		18		66		24		
08:15	43		9		27		13		70		22		
08:30	38		7		20		20		58		27		
08:45	36	156	12	34	21	95	23	74	57	251	35	108	
09:00	27		9		18		13		45		22		
09:15	28		10		13		14		41		24		
09:30	30		9		15		13		45		22		
09:45	21	106	3	31	24	70	8	48	45	176	11	79	
10:00	19		4		18		9		37		13		
10:15	25		3		23		9		48		12		
10:30	18		5		16		15		34		20		
10:45	26	88	5	17	26	83	6	39	52	171	11	56	
11:00	27		4		13		3		40		7		
11:15	30		2		20		6		50		8		
11:30	19		0		22		10		41		10		
11:45	20	96	1	7	19	74	7	26	39	170	8	33	
Total	1047		832		576		1425		1623		2257		
Percent	64.5%		36.9%		35.5%		63.1%						
Day Total		1879				2001				3880			
Peak	06:30	-	03:00	-	07:30	-	04:30	-	07:00	-	04:15	-	-	-
Vol.	239	-	140	-	133	-	258	-	352	-	380	-	-	-
P.H.F.	0.892		0.897		0.831		0.949		0.957		0.941			

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Start		SB				NB				Combined			18-Dec-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	1		26		6		21		7		47		
12:15	2		26		4		22		6		48		
12:30	2		20		3		23		5		43		
12:45	1	6	31	103	2	15	22	88	3	21	53	191	
01:00	0		18		2		31		2		49		
01:15	0		32		3		21		3		53		
01:30	0		20		0		25		0		45		
01:45	0	0	18	88	0	5	30	107	0	5	48	195	
02:00	1		26		0		26		1		52		
02:15	1		26		1		32		2		58		
02:30	0		30		1		46		1		76		
02:45	2	4	21	103	1	3	41	145	3	7	62	248	
03:00	0		37		1		44		1		81		
03:15	3		25		1		56		4		81		
03:30	6		34		4		57		10		91		
03:45	0	9	35	131	2	8	54	211	2	17	89	342	
04:00	5		30		3		49		8		79		
04:15	5		29		0		48		5		77		
04:30	8		38		1		69		9		107		
04:45	13	31	17	114	2	6	57	223	15	37	74	337	
05:00	18		20		5		71		23		91		
05:15	26		31		6		83		32		114		
05:30	27		17		11		63		38		80		
05:45	25	96	21	89	3	25	46	263	28	121	67	352	
06:00	46		17		9		42		55		59		
06:15	57		9		20		41		77		50		
06:30	62		11		25		26		87		37		
06:45	58	223	13	50	21	75	27	136	79	298	40	186	
07:00	53		17		20		30		73		47		
07:15	72		12		25		27		97		39		
07:30	63		13		31		22		94		35		
07:45	53	241	8	50	29	105	14	93	82	346	22	143	
08:00	51		13		34		14		85		27		
08:15	50		4		18		18		68		22		
08:30	42		7		27		19		69		26		
08:45	42	185	10	34	23	102	11	62	65	287	21	96	
09:00	27		9		21		15		48		24		
09:15	18		12		18		10		36		22		
09:30	19		3		20		13		39		16		
09:45	23	87	5	29	18	77	12	50	41	164	17	79	
10:00	23		7		13		9		36		16		
10:15	25		5		16		16		41		21		
10:30	25		9		16		6		41		15		
10:45	25	98	2	23	18	63	7	38	43	161	9	61	
11:00	24		0		14		5		38		5		
11:15	24		2		21		9		45		11		
11:30	17		2		25		4		42		6		
11:45	24	89	2	6	29	89	6	24	53	178	8	30	
Total	1069		820		573		1440		1642		2260		
Percent	65.1%		36.3%		34.9%		63.7%						
Day Total		1889				2013				3902			
Peak	06:45	-	03:45	-	07:15	-	04:30	-	07:15	-	04:30	-	-	-
Vol.	246	-	132	-	119	-	280	-	358	-	386	-	-	-
P.H.F.	0.854		0.868		0.875		0.843		0.923		0.846			

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

144239 A Volume
Site Code: 21400121

Start	SB				NB				Combined				19-Dec-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Fri
12:00	1		24		5		25		6		49		
12:15	2		25		6		31		8		56		
12:30	1		27		2		17		3		44		
12:45	1	5	28	104	2	15	18	91	3	20	46	195	
01:00	0		35		2		32		2		67		
01:15	0		25		2		27		2		52		
01:30	0		34		1		23		1		57		
01:45	0	0	20	114	0	5	29	111	0	5	49	225	
02:00	0		20		2		24		2		44		
02:15	3		33		0		37		3		70		
02:30	1		22		1		41		2		63		
02:45	1	5	33	108	2	5	49	151	3	10	82	259	
03:00	0		29		0		45		0		74		
03:15	4		39		0		44		4		83		
03:30	2		41		0		51		2		92		
03:45	4	10	30	139	1	1	44	184	5	11	74	323	
04:00	3		27		5		51		8		78		
04:15	9		29		2		70		11		99		
04:30	9		26		1		69		10		95		
04:45	10	31	33	115	0	8	52	242	10	39	85	357	
05:00	11		33		5		70		16		103		
05:15	28		18		9		64		37		82		
05:30	21		29		8		54		29		83		
05:45	27	87	19	99	6	28	50	238	33	115	69	337	
06:00	36		26		6		38		42		64		
06:15	53		24		12		43		65		67		
06:30	58		11		19		33		77		44		
06:45	68	215	15	76	22	59	30	144	90	274	45	220	
07:00	59		14		18		25		77		39		
07:15	57		8		33		21		90		29		
07:30	50		8		25		20		75		28		
07:45	56	222	9	39	21	97	15	81	77	319	24	120	
08:00	43		7		27		18		70		25		
08:15	54		7		14		16		68		23		
08:30	42		8		36		12		78		20		
08:45	33	172	12	34	21	98	17	63	54	270	29	97	
09:00	30		9		33		16		63		25		
09:15	22		14		21		14		43		28		
09:30	28		12		21		18		49		30		
09:45	27	107	10	45	20	95	21	69	47	202	31	114	
10:00	34		5		13		17		47		22		
10:15	31		3		20		15		51		18		
10:30	29		6		13		8		42		14		
10:45	32	126	6	20	36	82	9	49	68	208	15	69	
11:00	26		6		19		10		45		16		
11:15	17		4		18		11		35		15		
11:30	23		3		25		17		48		20		
11:45	10	76	2	15	31	93	4	42	41	169	6	57	
Total	1056		908		586		1465		1642		2373		
Percent	64.3%		38.3%		35.7%		61.7%						
Day Total		1964				2051				4015			
Peak	06:30	-	02:45	-	08:30	-	04:15	-	06:30	-	04:15	-	- -
Vol.	242	-	142	-	111	-	261	-	334	-	382	-	- -
P.H.F.	0.890		0.866		0.771		0.932		0.928		0.927		

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144239 A Volume
Site Code: 21400121

Start		SB				NB				Combined			20-Dec-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sat
12:00	3		37		6		38		9		75		
12:15	1		27		5		27		6		54		
12:30	2		38		3		39		5		77		
12:45	1	7	28	130	4	18	38	142	5	25	66	272	
01:00	0		30		5		33		5		63		
01:15	1		23		3		39		4		62		
01:30	0		33		2		24		2		57		
01:45	0	1	36	122	2	12	23	119	2	13	59	241	
02:00	0		37		4		31		4		68		
02:15	2		35		1		36		3		71		
02:30	2		27		3		47		5		74		
02:45	1	5	30	129	0	8	29	143	1	13	59	272	
03:00	0		23		1		38		1		61		
03:15	1		25		0		35		1		60		
03:30	2		26		2		38		4		64		
03:45	3	6	29	103	1	4	37	148	4	10	66	251	
04:00	2		32		0		21		2		53		
04:15	3		25		1		32		4		57		
04:30	3		23		1		48		4		71		
04:45	5	13	28	108	1	3	30	131	6	16	58	239	
05:00	4		18		2		32		6		50		
05:15	13		24		2		26		15		50		
05:30	3		29		4		26		7		55		
05:45	11	31	14	85	7	15	24	108	18	46	38	193	
06:00	17		20		4		25		21		45		
06:15	18		11		6		14		24		25		
06:30	15		16		7		22		22		38		
06:45	10	60	14	61	9	26	16	77	19	86	30	138	
07:00	8		15		9		23		17		38		
07:15	19		14		9		16		28		30		
07:30	28		10		9		18		37		28		
07:45	12	67	9	48	8	35	11	68	20	102	20	116	
08:00	15		8		11		13		26		21		
08:15	30		10		13		12		43		22		
08:30	20		13		21		12		41		25		
08:45	20	85	9	40	16	61	10	47	36	146	19	87	
09:00	25		8		14		17		39		25		
09:15	25		10		22		15		47		25		
09:30	35		9		30		7		65		16		
09:45	34	119	6	33	23	89	13	52	57	208	19	85	
10:00	21		9		30		11		51		20		
10:15	32		8		25		6		57		14		
10:30	45		8		21		14		66		22		
10:45	29	127	3	28	40	116	12	43	69	243	15	71	
11:00	25		8		37		12		62		20		
11:15	38		2		28		8		66		10		
11:30	36		4		28		12		64		16		
11:45	41	140	5	19	33	126	3	35	74	266	8	54	
Total	661		906		513		1113		1174		2019		
Percent	56.3%		44.9%		43.7%		55.1%						
Day Total		1567				1626				3193			
Peak	11:00	-	01:30	-	10:45	-	02:15	-	11:00	-	12:00	-	- -
Vol.	140	-	141	-	133	-	150	-	266	-	272	-	- -
P.H.F.	0.854		0.928		0.831		0.798		0.899		0.883		

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144239 A Volume
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Start		SB				NB				Combined			21-Dec-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Sun
12:00	4		18		5		25		9		43		
12:15	3		27		3		36		6		63		
12:30	1		33		6		31		7		64		
12:45	0	8	38	116	4	18	16	108	4	26	54	224	
01:00	2		36		4		38		6		74		
01:15	3		22		1		35		4		57		
01:30	0		18		2		31		2		49		
01:45	0	5	17	93	6	13	24	128	6	18	41	221	
02:00	0		20		4		14		4		34		
02:15	1		28		4		27		5		55		
02:30	1		26		1		30		2		56		
02:45	2	4	12	86	3	12	17	88	5	16	29	174	
03:00	2		24		1		23		3		47		
03:15	2		12		2		21		4		33		
03:30	3		15		0		23		3		38		
03:45	0	7	18	69	1	4	24	91	1	11	42	160	
04:00	1		22		1		22		2		44		
04:15	1		19		0		30		1		49		
04:30	4		21		2		28		6		49		
04:45	3	9	23	85	2	5	27	107	5	14	50	192	
05:00	0		26		2		24		2		50		
05:15	7		16		3		26		10		42		
05:30	4		13		5		24		9		37		
05:45	2	13	8	63	0	10	24	98	2	23	32	161	
06:00	5		12		2		18		7		30		
06:15	10		14		3		15		13		29		
06:30	8		16		1		26		9		42		
06:45	14	37	17	59	4	10	21	80	18	47	38	139	
07:00	5		16		2		12		7		28		
07:15	5		17		9		12		14		29		
07:30	1		4		6		11		7		15		
07:45	9	20	16	53	6	23	5	40	15	43	21	93	
08:00	5		10		9		16		14		26		
08:15	14		3		12		11		26		14		
08:30	9		9		10		11		19		20		
08:45	13	41	6	28	10	41	5	43	23	82	11	71	
09:00	20		4		14		6		34		10		
09:15	22		10		16		12		38		22		
09:30	23		6		17		8		40		14		
09:45	18	83	5	25	12	59	9	35	30	142	14	60	
10:00	17		4		19		10		36		14		
10:15	24		5		12		8		36		13		
10:30	29		2		16		4		45		6		
10:45	29	99	4	15	31	78	4	26	60	177	8	41	
11:00	26		1		30		2		56		3		
11:15	31		3		25		6		56		9		
11:30	33		1		20		1		53		2		
11:45	31	121	0	5	32	107	1	10	63	228	1	15	
Total	447		697		380		854		827		1551		
Percent	54.1%		44.9%		45.9%		55.1%						
Day Total		1144				1234				2378			
Peak	11:00	-	00:15	-	11:00	-	01:00	-	11:00	-	00:15	-	-	-
Vol.	121	-	134	-	107	-	128	-	228	-	255	-	-	-
P.H.F.	0.917		0.882		0.836		0.842		0.905		0.861			

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144239 A Class
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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/17/14	0	3	3	0	0	0	0	0	0	0	0	0	0	6
01:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
02:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
03:00	0	5	2	0	3	0	0	1	0	0	0	0	0	11
04:00	0	21	14	0	1	0	0	0	0	0	0	0	0	36
05:00	0	68	27	0	4	0	0	0	0	0	0	0	0	99
06:00	0	142	53	0	16	1	0	2	0	0	0	0	0	214
07:00	0	178	43	2	7	0	0	0	0	0	0	0	0	230
08:00	0	109	38	1	7	0	0	1	0	0	0	0	0	156
09:00	0	76	21	0	7	1	0	1	0	0	0	0	0	106
10:00	0	52	25	1	9	0	0	1	0	0	0	0	0	88
11:00	0	67	22	0	6	0	0	1	0	0	0	0	0	96
12 PM	0	63	21	0	6	1	0	0	1	0	0	0	0	92
13:00	0	59	26	0	4	0	0	0	0	1	0	0	0	90
14:00	0	56	26	4	9	0	0	1	0	0	0	0	0	96
15:00	0	104	21	3	7	3	1	1	0	0	0	0	0	140
16:00	1	81	27	2	12	1	0	1	0	0	0	0	0	125
17:00	0	64	22	0	7	2	0	0	0	0	0	0	0	95
18:00	0	49	15	0	6	2	0	0	0	0	0	0	0	72
19:00	0	26	6	0	1	0	0	0	0	0	0	0	0	33
20:00	0	26	6	0	2	0	0	0	0	0	0	0	0	34
21:00	0	25	5	0	1	0	0	0	0	0	0	0	0	31
22:00	0	13	4	0	0	0	0	0	0	0	0	0	0	17
23:00	0	7	0	0	0	0	0	0	0	0	0	0	0	7
Total	1	1297	429	13	115	11	1	10	1	1	0	0	0	1879
Percent	0.1%	69.0%	22.8%	0.7%	6.1%	0.6%	0.1%	0.5%	0.1%	0.1%	0.0%	0.0%	0.0%	
AM Peak		07:00	06:00	07:00	06:00	06:00		06:00						07:00
Vol.		178	53	2	16	1		2						230
PM Peak	16:00	15:00	16:00	14:00	16:00	15:00	15:00	14:00	12:00	13:00				15:00
Vol.	1	104	27	4	12	3	1	1	1	1				140

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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/18/1 4	0	4	2	0	0	0	0	0	0	0	0	0	0	6
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
03:00	0	6	1	0	2	0	0	0	0	0	0	0	0	9
04:00	0	16	14	0	1	0	0	0	0	0	0	0	0	31
05:00	0	66	26	0	4	0	0	0	0	0	0	0	0	96
06:00	0	144	62	1	15	0	0	1	0	0	0	0	0	223
07:00	2	169	58	3	7	0	0	0	1	1	0	0	0	241
08:00	0	129	41	1	12	2	0	0	0	0	0	0	0	185
09:00	0	64	16	1	6	0	0	0	0	0	0	0	0	87
10:00	0	59	32	0	4	1	0	2	0	0	0	0	0	98
11:00	0	62	18	2	6	0	0	0	0	1	0	0	0	89
12 PM	0	66	25	0	10	2	0	0	0	0	0	0	0	103
13:00	0	52	25	2	6	1	0	0	2	0	0	0	0	88
14:00	0	62	31	2	4	3	0	1	0	0	0	0	0	103
15:00	1	85	32	5	7	1	0	0	0	0	0	0	0	131
16:00	0	75	24	1	10	3	0	1	0	0	0	0	0	114
17:00	0	59	25	0	5	0	0	0	0	0	0	0	0	89
18:00	0	33	12	0	4	1	0	0	0	0	0	0	0	50
19:00	1	37	7	0	5	0	0	0	0	0	0	0	0	50
20:00	0	25	6	0	3	0	0	0	0	0	0	0	0	34
21:00	1	19	6	0	2	1	0	0	0	0	0	0	0	29
22:00	0	16	6	0	0	0	0	1	0	0	0	0	0	23
23:00	0	3	2	0	1	0	0	0	0	0	0	0	0	6
Total	5	1254	472	18	114	15	0	6	3	2	0	0	0	1889
Percent	0.3%	66.4%	25.0%	1.0%	6.0%	0.8%	0.0%	0.3%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	06:00	07:00	06:00	08:00		10:00	07:00	07:00				07:00
Vol.	2	169	62	3	15	2		2	1	1				241
PM Peak	15:00	15:00	15:00	15:00	12:00	14:00		14:00	13:00					15:00
Vol.	1	85	32	5	10	3		1	2					131

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Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/19/14	0	3	0	0	1	0	0	0	1	0	0	0	0	5
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
03:00	0	5	4	0	1	0	0	0	0	0	0	0	0	10
04:00	0	22	7	0	2	0	0	0	0	0	0	0	0	31
05:00	0	58	26	0	3	0	0	0	0	0	0	0	0	87
06:00	0	153	45	1	15	0	0	1	0	0	0	0	0	215
07:00	1	157	47	3	12	1	0	1	0	0	0	0	0	222
08:00	0	121	41	0	7	3	0	0	0	0	0	0	0	172
09:00	0	77	19	1	8	2	0	0	0	0	0	0	0	107
10:00	0	83	32	0	9	2	0	0	0	0	0	0	0	126
11:00	0	45	21	0	4	4	0	0	1	1	0	0	0	76
12 PM	0	71	22	0	7	2	0	1	1	0	0	0	0	104
13:00	0	77	22	1	12	1	0	1	0	0	0	0	0	114
14:00	0	72	27	2	5	1	0	1	0	0	0	0	0	108
15:00	0	100	23	4	10	2	0	0	0	0	0	0	0	139
16:00	0	82	22	1	9	0	0	1	0	0	0	0	0	115
17:00	1	71	14	1	9	1	0	2	0	0	0	0	0	99
18:00	0	52	19	0	5	0	0	0	0	0	0	0	0	76
19:00	0	29	8	1	1	0	0	0	0	0	0	0	0	39
20:00	0	23	7	0	4	0	0	0	0	0	0	0	0	34
21:00	0	35	7	0	3	0	0	0	0	0	0	0	0	45
22:00	0	16	4	0	0	0	0	0	0	0	0	0	0	20
23:00	0	10	5	0	0	0	0	0	0	0	0	0	0	15
Total	2	1366	422	15	128	19	0	8	3	1	0	0	0	1964
Percent	0.1%	69.6%	21.5%	0.8%	6.5%	1.0%	0.0%	0.4%	0.2%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00	07:00	06:00	11:00		06:00	00:00	11:00				07:00
Vol.	1	157	47	3	15	4		1	1	1				222
PM Peak	17:00	15:00	14:00	15:00	13:00	12:00		17:00	12:00					15:00
Vol.	1	100	27	4	12	2		2	1					139

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

144239 A Class
Site Code: 21400121

SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/20/14	0	4	2	0	1	0	0	0	0	0	0	0	0	7
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
03:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
04:00	0	9	4	0	0	0	0	0	0	0	0	0	0	13
05:00	0	21	6	0	4	0	0	0	0	0	0	0	0	31
06:00	0	36	18	0	6	0	0	0	0	0	0	0	0	60
07:00	0	44	19	0	4	0	0	0	0	0	0	0	0	67
08:00	0	62	18	0	5	0	0	0	0	0	0	0	0	85
09:00	0	83	27	0	5	1	0	2	1	0	0	0	0	119
10:00	0	95	27	0	5	0	0	0	0	0	0	0	0	127
11:00	0	97	34	1	7	1	0	0	0	0	0	0	0	140
12 PM	0	87	32	0	10	1	0	0	0	0	0	0	0	130
13:00	0	86	29	0	6	1	0	0	0	0	0	0	0	122
14:00	0	92	27	0	9	1	0	0	0	0	0	0	0	129
15:00	1	75	21	0	6	0	0	0	0	0	0	0	0	103
16:00	0	84	23	0	1	0	0	0	0	0	0	0	0	108
17:00	1	61	13	0	9	0	1	0	0	0	0	0	0	85
18:00	0	49	10	0	2	0	0	0	0	0	0	0	0	61
19:00	1	38	8	0	1	0	0	0	0	0	0	0	0	48
20:00	1	34	3	1	1	0	0	0	0	0	0	0	0	40
21:00	0	25	7	0	1	0	0	0	0	0	0	0	0	33
22:00	0	20	7	0	1	0	0	0	0	0	0	0	0	28
23:00	0	13	4	0	2	0	0	0	0	0	0	0	0	19
Total	4	1125	341	2	86	5	1	2	1	0	0	0	0	1567
Percent	0.3%	71.8%	21.8%	0.1%	5.5%	0.3%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	11:00	11:00	11:00	09:00		09:00	09:00					11:00
Vol.		97	34	1	7	1		2	1					140
PM Peak	15:00	14:00	12:00	20:00	12:00	12:00	17:00							12:00
Vol.	1	92	32	1	10	1	1							130

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SB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/21/1 4	0	6	2	0	0	0	0	0	0	0	0	0	0	8
01:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
02:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
03:00	0	6	1	0	0	0	0	0	0	0	0	0	0	7
04:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
05:00	0	9	3	0	1	0	0	0	0	0	0	0	0	13
06:00	0	27	9	0	1	0	0	0	0	0	0	0	0	37
07:00	0	14	4	0	2	0	0	0	0	0	0	0	0	20
08:00	0	31	9	0	1	0	0	0	0	0	0	0	0	41
09:00	1	62	18	0	2	0	0	0	0	0	0	0	0	83
10:00	1	68	23	0	7	0	0	0	0	0	0	0	0	99
11:00	0	90	25	0	6	0	0	0	0	0	0	0	0	121
12 PM	0	88	21	0	4	0	0	3	0	0	0	0	0	116
13:00	0	65	24	0	4	0	0	0	0	0	0	0	0	93
14:00	0	53	23	0	9	0	0	1	0	0	0	0	0	86
15:00	1	48	15	0	5	0	0	0	0	0	0	0	0	69
16:00	0	70	14	0	1	0	0	0	0	0	0	0	0	85
17:00	0	44	16	0	3	0	0	0	0	0	0	0	0	63
18:00	0	41	13	0	4	0	0	1	0	0	0	0	0	59
19:00	0	41	9	0	3	0	0	0	0	0	0	0	0	53
20:00	0	23	4	0	1	0	0	0	0	0	0	0	0	28
21:00	0	21	3	0	1	0	0	0	0	0	0	0	0	25
22:00	0	13	1	0	1	0	0	0	0	0	0	0	0	15
23:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
Total	3	841	238	0	57	0	0	5	0	0	0	0	0	1144
Percent	0.3%	73.5%	20.8%	0.0%	5.0%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	09:00	11:00	11:00		10:00									11:00
Vol.	1	90	25		7									121
PM Peak	15:00	12:00	13:00		14:00			12:00						12:00
Vol.	1	88	24		9			3						116

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NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/17/14	0	11	0	0	1	0	0	0	0	0	0	0	0	12
01:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
02:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
03:00	0	5	0	0	0	1	0	0	0	0	0	0	0	6
04:00	0	4	0	0	1	0	0	0	0	0	0	0	0	5
05:00	0	15	6	2	2	0	0	1	0	0	0	0	0	26
06:00	0	43	22	4	3	0	0	1	0	0	0	0	0	73
07:00	0	81	35	1	2	0	0	3	0	0	0	0	0	122
08:00	0	54	33	2	5	0	0	1	0	0	0	0	0	95
09:00	0	45	18	1	4	1	0	1	0	0	0	0	0	70
10:00	0	53	17	3	7	1	0	1	1	0	0	0	0	83
11:00	0	49	22	0	3	0	0	0	0	0	0	0	0	74
12 PM	0	51	18	2	0	0	0	0	0	0	0	0	0	71
13:00	0	79	26	1	5	0	0	0	0	0	0	0	0	111
14:00	0	95	38	3	6	0	0	0	1	0	0	0	0	143
15:00	0	128	50	1	8	3	0	2	0	1	0	0	0	193
16:00	1	189	42	0	15	2	0	0	0	0	0	0	0	249
17:00	1	178	51	0	8	4	0	0	0	0	0	0	0	242
18:00	2	106	26	0	5	0	0	0	0	0	0	0	0	139
19:00	0	64	21	0	5	0	0	0	0	0	0	0	0	90
20:00	0	57	16	0	1	0	0	0	0	0	0	0	0	74
21:00	0	39	8	0	1	0	0	0	0	0	0	0	0	48
22:00	0	26	12	0	1	0	0	0	0	0	0	0	0	39
23:00	0	22	3	1	0	0	0	0	0	0	0	0	0	26
Total	4	1402	466	21	83	12	0	10	2	1	0	0	0	2001
Percent	0.2%	70.1%	23.3%	1.0%	4.1%	0.6%	0.0%	0.5%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	06:00	10:00	03:00		07:00	10:00					07:00
Vol.		81	35	4	7	1		3	1					122
PM Peak	18:00	16:00	17:00	14:00	16:00	17:00		15:00	14:00	15:00				16:00
Vol.	2	189	51	3	15	4		2	1	1				249

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NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/18/1														
4	0	13	1	0	1	0	0	0	0	0	0	0	0	15
01:00	0	2	3	0	0	0	0	0	0	0	0	0	0	5
02:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
03:00	0	7	0	0	0	0	0	0	1	0	0	0	0	8
04:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
05:00	0	16	5	2	2	0	0	0	0	0	0	0	0	25
06:00	0	39	25	5	4	0	0	0	2	0	0	0	0	75
07:00	1	75	23	0	2	1	0	3	0	0	0	0	0	105
08:00	0	60	32	2	5	1	0	1	1	0	0	0	0	102
09:00	0	50	22	0	3	0	0	1	0	1	0	0	0	77
10:00	0	35	21	0	6	0	0	1	0	0	0	0	0	63
11:00	0	56	25	0	4	2	0	1	1	0	0	0	0	89
12 PM	0	68	20	0	0	0	0	0	0	0	0	0	0	88
13:00	0	69	27	2	4	3	0	1	0	1	0	0	0	107
14:00	0	103	31	4	5	2	0	0	0	0	0	0	0	145
15:00	0	134	64	2	8	2	0	1	0	0	0	0	0	211
16:00	3	154	54	0	9	1	0	1	1	0	0	0	0	223
17:00	0	194	55	0	14	0	0	0	0	0	0	0	0	263
18:00	0	104	22	0	10	0	0	0	0	0	0	0	0	136
19:00	0	73	15	0	5	0	0	0	0	0	0	0	0	93
20:00	0	47	11	0	3	1	0	0	0	0	0	0	0	62
21:00	0	39	11	0	0	0	0	0	0	0	0	0	0	50
22:00	0	33	4	0	1	0	0	0	0	0	0	0	0	38
23:00	0	22	1	0	0	0	0	1	0	0	0	0	0	24
Total	4	1400	474	17	86	13	0	11	6	2	0	0	0	2013
Percent	0.2%	69.5%	23.5%	0.8%	4.3%	0.6%	0.0%	0.5%	0.3%	0.1%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	06:00	10:00	11:00		07:00	06:00	09:00				07:00
Vol.	1	75	32	5	6	2		3	2	1				105
PM Peak	16:00	17:00	15:00	14:00	17:00	13:00		13:00	16:00	13:00				17:00
Vol.	3	194	64	4	14	3		1	1	1				263

Brookfield Road
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NB

Start Time	Bikes	Cars & Trailers	2 Axle Long	Buses	2 Axle 6 Tire	3 Axle Single	4 Axle Single	<5 Axl Double	5 Axle Double	>6 Axl Double	<6 Axl Multi	6 Axle Multi	>6 Axl Multi	Total
12/19/14	0	13	1	0	1	0	0	0	0	0	0	0	0	15
01:00	0	2	3	0	0	0	0	0	0	0	0	0	0	5
02:00	0	4	0	0	0	1	0	0	0	0	0	0	0	5
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	5	2	0	1	0	0	0	0	0	0	0	0	8
05:00	0	15	9	2	2	0	0	0	0	0	0	0	0	28
06:00	0	34	18	3	4	0	0	0	0	0	0	0	0	59
07:00	0	71	22	1	1	0	2	0	0	0	0	0	0	97
08:00	0	59	23	3	8	1	2	2	0	0	0	0	0	98
09:00	0	59	22	2	9	2	0	0	1	0	0	0	0	95
10:00	0	50	23	0	7	2	0	0	0	0	0	0	0	82
11:00	0	60	18	3	5	6	0	1	0	0	0	0	0	93
12 PM	0	58	23	3	4	3	0	0	0	0	0	0	0	91
13:00	0	70	34	0	6	0	0	1	0	0	0	0	0	111
14:00	0	109	28	4	8	1	0	1	0	0	0	0	0	151
15:00	0	121	49	2	8	1	0	2	1	0	0	0	0	184
16:00	0	169	61	0	12	0	0	0	0	0	0	0	0	242
17:00	1	176	54	0	7	0	0	0	0	0	0	0	0	238
18:00	1	120	21	0	2	0	0	0	0	0	0	0	0	144
19:00	0	64	14	0	3	0	0	0	0	0	0	0	0	81
20:00	0	50	9	0	4	0	0	0	0	0	0	0	0	63
21:00	0	53	12	0	4	0	0	0	0	0	0	0	0	69
22:00	0	39	9	0	1	0	0	0	0	0	0	0	0	49
23:00	0	33	9	0	0	0	0	0	0	0	0	0	0	42
Total	2	1435	464	23	97	17	4	7	2	0	0	0	0	2051
Percent	0.1%	70.0%	22.6%	1.1%	4.7%	0.8%	0.2%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	08:00	06:00	09:00	11:00	07:00	08:00	09:00					08:00
Vol.		71	23	3	9	6	2	2	1					98
PM Peak	17:00	17:00	16:00	14:00	16:00	12:00		15:00	15:00					16:00
Vol.	1	176	61	4	12	3		2	1					242

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12/20/14	0	16	0	0	2	0	0	0	0	0	0	0	0	18
01:00	0	8	4	0	0	0	0	0	0	0	0	0	0	12
02:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
03:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
04:00	0	1	2	0	0	0	0	0	0	0	0	0	0	3
05:00	0	11	4	0	0	0	0	0	0	0	0	0	0	15
06:00	0	12	9	0	5	0	0	0	0	0	0	0	0	26
07:00	0	21	11	1	2	0	0	0	0	0	0	0	0	35
08:00	0	48	13	0	0	0	0	0	0	0	0	0	0	61
09:00	0	59	23	0	7	0	0	0	0	0	0	0	0	89
10:00	0	87	24	0	4	0	0	0	1	0	0	0	0	116
11:00	1	84	36	1	2	1	0	1	0	0	0	0	0	126
12 PM	2	91	43	0	4	2	0	0	0	0	0	0	0	142
13:00	0	88	25	0	4	1	0	1	0	0	0	0	0	119
14:00	0	101	34	0	7	0	0	1	0	0	0	0	0	143
15:00	0	113	32	0	3	0	0	0	0	0	0	0	0	148
16:00	0	97	27	0	7	0	0	0	0	0	0	0	0	131
17:00	0	84	20	0	4	0	0	0	0	0	0	0	0	108
18:00	0	60	16	0	1	0	0	0	0	0	0	0	0	77
19:00	1	50	14	0	3	0	0	0	0	0	0	0	0	68
20:00	1	41	5	0	0	0	0	0	0	0	0	0	0	47
21:00	0	40	12	0	0	0	0	0	0	0	0	0	0	52
22:00	0	34	8	0	1	0	0	0	0	0	0	0	0	43
23:00	0	28	3	0	4	0	0	0	0	0	0	0	0	35
Total	5	1185	366	2	60	4	0	3	1	0	0	0	0	1626
Percent	0.3%	72.9%	22.5%	0.1%	3.7%	0.2%	0.0%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	11:00	10:00	11:00	07:00	09:00	11:00		11:00	10:00					11:00
Vol.	1	87	36	1	7	1		1	1					126
PM Peak	12:00	15:00	12:00		14:00	12:00		13:00						15:00
Vol.	2	113	43		7	2		1						148

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12/21/1														
4	0	12	6	0	0	0	0	0	0	0	0	0	0	18
01:00	0	10	2	0	1	0	0	0	0	0	0	0	0	13
02:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
03:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
04:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	6	4	0	0	0	0	0	0	0	0	0	0	10
06:00	0	7	2	0	1	0	0	0	0	0	0	0	0	10
07:00	0	15	7	0	1	0	0	0	0	0	0	0	0	23
08:00	0	26	11	0	4	0	0	0	0	0	0	0	0	41
09:00	0	47	12	0	0	0	0	0	0	0	0	0	0	59
10:00	0	54	23	1	0	0	0	0	0	0	0	0	0	78
11:00	0	74	28	0	4	0	0	1	0	0	0	0	0	107
12 PM	0	84	22	0	2	0	0	0	0	0	0	0	0	108
13:00	0	101	22	0	4	0	0	1	0	0	0	0	0	128
14:00	1	71	13	0	2	0	0	1	0	0	0	0	0	88
15:00	1	66	21	1	2	0	0	0	0	0	0	0	0	91
16:00	0	77	26	0	4	0	0	0	0	0	0	0	0	107
17:00	0	77	19	0	2	0	0	0	0	0	0	0	0	98
18:00	0	61	19	0	0	0	0	0	0	0	0	0	0	80
19:00	0	37	3	0	0	0	0	0	0	0	0	0	0	40
20:00	0	29	13	0	1	0	0	0	0	0	0	0	0	43
21:00	0	30	5	0	0	0	0	0	0	0	0	0	0	35
22:00	0	23	3	0	0	0	0	0	0	0	0	0	0	26
23:00	0	9	0	0	1	0	0	0	0	0	0	0	0	10
Total	2	932	265	2	30	0	0	3	0	0	0	0	0	1234
Percent	0.2%	75.5%	21.5%	0.2%	2.4%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		11:00	11:00	10:00	08:00			11:00						11:00
Vol.		74	28	1	4			1						107
PM Peak	14:00	13:00	16:00	15:00	13:00			13:00						13:00
Vol.	1	101	26	1	4			1						128

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

144239 A Speed
Site Code: 21400121

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/17/ 14	0	0	0	2	0	2	2	0	0	0	0	0	0	6	41	35
01:00	0	0	0	0	0	1	0	1	0	0	0	0	0	2	47	42
02:00	0	0	0	0	0	2	1	0	0	0	0	0	0	3	41	39
03:00	0	0	0	0	0	1	5	3	0	**2**	0	0	0	11	54	46
04:00	0	0	0	0	0	11	15	9	1	0	0	0	0	36	46	42
05:00	0	0	0	0	1	25	49	21	3	0	0	0	0	99	46	42
06:00	0	0	0	0	**4**	48	**128**	32	2	0	0	0	0	214	44	42
07:00	0	0	0	**3**	3	**51**	115	51	6	0	**1**	0	0	**230**	46	42
08:00	0	0	1	0	0	16	73	**55**	**9**	1	1	0	0	156	47	44
09:00	0	0	1	0	2	11	53	30	8	1	0	0	0	106	47	43
10:00	0	0	**2**	1	2	8	41	26	7	1	0	0	0	88	47	43
11:00	0	**1**	0	0	0	17	52	20	5	1	0	0	0	96	46	43
12 PM	0	0	0	0	1	22	37	23	7	1	**1**	0	0	92	47	43
13:00	0	0	0	0	1	12	46	24	5	**2**	0	0	0	90	47	43
14:00	0	0	0	0	3	10	46	26	**10**	1	0	0	0	96	48	44
15:00	0	0	0	0	1	29	**65**	**37**	8	0	0	0	0	**140**	47	43
16:00	0	0	0	0	0	**35**	59	31	0	0	0	0	0	125	45	42
17:00	0	0	0	**4**	2	27	41	21	0	0	0	0	0	95	45	41
18:00	0	0	0	0	**4**	18	31	14	5	0	0	0	0	72	46	42
19:00	0	0	**1**	1	0	4	19	8	0	0	0	0	0	33	45	42
20:00	0	0	0	0	3	12	13	4	1	1	0	0	0	34	45	41
21:00	0	0	0	0	0	7	15	7	2	0	0	0	0	31	47	43
22:00	0	0	0	0	0	5	6	5	0	1	0	0	0	17	47	43
23:00	0	0	0	0	0	1	2	3	1	0	0	0	0	7	48	45
Total	0	1	5	11	27	375	914	451	80	12	3	0	0	1879		
%	0.0%	0.1%	0.3%	0.6%	1.4%	20.0%	48.6%	24.0%	4.3%	0.6%	0.2%	0.0%	0.0%			
AM Peak		11:00	10:00	07:00	06:00	07:00	06:00	08:00	08:00	03:00	07:00			07:00		
Vol.		1	2	3	4	51	128	55	9	2	1			230		
PM Peak			19:00	17:00	18:00	16:00	15:00	15:00	14:00	13:00	12:00			15:00		
Vol.			1	4	4	35	65	37	10	2	1			140		

Stats

15th Percentile :	37 MPH
50th Percentile :	41 MPH
85th Percentile :	46 MPH
95th Percentile :	49 MPH
Mean Speed(Average) :	42 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1365
Percent in Pace :	72.6%
Number of Vehicles > 40 MPH :	1277
Percent of Vehicles > 40 MPH :	68.0%

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
Client: BTTC/ L. Bristol

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

144239 A Speed
Site Code: 21400121

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/18/ 14	0	0	0	0	1	0	3	0	2	0	0	0	0	6	51	44
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	1	1	1	1	0	0	0	0	4	51	44
03:00	0	0	0	0	0	0	3	5	1	0	0	0	0	9	48	46
04:00	0	0	0	0	0	7	16	6	1	1	0	0	0	31	46	43
05:00	0	0	0	0	0	16	55	23	2	0	0	0	0	96	46	43
06:00	0	0	0	0	3	**50**	**124**	42	4	0	0	0	0	223	45	42
07:00	0	0	0	1	**6**	32	115	**73**	**14**	0	0	0	0	**241**	47	43
08:00	0	0	**2**	1	1	26	90	56	8	1	0	0	0	185	47	43
09:00	0	0	0	0	0	9	38	29	10	1	0	0	0	87	48	44
10:00	0	0	0	0	1	9	45	39	4	0	0	0	0	98	47	44
11:00	0	0	0	**2**	3	10	40	26	5	**2**	**1**	0	0	89	47	43
12 PM	0	0	0	0	3	19	46	27	**8**	0	0	0	0	103	47	43
13:00	0	0	0	0	5	12	40	24	7	0	0	0	0	88	47	43
14:00	0	0	0	0	3	21	40	**33**	6	0	0	0	0	103	47	43
15:00	0	0	0	1	1	**27**	**67**	29	4	**2**	0	0	0	**131**	46	42
16:00	0	0	0	0	1	17	60	33	3	0	0	0	0	114	46	43
17:00	0	0	0	0	**6**	27	37	15	4	0	0	0	0	89	45	41
18:00	0	0	0	1	0	12	21	14	2	0	0	0	0	50	47	42
19:00	0	0	0	**2**	1	11	22	11	3	0	0	0	0	50	46	42
20:00	0	0	0	0	0	10	16	5	1	2	0	0	0	34	46	42
21:00	0	0	**1**	0	1	6	17	3	1	0	0	0	0	29	43	41
22:00	0	0	0	0	0	12	4	6	1	0	0	0	0	23	46	41
23:00	0	0	0	0	0	0	2	2	2	0	0	0	0	6	51	47
Total	0	0	3	8	36	334	902	502	94	9	1	0	0	1889		
%	0.0%	0.0%	0.2%	0.4%	1.9%	17.7%	47.8%	26.6%	5.0%	0.5%	0.1%	0.0%	0.0%			
AM Peak			08:00	11:00	07:00	06:00	06:00	07:00	07:00	11:00	11:00			07:00		
Vol.			2	2	6	50	124	73	14	2	1			241		
PM Peak			21:00	19:00	17:00	15:00	15:00	14:00	12:00	15:00				15:00		
Vol.			1	2	6	27	67	33	8	2				131		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	49 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1404
Percent in Pace :	74.3%
Number of Vehicles > 40 MPH :	1328
Percent of Vehicles > 40 MPH :	70.3%

Brookfield Road
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Email: datarequests@pdillc.com

144239 A Speed
Site Code: 21400121

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/19/ 14	0	0	0	0	1	1	0	2	1	0	0	0	0	5	50	43
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	3	0	2	0	0	0	0	0	5	47	41
03:00	0	0	**1**	0	0	2	3	3	1	0	0	0	0	10	48	42
04:00	0	0	0	0	0	8	17	5	1	0	0	0	0	31	45	42
05:00	0	0	0	0	1	8	43	24	10	0	**1**	0	0	87	48	44
06:00	0	0	1	**1**	1	**37**	**123**	43	9	0	0	0	0	215	46	42
07:00	0	0	0	0	**3**	26	110	**65**	**16**	2	0	0	0	**222**	47	44
08:00	0	0	0	1	0	20	84	52	12	**3**	0	0	0	172	47	44
09:00	0	0	0	1	0	12	59	29	5	1	0	0	0	107	47	43
10:00	0	0	0	0	1	19	62	34	8	2	0	0	0	126	47	43
11:00	0	0	0	0	2	9	35	21	8	1	0	0	0	76	48	44
12 PM	0	0	**1**	0	2	16	51	26	8	0	0	0	0	104	47	43
13:00	0	0	0	0	2	14	**56**	26	13	**3**	0	0	0	114	48	44
14:00	0	0	0	0	2	**19**	53	27	7	0	0	0	0	108	47	43
15:00	0	0	0	0	4	15	51	**49**	**18**	2	0	0	0	**139**	48	44
16:00	0	0	1	**1**	8	17	53	29	3	3	0	0	0	115	47	42
17:00	0	0	0	0	**9**	19	48	21	2	0	0	0	0	99	45	41
18:00	0	0	0	0	4	18	45	8	1	0	0	0	0	76	43	41
19:00	0	0	0	1	0	11	15	7	4	1	0	0	0	39	48	43
20:00	0	0	0	0	2	14	10	6	2	0	0	0	0	34	46	41
21:00	0	0	0	0	0	12	19	13	1	0	0	0	0	45	46	42
22:00	0	0	0	0	2	7	7	1	3	0	0	0	0	20	49	41
23:00	0	0	0	0	0	4	7	3	0	1	0	0	0	15	46	43
Total	0	0	4	5	44	311	951	496	133	19	1	0	0	1964		
%	0.0%	0.0%	0.2%	0.3%	2.2%	15.8%	48.4%	25.3%	6.8%	1.0%	0.1%	0.0%	0.0%			
AM Peak			03:00	06:00	07:00	06:00	06:00	07:00	07:00	08:00	05:00			07:00		
Vol.			1	1	3	37	123	65	16	3	1			222		
PM Peak			12:00	16:00	17:00	14:00	13:00	15:00	15:00	13:00				15:00		
Vol.			1	1	9	19	56	49	18	3				139		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	51 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1447
Percent in Pace :	73.7%
Number of Vehicles > 40 MPH :	1410
Percent of Vehicles > 40 MPH :	71.8%

Brookfield Road
north of Old Red Barn
City, State: Charlton, MA
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144239 A Speed
Site Code: 21400121

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/20/ 14	0	0	0	0	0	1	5	1	0	0	0	0	0	7	43	42
01:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1	43	42
02:00	0	0	0	0	0	2	1	1	1	0	0	0	0	5	50	43
03:00	0	0	0	0	0	0	3	3	0	0	0	0	0	6	47	45
04:00	0	0	0	0	1	2	5	4	1	0	0	0	0	13	47	43
05:00	0	0	0	0	0	3	13	11	4	0	0	0	0	31	48	45
06:00	0	0	0	0	**2**	9	27	13	6	**3**	0	0	0	60	48	44
07:00	0	0	0	0	1	5	31	22	8	0	0	0	0	67	48	44
08:00	0	0	0	0	1	8	39	24	12	1	0	0	0	85	49	44
09:00	0	0	0	0	0	**15**	48	**46**	10	0	0	0	0	119	48	44
10:00	0	0	**1**	**1**	1	15	62	39	8	0	0	0	0	127	47	43
11:00	0	0	1	0	1	10	**80**	34	**14**	0	0	0	0	**140**	47	44
12 PM	0	0	0	0	1	19	57	**48**	5	0	0	0	0	**130**	47	43
13:00	0	0	0	0	1	19	61	34	7	0	0	0	0	122	47	43
14:00	0	0	0	0	1	13	**65**	37	**13**	0	0	0	0	129	48	44
15:00	0	0	0	0	1	10	53	32	7	0	0	0	0	103	47	44
16:00	0	0	0	2	2	**26**	55	17	4	**2**	0	0	0	108	46	42
17:00	0	0	0	0	3	21	46	13	2	0	0	0	0	85	44	41
18:00	0	0	0	0	5	19	29	6	2	0	0	0	0	61	43	40
19:00	0	0	**2**	1	6	12	20	7	0	0	0	0	0	48	43	39
20:00	0	0	0	1	5	13	17	3	1	0	0	0	0	40	43	39
21:00	0	0	0	**3**	**8**	14	6	1	1	0	0	0	0	33	41	37
22:00	0	0	0	0	4	9	14	1	0	0	0	0	0	28	42	39
23:00	0	0	0	0	5	6	7	1	0	0	0	0	0	19	42	38
Total	0	0	4	8	49	251	745	398	106	6	0	0	0	1567		
%	0.0%	0.0%	0.3%	0.5%	3.1%	16.0%	47.5%	25.4%	6.8%	0.4%	0.0%	0.0%	0.0%			
AM Peak			10:00	10:00	06:00	09:00	11:00	09:00	11:00	06:00				11:00		
Vol.			1	1	2	15	80	46	14	3				140		
PM Peak			19:00	21:00	21:00	16:00	14:00	12:00	14:00	16:00				12:00		
Vol.			2	3	8	26	65	48	13	2				130		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	50 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1143
Percent in Pace :	72.9%
Number of Vehicles > 40 MPH :	1106
Percent of Vehicles > 40 MPH :	70.6%

Brookfield Road
north of Old Red Barn
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Email: datarequests@pdillc.com

144239 A Speed
Site Code: 21400121

SB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/21/ 14	0	0	0	0	1	3	4	0	0	0	0	0	0	8	42	39
01:00	0	0	0	0	1	2	1	1	0	0	0	0	0	5	45	39
02:00	0	0	0	0	0	2	1	1	0	0	0	0	0	4	46	41
03:00	0	0	0	0	0	4	1	0	2	0	0	0	0	7	51	42
04:00	0	0	0	**1**	1	3	3	1	0	0	0	0	0	9	43	38
05:00	0	0	0	0	2	6	4	1	0	0	0	0	0	13	42	39
06:00	0	0	0	1	**3**	10	13	9	1	0	0	0	0	37	46	41
07:00	0	0	0	0	0	4	7	7	1	**1**	0	0	0	20	48	44
08:00	0	0	0	0	0	4	23	12	2	0	0	0	0	41	47	43
09:00	0	0	**1**	0	2	**16**	36	26	2	0	0	0	0	83	46	42
10:00	0	0	0	0	0	9	51	32	**7**	0	0	0	0	99	47	44
11:00	0	0	1	0	1	14	**61**	**37**	6	1	0	0	0	**121**	47	43
12 PM	0	0	0	**3**	**4**	16	**51**	32	**7**	**3**	0	0	0	**116**	47	43
13:00	0	0	0	0	0	7	44	**35**	7	0	0	0	0	93	48	44
14:00	0	0	0	1	4	14	40	21	5	1	0	0	0	86	47	43
15:00	0	0	0	0	0	6	29	26	7	1	0	0	0	69	48	45
16:00	0	0	0	1	2	12	48	15	6	1	0	0	0	85	47	43
17:00	0	0	0	0	3	**22**	23	14	1	0	0	0	0	63	45	41
18:00	0	0	0	0	2	19	25	9	3	1	0	0	0	59	46	42
19:00	0	0	0	0	1	8	28	14	2	0	0	0	0	53	46	43
20:00	0	0	0	0	1	9	10	5	3	0	0	0	0	28	47	42
21:00	0	0	0	0	0	5	11	6	3	0	0	0	0	25	48	43
22:00	0	0	0	0	0	5	6	4	0	0	0	0	0	15	46	42
23:00	0	0	0	0	0	2	1	2	0	0	0	0	0	5	47	42
Total	0	0	2	7	28	202	521	310	65	9	0	0	0	1144		
%	0.0%	0.0%	0.2%	0.6%	2.4%	17.7%	45.5%	27.1%	5.7%	0.8%	0.0%	0.0%	0.0%			
AM Peak			09:00	04:00	06:00	09:00	11:00	11:00	10:00	07:00				11:00		
Vol.			1	1	3	16	61	37	7	1				121		
PM Peak				12:00	12:00	17:00	12:00	13:00	12:00	12:00				12:00		
Vol.				3	4	22	51	35	7	3				116		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	50 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	831
Percent in Pace :	72.6%
Number of Vehicles > 40 MPH :	801
Percent of Vehicles > 40 MPH :	70.0%

Brookfield Road
north of Old Red Barn
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144239 A Speed
Site Code: 21400121

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/17/ 14	0	**1**	0	0	1	1	3	2	4	0	0	0	0	12	51	43
01:00	0	0	0	0	0	1	8	0	0	0	0	0	0	9	43	41
02:00	0	0	0	0	0	0	0	0	0	1	0	0	0	1	58	57
03:00	0	0	0	0	0	1	4	0	1	0	0	0	0	6	49	43
04:00	0	0	0	0	0	2	2	1	0	0	0	0	0	5	45	41
05:00	0	0	0	1	1	6	12	6	0	0	0	0	0	26	45	41
06:00	0	0	0	0	**7**	20	32	10	3	1	0	0	0	73	45	41
07:00	0	0	**1**	0	0	**23**	**63**	26	**6**	1	**1**	**1**	0	**122**	47	43
08:00	0	0	0	0	5	19	44	20	4	**3**	0	0	0	95	47	42
09:00	0	0	0	1	1	7	34	21	6	0	0	0	0	70	47	44
10:00	0	0	0	**2**	0	15	40	22	4	0	0	0	0	83	47	43
11:00	0	0	0	0	1	9	32	**27**	5	0	0	0	0	74	47	44
12 PM	0	0	0	1	1	12	30	19	**7**	1	0	0	0	71	48	43
13:00	0	**1**	0	**2**	1	29	52	22	4	0	0	0	0	111	46	41
14:00	0	0	0	0	**7**	29	63	40	4	0	0	0	0	143	46	42
15:00	0	0	**1**	2	5	41	93	**45**	6	0	0	0	0	193	46	42
16:00	0	0	0	0	1	**59**	145	37	6	1	0	0	0	**249**	44	42
17:00	0	0	0	0	0	47	**154**	39	2	0	0	0	0	242	44	42
18:00	0	0	1	0	2	27	69	35	4	0	**1**	0	0	139	46	42
19:00	0	0	1	1	0	13	37	31	6	1	0	0	0	90	47	43
20:00	0	0	0	0	1	9	38	22	2	1	1	0	0	74	47	43
21:00	0	0	0	0	0	10	17	14	3	**4**	0	0	0	48	48	44
22:00	0	0	0	0	0	5	18	12	4	0	0	0	0	39	48	44
23:00	0	0	0	0	2	6	11	3	3	1	0	0	0	26	49	42
Total	0	2	4	10	36	391	1001	454	84	15	3	1	0	2001		
%	0.0%	0.1%	0.2%	0.5%	1.8%	19.5%	50.0%	22.7%	4.2%	0.7%	0.1%	0.0%	0.0%			
AM Peak		00:00	07:00	10:00	06:00	07:00	07:00	11:00	07:00	08:00	07:00	07:00		07:00		
Vol.		1	1	2	7	23	63	27	6	3	1	1		122		
PM Peak		13:00	15:00	13:00	14:00	16:00	17:00	15:00	12:00	21:00	18:00			16:00		
Vol.		1	1	2	7	59	154	45	7	4	1			249		

Stats

15th Percentile :	37 MPH
50th Percentile :	41 MPH
85th Percentile :	46 MPH
95th Percentile :	49 MPH
Mean Speed(Average) :	42 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1455
Percent in Pace :	72.7%
Number of Vehicles > 40 MPH :	1358
Percent of Vehicles > 40 MPH :	67.9%

Brookfield Road
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144239 A Speed
Site Code: 21400121

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/18/ 14	0	0	0	0	0	5	1	7	2	0	0	0	0	15	48	44
01:00	0	0	0	0	0	0	3	0	1	**1**	0	0	0	5	55	47
02:00	0	0	0	0	0	0	2	0	0	1	0	0	0	3	56	47
03:00	0	0	0	0	0	4	3	1	0	0	0	0	0	8	43	40
04:00	0	0	0	0	0	2	0	2	1	1	0	0	0	6	54	46
05:00	0	0	0	0	1	5	13	5	0	1	0	0	0	25	46	42
06:00	0	0	0	0	3	**27**	36	9	0	0	0	0	0	75	43	40
07:00	0	0	0	0	2	22	**53**	**22**	**6**	0	0	0	0	**105**	46	42
08:00	0	0	**1**	**3**	**10**	26	40	18	4	0	0	0	0	102	45	40
09:00	0	0	1	0	0	13	37	20	6	0	0	0	0	77	47	43
10:00	0	0	0	0	0	10	37	14	2	0	0	0	0	63	46	43
11:00	0	0	0	0	2	14	47	22	3	1	0	0	0	89	46	43
12 PM	0	0	0	1	3	15	38	24	6	1	0	0	0	88	47	43
13:00	**1**	**1**	0	0	0	24	50	27	4	0	0	0	0	107	46	42
14:00	0	0	0	0	4	34	73	30	4	0	0	0	0	145	46	42
15:00	0	0	0	**2**	**8**	**64**	80	49	8	0	0	0	0	211	46	42
16:00	0	0	**1**	1	5	47	111	48	**10**	0	0	0	0	223	46	42
17:00	0	0	0	0	3	37	**160**	**57**	6	0	0	0	0	**263**	46	42
18:00	0	0	0	0	2	28	74	27	5	0	0	0	0	136	46	42
19:00	0	0	0	0	1	15	45	28	2	1	**1**	0	0	93	47	43
20:00	0	0	0	0	0	7	29	19	5	**2**	0	0	0	62	48	44
21:00	0	1	0	0	2	9	16	16	6	0	0	0	0	50	48	43
22:00	0	0	0	0	1	5	20	9	2	1	0	0	0	38	47	43
23:00	0	0	0	0	0	2	11	8	3	0	0	0	0	24	48	44
Total	1	2	3	7	47	415	979	462	86	10	1	0	0	2013		
%	0.0%	0.1%	0.1%	0.3%	2.3%	20.6%	48.6%	23.0%	4.3%	0.5%	0.0%	0.0%	0.0%			
AM Peak			08:00	08:00	08:00	06:00	07:00	07:00	07:00	01:00				07:00		
Vol.			1	3	10	27	53	22	6	1				105		
PM Peak	13:00	13:00	16:00	15:00	15:00	15:00	17:00	17:00	16:00	20:00	19:00			17:00		
Vol.	1	1	1	2	8	64	160	57	10	2	1			263		

Stats

15th Percentile :	36 MPH
50th Percentile :	41 MPH
85th Percentile :	46 MPH
95th Percentile :	48 MPH
Mean Speed(Average) :	42 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1441
Percent in Pace :	71.6%
Number of Vehicles > 40 MPH :	1342
Percent of Vehicles > 40 MPH :	66.7%

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144239 A Speed
Site Code: 21400121

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/19/ 14	0	0	0	0	0	3	3	7	1	**1**	0	0	0	15	48	45
01:00	0	0	0	0	0	1	3	1	0	0	0	0	0	5	45	42
02:00	0	0	0	0	1	1	3	0	0	0	0	0	0	5	42	39
03:00	0	0	0	0	0	0	1	0	0	0	0	0	0	1	43	42
04:00	0	0	0	0	0	1	0	6	0	1	0	0	0	8	48	47
05:00	0	0	0	0	1	6	12	8	1	0	0	0	0	28	47	42
06:00	0	0	0	0	**6**	8	26	15	3	1	0	0	0	59	47	42
07:00	0	0	0	0	2	19	47	20	8	1	0	0	0	97	47	43
08:00	0	0	0	1	2	**25**	41	19	**10**	0	0	0	0	**98**	47	42
09:00	0	0	**1**	**2**	1	16	**49**	**22**	3	1	0	0	0	95	46	42
10:00	0	0	0	0	3	10	44	22	3	0	0	0	0	82	46	43
11:00	0	0	0	1	5	16	44	20	7	0	0	0	0	93	47	42
12 PM	0	0	**3**	1	4	16	29	33	5	0	0	0	0	91	47	42
13:00	0	0	0	0	3	16	44	41	7	0	0	0	0	111	47	43
14:00	0	0	0	0	7	33	65	40	6	0	0	0	0	151	46	42
15:00	0	0	1	**3**	**10**	23	92	44	10	1	0	0	0	184	47	42
16:00	0	0	0	0	4	40	**144**	43	**11**	0	0	0	0	**242**	46	42
17:00	0	0	0	1	5	**42**	122	**58**	8	**2**	0	0	0	238	46	43
18:00	0	0	0	0	4	19	78	35	8	0	0	0	0	144	47	43
19:00	0	0	0	1	1	14	35	25	5	0	0	0	0	81	47	43
20:00	0	0	0	1	0	9	31	17	5	0	0	0	0	63	47	43
21:00	0	0	0	0	0	10	30	26	2	1	0	0	0	69	47	44
22:00	0	0	0	0	1	3	26	13	5	1	0	0	0	49	48	44
23:00	0	0	0	0	0	6	21	15	0	0	0	0	0	42	46	43
Total	0	0	5	11	60	337	990	530	108	10	0	0	0	2051		
%	0.0%	0.0%	0.2%	0.5%	2.9%	16.4%	48.3%	25.8%	5.3%	0.5%	0.0%	0.0%	0.0%			
AM Peak			09:00	09:00	06:00	08:00	09:00	09:00	08:00	00:00				08:00		
Vol.			1	2	6	25	49	22	10	1				98		
PM Peak			12:00	15:00	15:00	17:00	16:00	17:00	16:00	17:00				16:00		
Vol.			3	3	10	42	144	58	11	2				242		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	49 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1520
Percent in Pace :	74.1%
Number of Vehicles > 40 MPH :	1440
Percent of Vehicles > 40 MPH :	70.2%

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144239 A Speed
Site Code: 21400121

NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/20/ 14	0	0	0	0	1	3	4	7	3	0	0	0	0	18	49	44
01:00	0	0	0	0	1	0	4	5	2	0	0	0	0	12	49	45
02:00	0	0	0	0	0	3	2	2	0	1	0	0	0	8	48	43
03:00	0	0	0	0	0	0	2	1	1	0	0	0	0	4	51	46
04:00	0	0	0	0	0	0	1	0	1	1	0	0	0	3	56	50
05:00	0	0	0	0	0	1	11	3	0	0	0	0	0	15	45	43
06:00	0	0	0	0	0	5	10	10	1	0	0	0	0	26	47	43
07:00	0	0	0	0	0	3	17	8	7	0	0	0	0	35	50	45
08:00	0	0	0	1	0	8	36	14	2	0	0	0	0	61	46	43
09:00	0	0	0	**2**	**3**	9	39	29	7	0	0	0	0	89	47	43
10:00	0	0	0	1	1	7	**61**	34	10	**2**	0	0	0	116	48	44
11:00	0	0	**2**	1	1	**17**	54	**39**	**11**	1	0	0	0	**126**	48	43
12 PM	0	0	0	0	1	18	61	**45**	**15**	**2**	0	0	0	142	48	44
13:00	0	0	0	0	0	13	61	37	5	1	**2**	0	0	119	47	44
14:00	0	0	0	0	1	21	68	44	8	1	0	0	0	143	47	43
15:00	0	0	0	0	2	23	**75**	33	13	2	0	0	0	**148**	47	43
16:00	0	0	0	0	0	**37**	60	28	5	1	0	0	0	131	46	42
17:00	0	0	**1**	**3**	0	21	63	17	3	0	0	0	0	108	45	41
18:00	0	0	0	0	1	19	39	17	1	0	0	0	0	77	45	42
19:00	0	0	0	2	6	26	26	7	1	0	0	0	0	68	43	39
20:00	0	0	0	0	2	14	23	8	0	0	0	0	0	47	44	41
21:00	0	0	0	0	**7**	21	20	4	0	0	0	0	0	52	43	39
22:00	0	0	0	0	4	13	18	8	0	0	0	0	0	43	44	40
23:00	0	0	0	0	2	12	16	5	0	0	0	0	0	35	43	40
Total	0	0	3	10	33	294	771	405	96	12	2	0	0	1626		
%	0.0%	0.0%	0.2%	0.6%	2.0%	18.1%	47.4%	24.9%	5.9%	0.7%	0.1%	0.0%	0.0%			
AM Peak			11:00	09:00	09:00	11:00	10:00	11:00	11:00	10:00				11:00		
Vol.			2	2	3	17	61	39	11	2				126		
PM Peak			17:00	17:00	21:00	16:00	15:00	12:00	12:00	12:00	13:00			15:00		
Vol.			1	3	7	37	75	45	15	2	2			148		

Stats

15th Percentile :	37 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	50 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	1176
Percent in Pace :	72.3%
Number of Vehicles > 40 MPH :	1132
Percent of Vehicles > 40 MPH :	69.6%

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NB

Start Time	1 14	15 19	20 24	25 29	30 34	35 39	40 44	45 49	50 54	55 59	60 64	65 69	70 9999	Total	85th % ile	Ave Speed
12/21/ 14	0	0	0	0	0	7	7	2	2	0	0	0	0	18	47	42
01:00	0	0	0	0	0	3	5	5	0	0	0	0	0	13	47	43
02:00	0	0	0	0	0	4	6	1	1	0	0	0	0	12	44	42
03:00	0	0	**1**	0	**1**	2	0	0	0	0	0	0	0	4	37	32
04:00	0	0	0	0	1	3	1	0	0	0	0	0	0	5	40	37
05:00	0	0	0	0	0	3	6	1	0	0	0	0	0	10	43	41
06:00	0	0	0	0	0	2	4	2	1	**1**	0	0	0	10	51	45
07:00	0	0	0	0	0	6	12	4	1	0	0	0	0	23	45	42
08:00	0	0	0	0	0	4	22	10	4	1	0	0	0	41	48	44
09:00	0	0	0	0	1	**14**	28	11	5	0	0	0	0	59	47	42
10:00	0	0	0	0	1	11	36	27	3	0	0	0	0	78	47	43
11:00	0	0	0	0	1	10	**52**	**36**	**8**	0	0	0	0	**107**	47	44
12 PM	0	0	**1**	0	2	20	47	32	5	1	0	0	0	108	47	43
13:00	0	0	0	**1**	0	12	53	**52**	7	**3**	0	0	0	**128**	48	44
14:00	0	0	0	0	0	8	46	29	5	0	0	0	0	88	47	44
15:00	0	0	0	0	1	17	38	29	6	0	0	0	0	91	47	43
16:00	0	0	0	0	1	18	**59**	26	3	0	0	0	0	107	46	43
17:00	0	0	0	0	**3**	**21**	46	20	**8**	0	0	0	0	98	47	42
18:00	0	**1**	0	0	1	13	47	11	6	0	**1**	0	0	80	46	42
19:00	0	0	0	0	0	5	23	12	0	0	0	0	0	40	46	43
20:00	0	0	0	0	2	6	22	10	3	0	0	0	0	43	47	43
21:00	0	0	0	0	0	6	20	4	5	0	0	0	0	35	48	43
22:00	0	0	0	0	0	6	7	10	2	1	0	0	0	26	48	44
23:00	0	0	0	0	0	1	5	3	1	0	0	0	0	10	48	44
Total	0	1	2	1	15	202	592	337	76	7	1	0	0	1234		
%	0.0%	0.1%	0.2%	0.1%	1.2%	16.4%	48.0%	27.3%	6.2%	0.6%	0.1%	0.0%	0.0%			
AM Peak			03:00		03:00	09:00	11:00	11:00	11:00	06:00				11:00		
Vol.			1		1	14	52	36	8	1				107		
PM Peak		18:00	12:00	13:00	17:00	17:00	16:00	13:00	17:00	13:00	18:00			13:00		
Vol.		1	1	1	3	21	59	52	8	3	1			128		

Stats

15th Percentile :	38 MPH
50th Percentile :	42 MPH
85th Percentile :	47 MPH
95th Percentile :	50 MPH
Mean Speed(Average) :	43 MPH
10 MPH Pace Speed :	40-49 MPH
Number in Pace :	929
Percent in Pace :	75.3%
Number of Vehicles > 40 MPH :	895
Percent of Vehicles > 40 MPH :	72.5%

APPENDIX B

HIGHWAY CAPACITY ANALYSIS

Capacity Analyses
Current Year (2014) Existing Condition
Weekday AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	242	0	0	128	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	281	0	0	168	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	281	0	0	168	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	242	0	0	128	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	281	0	0	168	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			281		450	281
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			281		450	281
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1275		566	755

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	281	168	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1275	1700
Volume to Capacity	0.17	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	16.1%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	140	0	0	275	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	1.00
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	171	0	0	293	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	171	0	0	293	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	0	0	275	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	1.00
Hourly flow rate (vph)	171	0	0	293	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			171		463	171
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			171		463	171
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1400		556	871

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	171	293	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1400	1700
Volume to Capacity	0.10	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	17.8%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analyses
Current Year (2014) Existing Condition
Weekend AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	133	0	0	118	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	153	0	0	131	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	153	0	0	131	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	133	0	0	118	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	153	0	0	131	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			153		284	153
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			153		284	153
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1422		704	891

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	153	131	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1422	1700
Volume to Capacity	0.09	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	141	0	0	156	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	162	0	0	205	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	162	0	0	205	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	141	0	0	156	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	162	0	0	205	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			162		367	162
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			162		367	162
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1411		631	880

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	162	205	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1411	1700
Volume to Capacity	0.10	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	11.5%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analyses
Future Year (2019) No-Build Condition
Weekday AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	264	0	0	140	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	307	0	0	184	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	307	0	0	184	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	264	0	0	140	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	307	0	0	184	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			307		491	307
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			307		491	307
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1248		535	731

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	307	184	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1248	1700
Volume to Capacity	0.18	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	17.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	147	0	0	289	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	179	0	0	307	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	179	0	0	307	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	147	0	0	289	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	179	0	0	307	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			179		487	179
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			179		487	179
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1390		538	861

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	179	307	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1390	1700
Volume to Capacity	0.11	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	18.5%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analyses
Future Year (2019) No-Build Condition
Weekend AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	140	0	0	124	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	161	0	0	138	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	161	0	0	138	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	0	0	124	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	161	0	0	138	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			161		299	161
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			161		299	161
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1412		691	882

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	161	138	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1412	1700
Volume to Capacity	0.09	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	10.7%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt						
Flt Protected						
Satd. Flow (prot)	1872	0	0	1882	1872	0
Flt Permitted						
Satd. Flow (perm)	1872	0	0	1882	1872	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	148	0	0	164	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	170	0	0	216	0	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	170	0	0	216	0	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	148	0	0	164	0	0
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	170	0	0	216	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			170		386	170
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			170		386	170
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		100	100
cM capacity (veh/h)			1401		616	871

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	170	216	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1401	1700
Volume to Capacity	0.10	0.00	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	12.0%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analyses
Future Year (2019) Build Condition
Weekday AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.995				0.955	
Flt Protected				0.998	0.968	
Satd. Flow (prot)	1863	0	0	1878	1731	0
Flt Permitted				0.998	0.968	
Satd. Flow (perm)	1863	0	0	1878	1731	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	264	11	5	140	15	7
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	307	13	7	184	16	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	320	0	0	191	24	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	264	11	5	140	15	7
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.86	0.86	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	307	13	7	184	16	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			320		511	313
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			320		511	313
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		97	99
cM capacity (veh/h)			1235		519	725

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	320	191	24
Volume Left	0	7	16
Volume Right	13	0	8
cSH	1700	1235	570
Volume to Capacity	0.19	0.01	0.04
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.3	11.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.6
Approach LOS			B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	24.6%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.983				0.955	
Flt Protected				0.998	0.968	
Satd. Flow (prot)	1841	0	0	1878	1731	0
Flt Permitted				0.998	0.968	
Satd. Flow (perm)	1841	0	0	1878	1731	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	147	21	9	289	17	8
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	179	26	10	307	18	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	0	0	317	27	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	147	21	9	289	17	8
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.82	0.82	0.94	0.94	0.92	0.92
Hourly flow rate (vph)	179	26	10	307	18	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			205		519	192
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			205		519	192
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			99		96	99
cM capacity (veh/h)			1361		512	847

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	205	317	27
Volume Left	0	10	18
Volume Right	26	0	9
cSH	1700	1361	587
Volume to Capacity	0.12	0.01	0.05
Queue Length 95th (ft)	0	1	4
Control Delay (s)	0.0	0.3	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	0.3	11.4
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Capacity Analyses
Future Year (2019) Build Condition
Weekend AM, PM
Brookfield Road/Site Driveway

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	0		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.946				0.961	
Flt Protected				0.988	0.966	
Satd. Flow (prot)	1771	0	0	1859	1738	0
Flt Permitted				0.988	0.966	
Satd. Flow (perm)	1771	0	0	1859	1738	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	140	95	40	124	31	13
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	161	109	44	138	34	14
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	0	0	182	48	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	140	95	40	124	31	13
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.90	0.90	0.92	0.92
Hourly flow rate (vph)	161	109	44	138	34	14
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			270		442	216
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			270		442	216
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			97		94	98
cM capacity (veh/h)			1288		552	822

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	270	182	48
Volume Left	0	44	34
Volume Right	109	0	14
cSH	1700	1288	611
Volume to Capacity	0.16	0.03	0.08
Queue Length 95th (ft)	0	3	6
Control Delay (s)	0.0	2.2	11.4
Lane LOS		A	B
Approach Delay (s)	0.0	2.2	11.4
Approach LOS			B

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12
Grade (%)	-3%			-4%	-3%	
Storage Length (ft)		0	100		0	0
Storage Lanes		0	0		1	0
Taper Length (ft)		25	25		25	25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt	0.965				0.959	
Flt Protected				0.994	0.966	
Satd. Flow (prot)	1807	0	0	1870	1735	0
Flt Permitted				0.994	0.966	
Satd. Flow (perm)	1807	0	0	1870	1735	0
Link Speed (mph)	35			35	30	
Link Distance (ft)	897			2857	450	
Travel Time (s)	17.5			55.7	10.2	

Intersection Summary

Area Type: Other

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Volume (vph)	148	52	22	164	79	34
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Adj. Flow (vph)	170	60	29	216	86	37
Shared Lane Traffic (%)						
Lane Group Flow (vph)	230	0	0	245	123	0

Intersection Summary

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	148	52	22	164	79	34
Sign Control	Free			Free	Stop	
Grade	-3%			-4%	-3%	
Peak Hour Factor	0.87	0.87	0.76	0.76	0.92	0.92
Hourly flow rate (vph)	170	60	29	216	86	37
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			230		474	200
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			230		474	200
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			98		84	96
cM capacity (veh/h)			1332		536	839

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total	230	245	123
Volume Left	0	29	86
Volume Right	60	0	37
cSH	1700	1332	601
Volume to Capacity	0.14	0.02	0.20
Queue Length 95th (ft)	0	2	19
Control Delay (s)	0.0	1.1	12.5
Lane LOS		A	B
Approach Delay (s)	0.0	1.1	12.5
Approach LOS			B

Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		

APPENDIX C

CRASH RATE WORKSHEETS
AND
ACCIDENT DATA

MassDOT

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : CHARLTON COUNT DATE: Dec. 18, 2014, PM Peak

DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

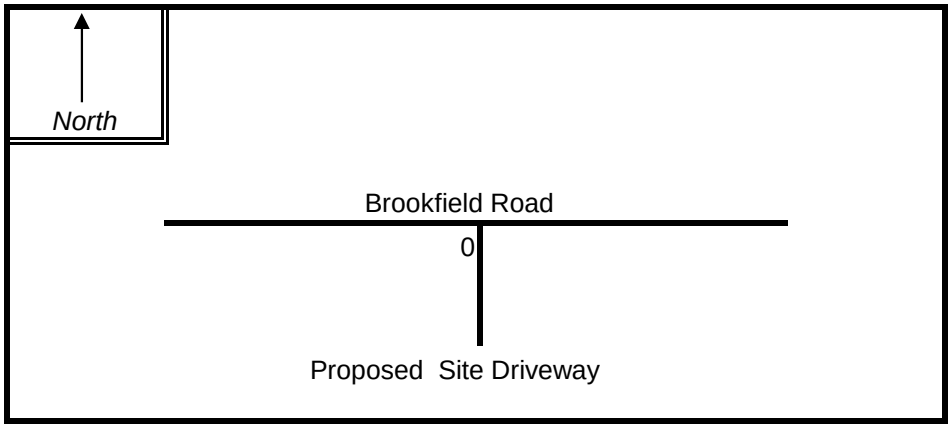
~ INTERSECTION DATA ~

MAJOR STREET : **BROOKFIELD ROAD**

MINOR STREET(S) : **SITE ENTRANCE DRIVEWAY**

MDOT Accident Reports

INTERSECTION DIAGRAM (Label Approaches)



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	NB	SB	EB	WB		
PEAK HOURLY VOLUMES (AM/***PM***) :	0		128	252		**380**

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **4,222**

TOTAL # OF CRASHES : 0 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : 0.00

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

Comments : Townwide Accident reports obtained 2010 -2012 from MDOT by BTTC LLC.

Project Title & Date: Brookfield Road Campground & Motocross Park Driveway Intersection Dec2014

MassDOT

SEGMENT CRASH RATE WORKSHEET

CITY/TOWN : Charlton COUNT DATE : Dec. 18, 2014 Thurs.

DISTRICT : 3

~ SEGMENT DATA ~

ROADWAY NAME: Brookfield Road

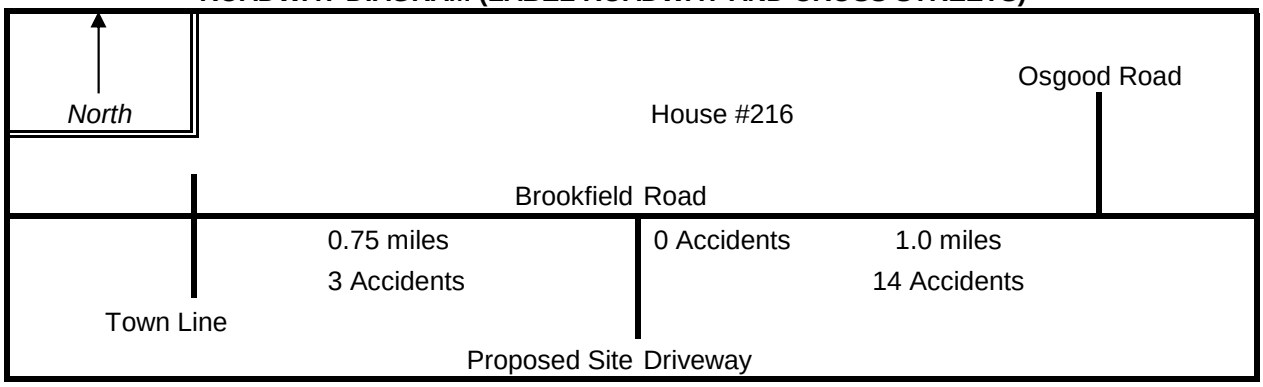
START POINT: 3/4 Mile West of Proposed Site Driveway at Town Line

END POINT: 1.0 Miles East of Proposed Site Driveway at Osgood Road

FUNCTIONAL CLASSIFICATION OF ROADWAY: Rural Major Collector

7 Accidents w/ U.Poles, 2 Embankment, 1 Curb, 1 Ditch, 6 Veh angle. (3 Inj, 14 PDO)

ROADWAY DIAGRAM (LABEL ROADWAY AND CROSS STREETS)



AVERAGE DAILY TRAFFIC

SEGMENT LENGTH IN MILES (**L**):	**1.75**
AVERAGE DAILY TRAFFIC VOLUME (**V**):	3,900

TOTAL # OF CRASHES:	17	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (**A**) :	**5.67**

CRASH RATE CALCULATION : **2.27**

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

Comments : Townwide Accident reports obtained 2010 -2012 from MDOT by BTTC LLC.

Project Title: Brookfield Road Campground & Motocross Park Driveway Intersection Dec2014

massDOT ssDOT Crash Report for CHARLTON for the year 2010

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	# of Vehicles	Non fatal Injuries	Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	ist a	ls t	Distance from Nearest Landmark	on M ot	X Coordinate	Y Coordinate
2573877	CHARLTON	08-Jan-2010	6:10 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with utility pole	V1: Passenger car	Snow	Dark - roadway not lighted	Cloudy		26 BROOKFIELD ROAD					159532.14490	877730.95762
2573383	CHARLTON	09-Jan-2010	9:34 PM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark - lighted roadway	Clear	BROOKFIELD ROAD / WORCESTER ROAD / MASONIC HOME ROAD					159749.62523	877377.31247
2577114	CHARLTON	28-Jan-2010	6:29 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with light pole or other post/support	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Ice	Dawn	Cloudy/Blowing sand, snow		244 BROOKFIELD ROAD			POLE 130		156867.1369	879191.2205
2576817	CHARLTON (CHARLTON CITY)	29-Jan-2010	11:55 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Daylight	Clear	Rte 20 / WORCESTER ROAD / BROOKFIELD ROAD						159749.6252	877377.3125
2576577	CHARLTON	02-Feb-2010	6:17 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Dark - lighted roadway	Cloudy	Rte 31 / BROOKFIELD ROAD / WORCESTER ROAD						159749.6252	877377.3125
2585330	CHARLTON (CHARLTON CITY)	16-Feb-2010	9:21 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with utility pole	V1: Passenger car	Snow	Daylight	Snow		880 feet S from Intersection BROOKFIELD ROAD / FITZGERALD ROAD					158398.7203	878970.0133
2586815	CHARLTON	13-Mar-2010	5:48 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Northbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Dark - lighted roadway	Rain/Severe crosswinds	WORCESTER ROAD / MASONIC HOME ROAD / BROOKFIELD ROAD						159749.6252	877377.3125
2586967	CHARLTON	29-Mar-2010	4:06 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Wet	Daylight	Rain/Cloudy	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2590746	CHARLTON	22-Apr-2010	5:56 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with utility pole	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	BROOKFIELD ROAD / OSGOOD ROAD						158718.2499	878590.9998
2604538	CHARLTON	27-May-2010	12:47 PM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with utility pole	V1: Passenger car	Wet	Dark - roadway not lighted	Cloudy/Rain		500 feet S from Intersection 54 BROOKFIELD ROAD					159263.2856	878091.5753
2614812	CHARLTON	16-Jun-2010	3:56 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Eastbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	WORCESTER ROAD / BROOKFIELD ROAD / MASONIC HOME ROAD						159749.6252	877377.3125
2620180	CHARLTON	19-Jul-2010	9:45 AM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	WORCESTER ROAD / BROOKFIELD ROAD						159749.6252	877377.3125
2641354	CHARLTON	23-Jul-2010	4:46 PM	Non-fatal injury	2	3	0	Head-on	V1: Turning left / V2:Travelling straight ahead	V1:Westbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Daylight	Cloudy/Rain	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2637216	CHARLTON	30-Aug-2010	7:37 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Not reported	Dry	Dusk	Clear	BROOKFIELD ROAD / POWER STATION ROAD						159584.7034	877642.3749
2641350	CHARLTON	08-Sep-2010	00:00 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with guardrail	V1: Passenger car	Dry	Dark - unknown roadway lighting	Cloudy/Unknown		73 BROOKFIELD ROAD					158990.8377	878252.8206
2652204	CHARLTON	26-Sep-2010	3:15 PM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Not reported	Dry	Daylight	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2647857	CHARLTON	02-Oct-2010	1:19 PM	Property damage only (none injured)	2	0	0	Angle	V1: Entering traffic lane / V2:Travelling straight ahead	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2927516	CHARLTON	08-Oct-2010	7:10 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with utility pole	V1: Passenger car	Dry	Daylight	Clear/Unknow		276 BROOKFIELD ROAD					156601.6933	879539.3385
2652205	CHARLTON	15-Oct-2010	6:55 AM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Not reported	Wet	Daylight	Rain	BROOKFIELD ROAD / STAFFORD STREET						159659.4533	877514.9376
2651816	CHARLTON	18-Oct-2010	7:05 AM	Property damage only (none injured)	4	0	0	Angle	V1: Travelling straight ahead / V2:Leaving traffic lane / V3:Travelling straight ahead / V4:Travelling straight ahead	V1:Southbound / V2:Northbound / V3:Southbound / V4:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic / V4: Collision with motor vehicle in traffic	V1: Unknown heavy truck, cannot classify / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V3:Passenger car / V4:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear		BROOKFIELD ROAD						
2661436	CHARLTON	30-Oct-2010	5:13 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Other	V1: Passenger car	Wet	Dark - roadway not lighted	Cloudy/Unknown		142 BROOKFIELD ROAD			10 feet S from 142 BROOKFIELD RD		158325.1945	879002.4756
2734541	CHARLTON	04-Nov-2010	3:27 PM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic	V1:Not reported / V2:Not reported	V1: Not reported / V2: Not reported	V1: Not reported / V2:Not reported	Wet	Daylight	Cloudy/Rain		308 BROOKFIELD ROAD						

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	# of Vehicles	Non fatal Injuries	Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	is at	is at	Distance from Nearest Landmark	on Mot	X Coordinate	Y Coordinate
2661443	CHARLTON	06-Nov-2010	6:47 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Turning right	V1:Southbound	V1: Collision with highway traffic sign post	V1: Passenger car	Wet	Dark - roadway not lighted	Cloudy/Rain		20 feet N from Intersection BROOKFIELD ROAD / WORCESTER ROAD					159745.5399	877381.8374
2691155	CHARLTON	07-Nov-2010	9:18 AM	Not Reported	2	0	0	Rear-end	V1: Not reported / V2:Not reported	V1:Not reported / V2:Not reported	V1: Not reported / V2: Not reported	V1: Not reported / V2:Not reported	Dry	Daylight	Clear	BROOKFIELD ROAD Rte 31 S / STURBRIDGE ROAD Rte 20 E / MASONIC HOME ROAD Rte 31 N				AT MOBIL STATION		159749.6252	877377.3125
2689387	CHARLTON	24-Nov-2010	2:48 PM	Property damage only (none injured)	4	0	0	Rear-end	V1: Not reported / V2:Not reported / V3:Not reported / V4:Not reported	V1:Not reported / V2:Not reported / V3:Not reported / V4:Not reported	V1: Not reported / V2: Not reported / V3: Not reported / V4: Not reported	V1: Not reported / V2:Passenger car / V3:Not reported / V4:Not reported	Dry	Daylight	Clear	STURBRIDGE ROAD Rte 20 E / BROOKFIELD ROAD Rte 31 S / MASONIC HOME ROAD Rte 31 N						159749.6252	877377.3125
2676553	CHARLTON	29-Nov-2010	2:46 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with utility pole	V1: Passenger car	Dry	Daylight	Clear		205 BROOKFIELD ROAD					157338.7359	879084.4102
2668246	CHARLTON	30-Nov-2010	5:03 PM	Non-fatal injury	2	1	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Dark - lighted roadway	Not Reported		STURBRIDGE ROAD Rte 20 W / BROOKFIELD ROAD					159749.6252	877377.3125
2668890	CHARLTON	04-Dec-2010	9:59 AM	Non-fatal injury	2	1	0	Head-on	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Southbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Daylight	Clear		BROOKFIELD ROAD / Rte 20					159749.625	877377.3127
2690113	CHARLTON	12-Dec-2010	6:45 AM	Property damage only (none injured)	1	0	0	Angle	V1: Travelling straight ahead	V1:Southbound	V1: Collision with embankment	V1: Passenger car	Ice	Dawn	Sleet, hail (freezing rain or drizzle)		BROOKFIELD ROAD / OSGOOD ROAD					158718.2499	878590.9998

massDOT sDOT Crash Report for CHARLTON for the year 2011

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	# of Vehicles	Nonfatal Injuries	Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	st an ce	st a nc	Distance from Nearest Landmark	on M	X Coordinate	Y Coordinate
2687460	CHARLTON	19-Jan-2011	9:03 PM	Property damage only (none injured)	2	0	0	Angle	V1: Entering traffic lane / V2:Travelling straight ahead	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Snow	Daylight	Clear		1000 feet S from Intersection SOUTH STURBRIDGE ROAD / BROOKFIELD ROAD			21 SOUTH STURBRIDGE ROAD/DUBOIS		159434.3163	877439.0643
2702171	CHARLTON	10-Feb-2011	6:11 PM	Property damage only (none injured)	3	0	0	Single vehicle crash	V1: Slowing or stopped in traffic / V2:Travelling straight ahead / V3:Travelling straight ahead	V1:Northbound / V2:Northbound / V3:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car / V3:Passenger car	Dry	Dawn	Cloudy/Severe crosswinds		100 feet N from Intersection 111 BROOKFIELD ROAD / OSGOOD ROAD					158698.0486	878613.8239
2704439	CHARLTON	14-Feb-2011	3:30 PM	Property damage only (none injured)	2	0	0	Rear-end	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Westbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	WORCESTER ROAD / MASONIC HOME ROAD / BROOKFIELD ROAD					159749.6252	877377.3125
2699641	CHARLTON	24-Feb-2011	11:34 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with guardrail	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Snow	Dark - lighted roadway	Snow		BROOKFIELD ROAD			300 FT S OF ASH ROAD			
3110834	CHARLTON	24-Feb-2011	11:34 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with guardrail	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Snow	Dark - lighted roadway	Snow		300 feet S from Intersection BROOKFIELD ROAD / ASHLEY ROAD					158998.3969	878242.8603
2710852	CHARLTON	03-Apr-2011	00:00 AM	Not Reported	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Dark - roadway not lighted	Not Reported	BROOKFIELD ROAD / OSGOOD ROAD						158718.2499	878590.9998
2717881	CHARLTON	19-Apr-2011	2:21 PM	Property damage only (none injured)	2	0	0	Angle	V1: Turning right / V2:Turning left	V1:Eastbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Wet	Daylight	Cloudy	WORCESTER ROAD / MASONIC HOME ROAD / BROOKFIELD ROAD						159749.6252	877377.3125
3134037	CHARLTON	07-May-2011	2:55 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with guardrail	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Wet	Daylight	Rain		68 BROOKFIELD ROAD					159054.1409	878179.095
2732547	CHARLTON	08-Jun-2011	7:34 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Other	Dry	Daylight	Clear	BROOKFIELD ROAD / CITY DEPOT ROAD						159544.9281	877710.0618
2737718	CHARLTON	21-Jun-2011	1:44 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Passenger car	Dry	Daylight	Clear		CITY DEPOT ROAD Rte 31 / BROOKFIELD ROAD Rte 31					159544.928	877710.0617
2747227	CHARLTON	23-Jul-2011	3:27 PM	Property damage only (none injured)	2	0	0	Sideswipe, opposite direction	V1: Turning left / V2:Travelling straight ahead	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear		36 WORCESTER ROAD / BROOKFIELD ROAD					159749.6252	877377.3125
2923299	CHARLTON	27-Aug-2011	5:02 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with other movable object	V1: Passenger car	Wet	Daylight	Rain		68 BROOKFIELD ROAD					159054.2248	878179.0469
2778992	CHARLTON	16-Sep-2011	7:06 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Passenger car	Dry	Dusk	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2792871	CHARLTON	03-Oct-2011	2:24 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Eastbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Cloudy		38 WORCESTER ROAD / BROOKFIELD ROAD			8 feet N from 38 WORCESTER ROAD		159749.6252	877377.3125
2792876	CHARLTON	11-Oct-2011	7:50 AM	Property damage only (none injured)	2	0	0	Angle	V1: Turning left / V2:Travelling straight ahead	V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Light truck(van, mini-van, panel, pickup, sport utility) with only four tires	Dry	Daylight	Clear	BROOKFIELD ROAD / OSGOOD ROAD					158718.2499	878590.9998
2844088	CHARLTON	03-Nov-2011	9:53 AM	Not Reported	2	0	0	Head-on	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Eastbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Not reported / V2:Not reported	Dry	Daylight	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2849893	CHARLTON	06-Nov-2011	11:17 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	BROOKFIELD ROAD / FITZGERALD ROAD						158143.8263	879048.9362
2853583	CHARLTON	26-Nov-2011	3:15 PM	Non-fatal injury	2	1	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Motorcycle	Dry	Daylight	Clear	BROOKFIELD ROAD / STAFFORD STREET						159659.4533	877514.9376
3039610	CHARLTON	30-Nov-2011	5:32 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Light truck(van, mini-van, panel, pickup, sport utility) with only four tires / V2:Passenger car	Dry	Dusk	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
2954312	CHARLTON	05-Dec-2011	6:59 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Entering traffic lane	V1:Northbound / V2:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Fog, smog, smoke	JENNINGS ROAD / BROOKFIELD ROAD						157772.2971	879112.8752
2902833	CHARLTON	26-Dec-2011	8:53 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Turning left	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Dark - lighted roadway	Clear	BROOKFIELD ROAD / WORCESTER ROAD						159749.6252	877377.3125

massDOT sDOT Crash Report for CHARLTON for the year 2012

Crash Number	City/Town Name	Crash Date	Crash Time	Crash Severity	# of Vehicles	Nonfatal Injuries	Fatal Injuries	Manner of Collision	Vehicle Action Prior to Crash	Vehicle Travel Directions	Most Harmful Events	Vehicle Configuration	Road Surface Condition	Ambient Light	Weather Condition	At Roadway Intersection	Distance from Nearest Roadway Intersection	st an ce	st an ce	Distance from Nearest Landmark	on M	X Coordinate	Y Coordinate
3010730	CHARLTON	22-Jan-2012	5:26 PM	Non-fatal injury	1	3	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with utility pole	V1: Passenger car	Ice	Dark - roadway not lighted	Snow/Sleet, hail (freezing rain or drizzle)		68 BROOKFIELD ROAD					159054.2248	878179.0469
2971263	CHARLTON	29-Feb-2012	2:49 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Other	V1: Not reported	Snow	Daylight	Snow/Sleet, hail (freezing rain or drizzle)		66 BROOKFIELD ROAD					159084.0903	878165.9834
3068786	CHARLTON	22-Feb-2012	5:40 AM	Not Reported	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Other	V1: Passenger car	Ice	Dawn	Rain/Sleet, hail (freezing rain or drizzle)		68 BROOKFIELD ROAD			AT UTILITY POLE #28		159054.1409	878179.095
2962747	CHARLTON	09-Mar-2012	1:17 PM	Non-fatal injury	3	2	0	Rear-end	V1: Slowing or stopped in traffic / V2:Slowing or stopped in traffic / V3:Slowing or stopped in traffic	V1:Westbound / V2:Westbound / V3:Westbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic / V3: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car / V3:Tractor/semi-trailer	Dry	Daylight	Clear	WORCESTER ROAD Rte 20 W / BROOKFIELD ROAD						159749.6252	877377.3125
3090340	CHARLTON	11-Mar-2012	12:42 PM	Property damage only (none injured)	2	0	0	Angle	V1: Slowing or stopped in traffic / V2:Travelling straight ahead	V1:Westbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Other / V2:Not reported	Dry	Daylight	Clear	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
3002958	CHARLTON	18-Mar-2012	2:55 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with curb	V1: Passenger car	Dry	Dark - lighted roadway	Clear	STURBRIDGE ROAD Rte 20 W / MASONIC HOME ROAD Rte 31 / BROOKFIELD ROAD Rte 31						159749.6252	877377.3125
3102319	CHARLTON	25-Mar-2012	4:51 PM	Non-fatal injury	1	1	0	Single vehicle	V1: Travelling straight ahead	V1:Southbound	V1: Collision with tree	V1: Passenger car	Dry	Daylight	Cloudy		BROOKFIELD ROAD						
3102306	CHARLTON	31-Mar-2012	11:03 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with ditch	V1: Passenger car	Dry	Dark - lighted roadway	Clear		180 BROOKFIELD ROAD					157779.2387	879115.5538
3038151	CHARLTON	03-Apr-2012	11:08 AM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Eastbound / V2:Eastbound	V1: Collision with median barrier / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	WORCESTER ROAD / MASONIC HOME ROAD /						159749.6252	877377.3125
3102322	CHARLTON	11-Apr-2012	5:43 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Slowing or stopped in traffic	V1:Southbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	BROOKFIELD ROAD / STAFFORD STREET						159659.4533	877514.9376
3170992	CHARLTON	18-May-2012	11:45 PM	Property damage only (none injured)	2	0	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Westbound / V2:Northbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Dark - lighted roadway	Cloudy	STAFFORD STREET / BROOKFIELD ROAD						159659.4533	877514.9376
3169545	CHARLTON	22-May-2012	5:30 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with embankment	V1: Passenger car	Wet	Daylight	Cloudy/Rain		66 BROOKFIELD ROAD			POLE 66 27		159083.9736	878166.022
3244579	CHARLTON	28-Jun-2012	4:43 PM	Non-fatal injury	2	1	0	Angle	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Northbound / V2:Eastbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Passenger car / V2:Passenger car	Dry	Daylight	Clear	WORCESTER ROAD / BROOKFIELD ROAD						159749.6252	877377.3125
3250351	CHARLTON	15-Jul-2012	2:03 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with tree	V1: Passenger car	Dry	Dark - lighted roadway	Clear		74 BROOKFIELD ROAD					158990.8257	878252.8364
3282174	CHARLTON	15-Aug-2012	10:22 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Westbound	V1: Collision with utility pole	V1: Passenger car	Dry	Dark - roadway not lighted	Cloudy	OSGOOD ROAD / BROOKFIELD ROAD						158718.2499	878590.9998
3247841	CHARLTON	24-Aug-2012	6:41 AM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with guardrail	V1: Passenger car	Dry	Daylight	Clear		BROOKFIELD ROAD			ACROSS POLE 81			
3263872	CHARLTON	28-Aug-2012	3:38 AM	Non-fatal injury	1	1	0	Single vehicle crash	V1: Travelling straight ahead	V1:Southbound	V1: Collision with curb	V1: Passenger car	Wet	Dark - lighted roadway	Rain/Fog, smog, smoke		171 BROOKFIELD ROAD					158040.0184	879080.4337
3362640	CHARLTON	20-Dec-2012	8:21 AM	Not Reported	2	0	0	Rear-end	V1: Travelling straight ahead / V2:Travelling straight ahead	V1:Southbound / V2:Southbound	V1: Collision with motor vehicle in traffic / V2: Collision with motor vehicle in traffic	V1: Single-unit truck (2-axle, 6-tire) / V2:Passenger car	Dry	Daylight	Clear	BROOKFIELD ROAD							
3353925	CHARLTON	31-Dec-2012	5:16 PM	Property damage only (none injured)	1	0	0	Single vehicle crash	V1: Travelling straight ahead	V1:Northbound	V1: Collision with embankment	V1: Passenger car	Snow	Dawn	Clear		137 BROOKFIELD ROAD					158468.7024	878904.2351

APPENDIX D

TRIP GENERATION CALCULATIONS

Trip Generation Calculations

ITE Land Use Code (416) – Campground Recreational Vehicle (150 Camp Sites)
Weekday Peak Hour of Adjacent Street Traffic

AM Peak Hour at Adjacent Street Traffic between 7:00 and 9:00 AM
Average Rate = 0.21 trips/Occupied Camp Site
(Assume 90% Occupancy=135 Sites) x 0.21 = 29 Two-Way Trips

Fitted Curve Equation T=0.16(X)+2.93 = 25 Two-Way Trips

Directional Distribution = 36% Enter = 10 Trips / Hour
(Average Rate) 64% Exit = 19 Trips / Hour

PM Peak Hour at Adjacent Street Traffic between 4:00 and 6:00 PM
Average Rate = 0.27 trips/Occupied Camp Site
(Assume 90% Occupancy=135 Sites) x 0.27 = 37 Two-Way Trips

Fitted Curve Equation Ln(T)=0.71Ln(X)-0.06 = 31 Two-Way Trips

Directional Distribution = 65% Enter = 24 Trips / Hour
(Average Rate) 35% Exit = 13 Trips / Hour

MidDay Peak Hour at Adjacent Street Traffic between 12:00 and 1:00 PM
No ITE Data. Assume Midday is equal to PM. Midday Brookfield road traffic is very low therefore not to be analyzed for LOS.

SATURDAY
No data from ITE.
Assumed to be similar to Weekdays

Motocross and Offroad Park Trip Generation Estimates

It should be noted that many of the casual riders and participants in competition events at this site will utilize the campground, staying onsite, particularly on weekends. Thus those riders will not generate as many separate trips from and to the site after arrival and camp setup. Therefore this analysis assumes that at a minimum of 33% of the campground sites (50 sites) will be utilized by these recreational users on weekends and <15% (20 sites) are assumed to be campers during the weekdays, resulting in a reduction of arrivals and departures generated by the bike riders. Also during weekend competition events, many will finish their event and leave the site randomly throughout the afternoon or into the early evening, further reducing trip concentration on any given hour of the weekend.

Based on typical trips at two other similar facilities, the following is anticipated for trips at this facility, with reduction for campground use or random arrival, which will be adjusted for these estimates:

Weekday Total Vehicles / Day 30-50 Vehicles between 8AM and 7PM
50 Vehs. - 20 at Campground = 30 Vehs. = **60 Trips/Day (Enter + Exit)**

AM Peak Hour at Adjacent Street Traffic between 8:00 and 9:00 AM
Assume 10% Arrive between 8-9AM, Assume 5% Exit 8-9 AM

Directional Distribution = 10% Enter = 6 Trips / Hour
5% Exit = 3 Trips / Hour

PM Peak Hour at Adjacent Street Traffic between 4:00 and 6:00 PM
Assume 10% Arrive between 4-6 PM, Assume 20% Exit 4-6 PM

Directional Distribution = 10% Enter = 6 Trips / Hour
20% Exit = 12 Trips / Hour

MD Peak hour between 12:00 and 2:00 PM
60 Trips - 27 AM+PM Trips =33 Remaining Trips. (See report Section 3.2)

33 Trips / 9 Hours Remaining for Typical Weekday Operation = 4 Trips/Hour Avg.
Midday assumed to be 20% greater than an average hour.
Midday 4 Trips x 120% = 5 Trips

Directional Distribution = 50% Enter = 3 Trips / Hour
50% Exit = 2 Trips / Hour

Weekend Vehicles / Day 80-120 Vehicles between 8AM and 7PM
(No Scheduled event)
Note: Calculate Event Days as More Trips Occur During Event Days

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Weekend Vehicles / Day for **Events**
(10 Events/Year) Saturday 250-300 Vehs between 8AM & 7PM
Sunday 250-300 Vehs between 9AM & 5PM
Saturday 300 Vehs. - 50 at Campground = 250 Vehs. = 500 Trips/Day (Enter + Exit)

AM Peak Hour at Adjacent Street Traffic between 9:00 and 11:00 AM
Assume 25% Arrive between 9-11 AM, Assume 5% Exit 9 11 AM

Directional Distribution = 25% Enter = 125 Trips / Hour
5% Exit = 25 Trips / Hour

PM Peak Hour at Adjacent Street Traffic between 2:00 and 3:00 PM
Assume 10% Arrive between 2-4 PM, Assume 20% Exit 4-6 PM

Directional Distribution = 10% Enter = 50 Trips / Hour
20% Exit = 100 Trips / Hour

MD Peak hour between 12:00 and 1:00 PM
500 Trips - 300 AM+PM Trips =200 Remaining Trips. (See report Section 3.2). Due to Event add 20% additional to average for Event Saturday.

200 Trips / 9 Hours Remaining for Typical Weekend Operation = 22 Trips/Hour Avg.
Midday assumed to be 20% greater than an average hour.
Midday 22 Trips x 140% = 31 Trips

Directional Distribution = 75% Enter = 23 Trips / Hour
25% Exit = 8 Trips / Hour

Land Use: 416
Campground/Recreational Vehicle Park

Description

Campgrounds and recreational vehicle parks are recreational sites that accommodate campers, trailers, tents and recreational vehicles on a transient basis. They are found in a variety of locations and provide a variety of facilities, often including restrooms with showers and recreational facilities, such as a swimming pool, convenience store and laundromat.

Additional Data

The sites were surveyed in the late 1980s, the 1990s and the 2000s in California, Rhode Island, Washington and Vermont.

Source Numbers

264, 401, 559, 728

Campground/Recreational Vehicle Park
(416)

Average Vehicle Trip Ends vs: Occupied Camp Sites
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

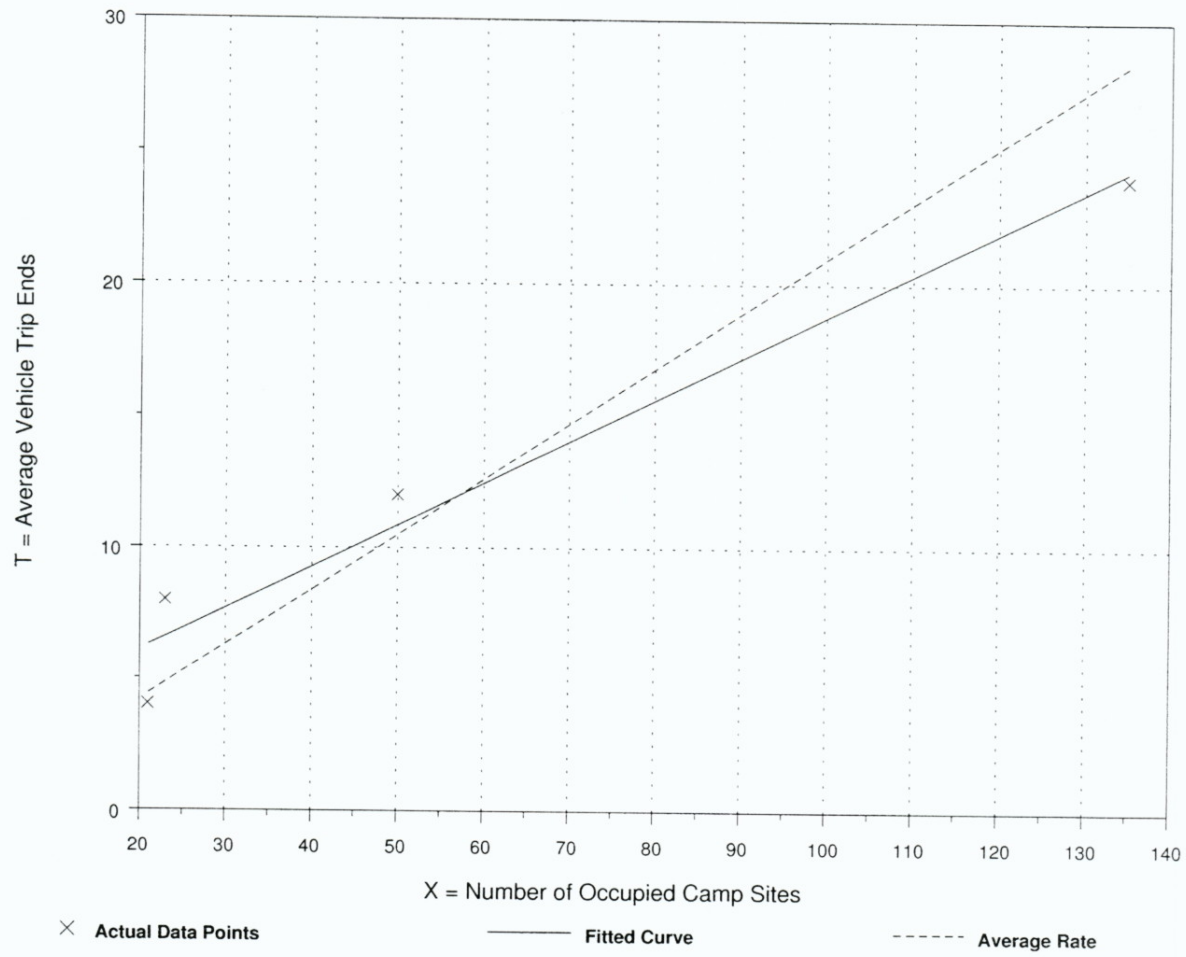
Number of Studies: 4
Average Number of Occupied Camp Sites: 57
Directional Distribution: 36% entering, 64% exiting

Trip Generation per Occupied Camp Site

Average Rate	Range of Rates	Standard Deviation
0.21	0.18 - 0.35	0.46

Data Plot and Equation

Caution - Use Carefully - Small Sample Size



Fitted Curve Equation: T = 0.16(X) + 2.93

R^2 = 0.96

Campground/Recreational Vehicle Park
(416)

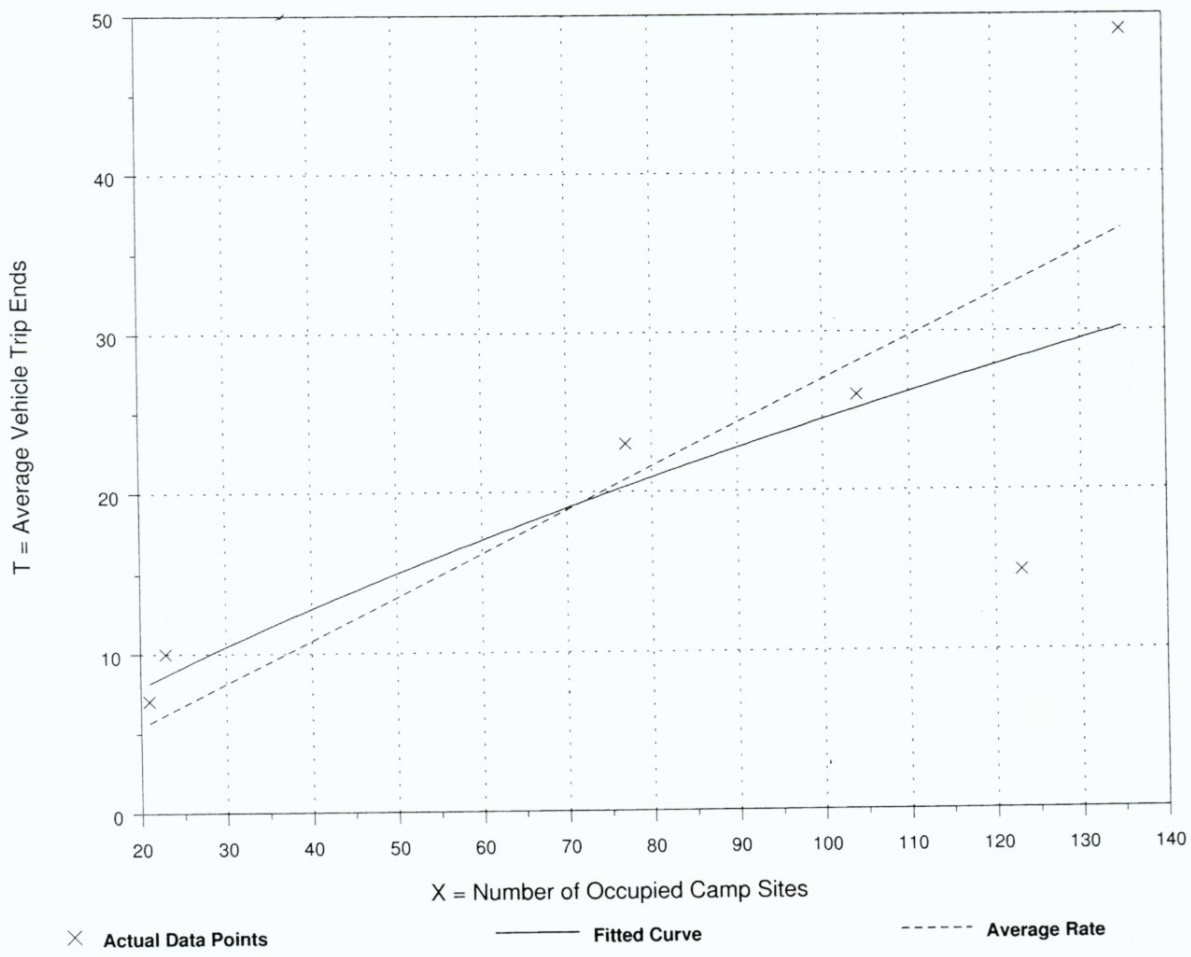
Average Vehicle Trip Ends vs: Occupied Camp Sites
On a: Weekday,
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.

Number of Studies: 6
Average Number of Occupied Camp Sites: 81
Directional Distribution: 65% entering, 35% exiting

Trip Generation per Occupied Camp Site

Average Rate	Range of Rates	Standard Deviation
0.27	0.12 - 0.43	0.53

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) - 0.06

R^2 = 0.72

APPENDIX E

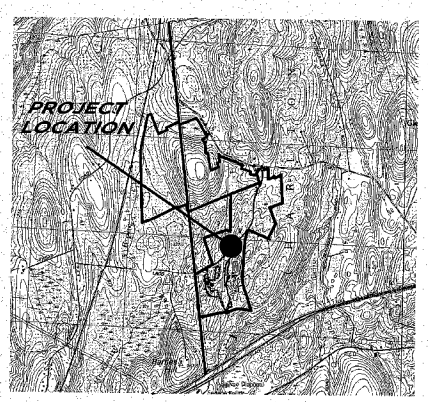
SITE PLAN

Title:
Sunset City, Brookfield Road - Route 49
Charlton, Massachusetts

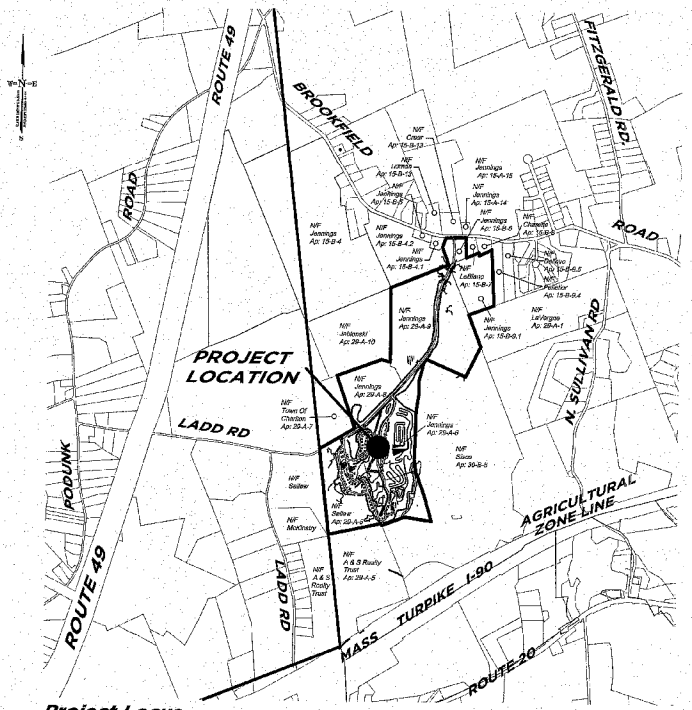
Included Sheets:
Cover and Overall Layout Plan

SUNSET CITY

Brookfield Road - Route 49
Charlton, Massachusetts



Site Locus
Scale: 1"=2000'



Project Locus
Scale: 1"=1000'

DRAWING LIST		
SYM	SHEET	NAME
C	1 OF 12	COVER SHEET
E	2 OF 12	EXISTING CONDITIONS PLAN
P-1	3 OF 12	OVERALL SITE LAYOUT PLAN
L-1	4 OF 12	SITE LAYOUT PLAN
L-2	5 OF 12	SITE LAYOUT PLAN
L-3	6 OF 12	SITE LAYOUT PLAN
L-4	7 OF 12	SITE LAYOUT PLAN
L-5	8 OF 12	SITE LAYOUT PLAN
L-6	9 OF 12	SITE LAYOUT PLAN
S-1	10 OF 12	EROSION CONTROL PLAN
D-3	11 OF 12	DETAIL SHEET
D-4	12 OF 12	DETAIL SHEET

Record Owner(s)

Jennings
P.O. Box 394
Charlton , Ma 01507

Sellew
P.O. Box 394
Charlton , Ma 01507

Applicant

Sunset City
P.O. Box 394
Charlton , Ma 01507

Engineer

Bertin Engineering Assoc. Inc.
39 Elm Street
Southbridge, Ma 01550
508-765-0195

DATE: CHARLTON PLANNING BOARD

I HEREBY CERTIFY THAT THE NOTICE OF APPROVAL OF THIS PLAN BY THE CHARLTON PLANNING BOARD WAS RECEIVED AND RECORDED AT THIS OFFICE AND NO APPEAL WAS RECEIVED DURING THE TWENTY (20) DAYS NEXT AFTER SUCH RECEIPT OF RECORDING OF SAID NOTICE.

CHARLTON TOWN CLERK

CHARLTON ZONING

ZONE - AGRICULTURAL
AREA - 60,000 S.F.
FRONTAGE - 175'
FRONT - 30 FT.
SIDE - 15 FT.
REAR - 30 FT.

PLEASE NOTE THERE ARE NO ZONE CHANGES IN THE TOWN OF CHARLTON WITHIN 1000' OF THE PROPOSED PROJECT BOUNDARY.

NORTH

NO.	DATE	REVISION	BY

DRAWN BY: JC
CHECKED BY: ML

CALISTO J. BERTIN, P.E.
PROFESSIONAL ENGINEER
CT. LIC. NO.: 12850
MA. LIC. NO.: 40595
N.H. LIC. NO.: 9368
N.J. LIC. NO.: 28843
N.Y. LIC. NO.: 80022
R.I. LIC. NO.: 6694

JASON D. DUBOIS, P.E.
PROFESSIONAL ENGINEER
MA. LIC. NO.: 49724

JEREMY S. CROTEAU, P.L.S.
PROFESSIONAL LAND SURVEYOR
MA. LIC. NO.: 40722

CLIENT: Sunset City
P.O. Box 394
Charlton, MA 01507

COVER SHEET

SITE ADDRESS:
Brookfield, Road
Charlton, MA

PREPARED BY:
BERTIN ENGINEERING
39 ELM STREET
SOUTHBRIDGE, MA 01550
P 508.765.0195
F 508.765.0193
www.bertinengineering.com

DATE:	SCALE:	REV #:	PROJECT #:	DWG. NO.:
12-9-14	VARIES	0	14-643	C

1 OF 12

ORIGINAL 12-10-14

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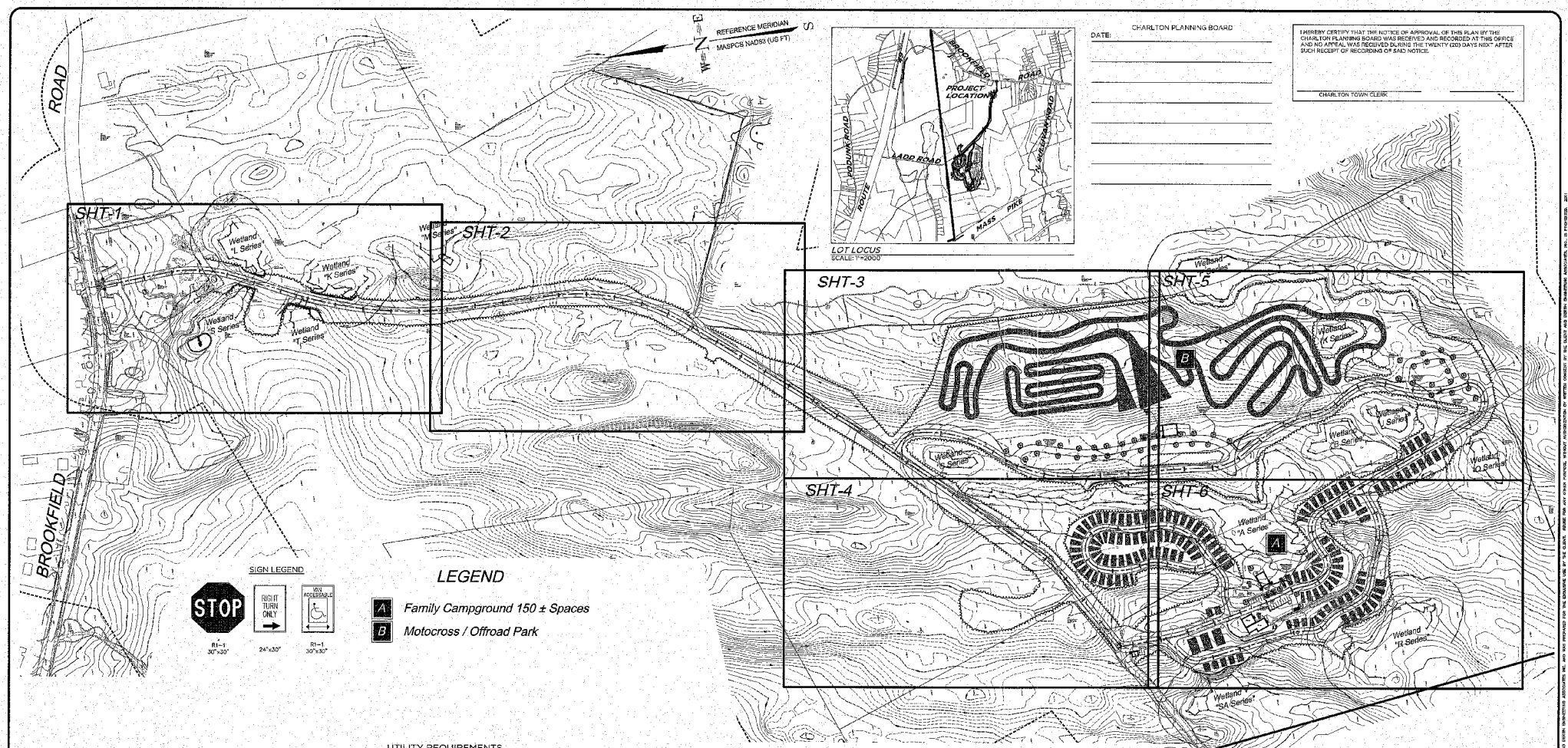

SIGN LEGEND

LEGEND

- A — Family Campground 150 ± Spaces
- B — Motocross / Offroad Park

SITE PLAN NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
2. CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF VESTIBULES, SLOPE PAVING, SIDEWALKS, EXIT PORCHES, TRUCK DOCKS, PRECISE BUILDING DIMENSIONS AND EXACT BUILDING UTILITY ENTRANCE LOCATIONS.
3. ALL DISTURBED AREAS ARE TO RECEIVE SIX INCHES OF TOPSOIL, SEED, MULCH AND WATER UNTIL A HEALTHY STAND OF GRASS IS ESTABLISHED.
4. ALL ISLANDS WITH CURB & GUTTER SHALL BE LANDSCAPED. THOSE ISLANDS ARE TO HAVE 18" CURB & GUTTER. ALL REMAINING ISLANDS ARE TO BE STRIPED AS SHOWN. 18" WIDE SOD STRIP IS REQUIRED BEHIND ALL CONCRETE CURBS. REFERENCE SITEWORK SPECIFICATIONS.
5. ALL CURBED RADII ARE TO BE 4' UNLESS OTHERWISE NOTED.
6. ALL DIMENSIONS AND RADII ARE TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
7. EXISTING STRUCTURES WITHIN CONSTRUCTION LIMITS ARE TO BE ABANDONED, REMOVED OR RELOCATED AS NECESSARY. ALL COST SHALL BE INCLUDED IN BASE BID.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS, (UNLESS OTHERWISE NOTED ON PLANS) INCLUDING BUT NOT LIMITED TO, ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED. ALL WORK SHALL BE IN ACCORDANCE WITH GOVERNING AUTHORITIES REQUIREMENTS AND PROJECT SITEWORK SPECIFICATIONS AND SHALL BE APPROVED BY SUCH. ALL COST SHALL BE INCLUDED IN BASE BID.
9. WETLANDS BUFFERS ARE PRESENT ON THIS SITE AS INDICATED BY THE WF SYMBOL AND THE PLAN NUMBER WF A-1.
10. THE SITE WORK FOR THIS PROJECT SHALL MEET OR EXCEED STANDARD SITE WORK SPECIFICATIONS.
11. PYLON SIGNS SHALL BE CONSTRUCTED BY OTHERS.
12. REFER TO ARCH. PLANS FOR BUILDING LIGHTING.

UTILITY REQUIREMENTS

MAIN ACCESS DRIVE / CAMPGROUND DRIVES

1. WATER: NO WATER LINES ARE PROPOSED.
2. NO SEWER LINES ARE PROPOSED.
3. ELECTRIC: NO ELECTIC OVERHEAD OR UNDERGROUND ARE PROPOSED.

MOTOCROSS / OFFROAD AREA

1. WATER: NO WATER LINES ARE PROPOSED
2. SEWER: SANI-CANS WILL BE PROVIDED AND REGULARLY MAINTAINED. ADDITIONAL UNITS SHALL BE BROUGHT IN FOR LARGER EVENTS.
3. ELECTRIC: ELECTRICITY MAY BE PROVIDED OVERHEAD TO THE PROPOSED BUILDING.

CAMPGROUND AREA

1. WATER: NO WATER LINES ARE PROPOSED. CAMPERS WILL HAVE NO WATER HOOK UPS. THE EXISTING HOUSE WILL UTILIZE THE EXISTING WELL FOR OFFICE USE ONLY. NO PUBLIC RESTROOMS.
2. SEWER: SANI-CANS WILL BE PROVIDED AND REGULARLY MAINTAINED. CAMPERS WILL HAVE NO SEWER HOOK UPS. THE EXISTING HOUSE WILL UTILIZE THE EXISTING SEPTIC FOR OFFICE USE ONLY. NO PUBLIC RESTROOMS.
3. ELECTRIC: ELECTRICITY IS ALREADY PROVIDED TO THE EXISTING OFFICE AND MAY BE EXTENDED INTO THE CAMPGROUND DEPENDING UPON CAPACITY AND PROPER PERMITS.

PARKING REQUIREMENTS

CHARLTON ZONING BYLAW SECTION 4.2
OFF STREET PARKING AND LOADING

SECTION 4.2.2 REQUIRES 1 SPACE PER 250 Sq.Ft. NET

FLOOR AREA FOR THE USE OF " OTHER BUSINESS USE" CAMP GROUND
TOTAL BUSINESS BUILDING Sq FL=2,000
2,000 / 250= 8
8 SPACES REQUIRED

4 HANDI-CAP SPACES
18 9X18 SPACES

19 TOTAL SPACES PROVIDED

FLOOR AREA FOR THE USE OF " OTHER BUSINESS USE" TRACK AREA
TOTAL BUSINESS BUILDING Sq FL=2,000
2,000 / 250= 8
8 SPACES REQUIRED

6 HANDI-CAP SPACES
125 CAR / TRUCK & TRAILER SPACES (LOT A)
63 CAR / TRUCK & TRAILER SPACES (LOT B)

188 TOTAL SPACES PROVIDED

SECTION 4.2.4 REQUIRES A PARKING AREA OF OVER
6 SPACES TO HAVE A LOADING AREA

2 LOADING AREAS PROVIDED FOR CAMPGROUND AND TRACK AREA

HANDI-CAP PARKING REQUIREMENTS

CAMPGROUND PARKING AREA
521 CMR 23.00
SECTION 23.2.1 REQUIRES 1 HANDI-CAP SPACES FOR
A PARKING LOT WITH BETWEEN 15-25 SPACES

4 VAN ACCESSIBLE SPACES PROVIDED

TRACK AREA
521 CMR 23.00
SECTION 23.2.1 REQUIRES 6 HANDI-CAP SPACES FOR
A PARKING LOT WITH BETWEEN 151-200 SPACES

8 VAN ACCESSIBLE SPACES PROVIDED

SECTION 23.2.1 REQUIRES ONE IN EVERY EIGHT SPACES SHALL BE VAN ACCESSIBLE

10 VAN ACCESSIBLE SPACES PROVIDED

LIGHTING REQUIREMENTS

CHARLTON ZONING BYLAW SECTION 4.2.4.7
LIGHTING

THE PROPOSED BUILDING (CAMPGROUND OFFICE AND TRACK OFFICE) ARE GOING TO HAVE WALL MOUNTED LIGHTS. LIGHTING TO CONFORM TO 4.2.4.7

TWO POLE LIGHTS ARE TO BE PROVIDED AT THE ENTRANCE ONTO BROOKFIELD ROAD

ONE POLE LIGHT IS TO BE PROVIDED AT THE ENTRANCE OF THE CAMPGROUND.

ALL PROPOSED LIGHT FIXTURES SHOULD BE FULLY SHIELDED ABOVE 90° AND LIMIT THE LIGHT INTESITY BETWEEN 80° AND 90° TO REDUCE NIGHT SKY ILLUMINATION.

ANY PROPOSED LIGHTS TO BE NIGHT SKY COMPLIANT

LANDSCAPE REQUIREMENTS

CHARLTON ZONING BYLAW SECTION 4.2
OFF STREET PARKING AND LOADING

SECTION 4.2.4.5 REQUIRES (1) TREE OF (3) INCHES IN CALIPER FOR EACH (5) SPACES

215 SPACES / 5 = 43 TREES
(44) 3" CALIPER TREES PROVIDED

OPEN SPACE REQUIREMENTS

CHARLTON ZONING BYLAW SECTION 4.2.4.6

REQUIRES 30% UNOCCUPIED OPEN SPACE FREE OF BUILDING AND PARKING ECT.

THERE IS OVER 25% OF FREE UNOCCUPIED OPEN SPACE PROVIDED. ESSENTIALLY THE WETLANDS TAKE UP THAT 25%.

NORTH

NO.	DATE	REVISION	BY

DRAWN BY: JC	CHECKED BY: ML	CLIENT: Sunset City, P.O. Box 394, Charlton, MA 01507
CALISTO J. BERTIN, P.E. PROFESSIONAL ENGINEER CT. LIC. NO.: 12950 MA. LIC. NO.: 40596 NH. LIC. NO.: 9398 NJ. LIC. NO.: 28845 NY. LIC. NO.: 60022 RI. LIC. NO.: 6694	JASON D. DUBOIS, P.E. PROFESSIONAL ENGINEER MA. LIC. NO.: 49724	**OVERALL LAYOUT PLAN** SITE ADDRESS: Brookfield, Road Charlton, MA
	JEREMY S. CROTEAU, P.L.S. PROFESSIONAL LAND SURVEYOR MA. LIC. NO.: 46722	BERTIN ENGINEERING, 39 ELM STREET, SOUTHBRIDGE, MA 01550, P 508.765.0165, F 508.765.0193, www.bertinengineering.com
DATE: 12-9-14	SCALE: None	REV #: 0
PROJECT #: 14-643	DWG. NO.: P-1	1 OF 12

ORIGINAL 12/9/14

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