Traffic Impact & Access Study

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts

Updated Analysis
Blackthorn Access

Prepared for
Capital Group Properties, LLC

June 2013

GREEN INTERNATIONAL AFFILIATES, INC.
Civil - Structural – Transportation Engineers, Westford, MA

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Introduction & Executive Summary

This transportation study provides an analysis of the traffic impacts, area circulation and access impacts associated with the proposed 180 unit residential development in the Park Central site in Southborough, Massachusetts. The site abuts Route 9 and I-495 with current access provided from Route 9. The site location is shown on Figure 1.

This traffic analysis for the Residences at Park Central site is focused on the current plan to construct a multi-family condominium consisting of 180 units of housing. The study area chosen for the study considered previous work in the area, the proposal and general knowledge of the project area. The study area focuses on Flagg Road, its intersections with Blackthorn Drive and Route 9 as well as the Deerfoot Road intersection with Main Street (Route 30). The overall Flagg Road roadway link and the northern section of Deerfoot Road were reviewed.

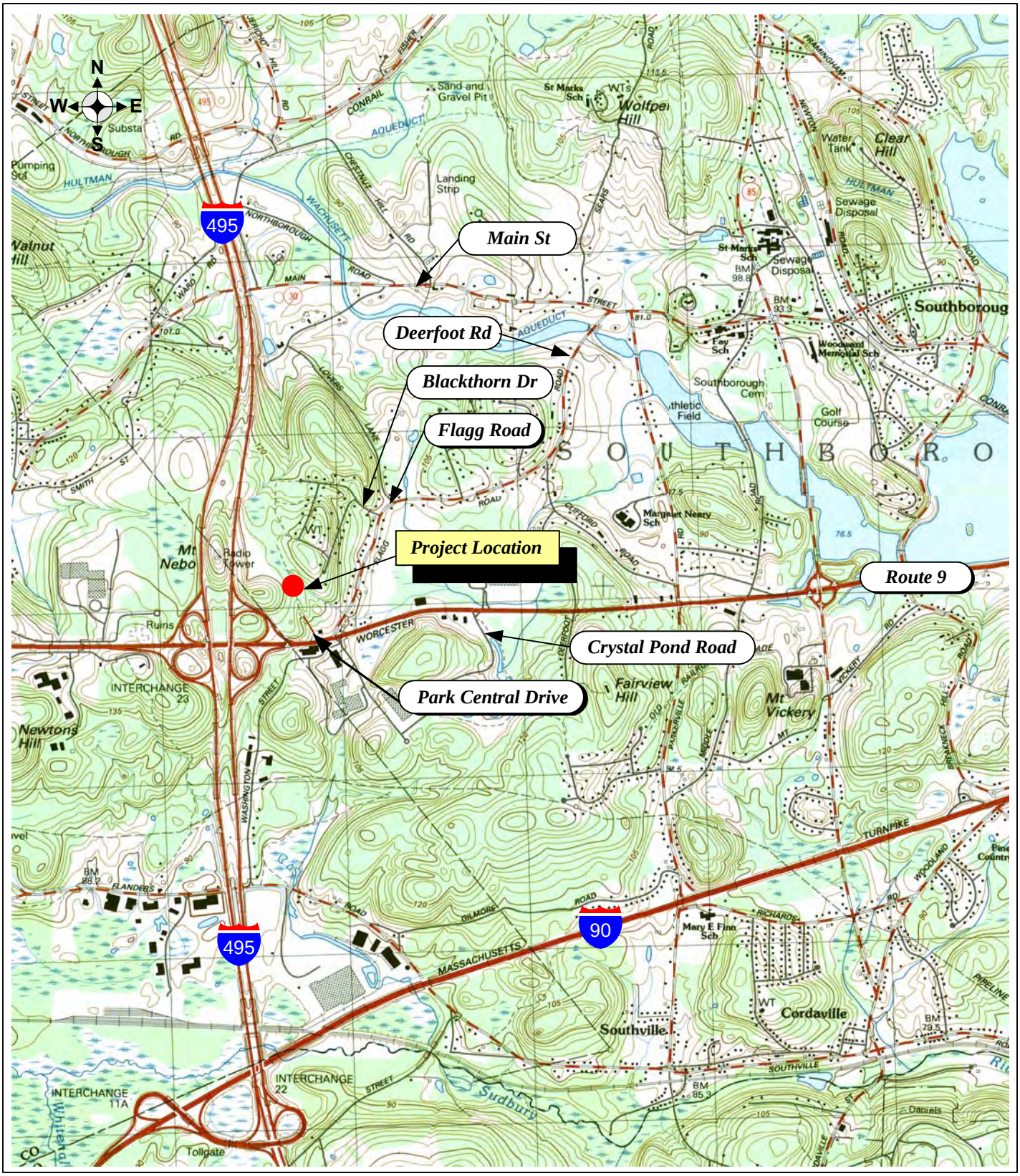
During the course of this planning analysis, alternative configurations and access options have been explored and evaluated. One option was to construct a new link from the overall development site to Flagg Road approximately 300 feet north of Route 9 and allow both the new residential and existing as well as future commercial traffic to use the new link. To reduce the potential for increased commercial traffic on Flagg Road, an alternative access option has been developed for the residential portion that includes connections to the existing Blackthorn Drive neighborhood streets that directly abut the parcel of land proposed for the residential development. As a result, the proposed development site access plan included in this specific study consists of providing full access to Blackthorn Drive via Bantry Road and Tara Road. Blackthorn Drive then connects with Flagg Road. Only the new residential development would access through the existing neighborhood and be able to gain full access to Flagg Road. Access to the remaining commercial sites would be designed that restricts access to and from the north along Flagg Road.

This study includes an evaluation of existing and future (No-Build and Build) traffic volume networks, roadway/site access, traffic circulation and safety considerations. In general, the traffic study follows guidelines established by the Massachusetts Department of Transportation and the Institute of Transportation Engineers (ITE). As part of the study, a series of traffic counts were collected, safety aspects of the abutting roadway system were evaluated, and forecasts of project traffic completed. The following sections of the report describe the data, analysis methods and results of the analysis.

Existing Conditions

The study area was selected based on previous work, and knowledge of the project area and considered the currently proposed access plan. The study area intersections for this analysis included the intersections of Route 9 with Flagg Road; Route 9 at Park Central Drive; Route 9 at Crystal Pond Road; Bantry Road at Blackthorn Drive, Blackthorn Drive at Flagg Road, and Deerfoot Road at Main Street.

Route 9 is a major highway arterial that is maintained by the MassDOT in the project area. In the vicinity of the project, it has a general east/west alignment and partially controlled access. In the project area,



Source: USGS Tag Image Graphic (TIFF) from MassGIS. /1 : 25,000

Project Location

Proposed Residences at

Park Central 40B Development

Southborough, Massachusetts

Figure 1

Route 9 provides access between I-495 and connections to Westborough (west of site) and Framingham and points east. Flagg Road and the northern section of Deerfoot Road are local two lane streets providing access to abutting homes as well as to several subdivisions and the middle school located off Deerfoot Road. These two streets connect Route 9 with Main Street and are considered low volume roadways.

Recent daily traffic volume data collected on Route 9 in this area showed the roadway to be carrying approximately 54,500 vehicles per day (vpd). Under existing conditions, the most significant constraint in the study network is the Route 9 signalized intersection with Crystal Pond Road. Route 9 can also be affected by the operating conditions of I-495.

Future Conditions

The analysis of the proposed residential development focused on the year 2018. Forecasts of the project were based on guidelines and trip models published by the Institute of Transportation Engineers (ITE). The project is to consist of 180 units of housing. Again, access to the residential development site is Bantry Road and Tara Road to Blackthorn Drive.

The proposed development in total is estimated to generate an increase of 1,074 vehicle trips on a typical weekday. The added trips include 537 entering and 537 exiting trips over the 24-hour period. The weekday morning peak hour is expected to generate 83 new vehicle trips with 14 inbound and 69 outbound trips. The weekday afternoon peak hour is expected to generate 97 new vehicle trips with 65 inbound and 32 outbound.

The future conditions analysis takes into account background growth for the next 5 years as well as a major site-specific development project (Madison Place) in close proximity of the proposed Park Central development that is currently under construction. Based on the analysis, the following conclusions were developed:

- Regardless of the development of the Park Central project, the traffic flow conditions in the Route 9 corridor experiences certain levels of congestion and delay during the peak commuter periods. The State and regional planning agencies continue to explore long-term improvements for Route 9 corridor to help alleviate current and anticipated travel delays to the extent practical.

- Flagg Road and Deerfoot Road currently experience relatively low volumes and can accommodate additional traffic volume.

- The analysis has shown that with full development, the Flagg Road/Blackthorn Drive intersection will continue to operate at high levels of service (LOS ‘A’) with motorists experiencing short delays.

- Minimal changes in operating conditions are anticipated at the local intersections along Flagg Road and Deerfoot Road.

- Safe stopping sight distance criteria are satisfied on the Flagg Road approaches to Blackthorn Drive as well as the Main Street approaches to Deerfoot Road.

- The proposed residential development will generate new vehicle trips over the course of the day, however, given the project's location near Route 9 and I-495, a large portion of the site trips will be oriented to the regional highways.

- With the majority of new site traffic oriented towards Route 9, the larger volume increases will occur on the section of Flagg Road between Route 9 and Blackthorn Drive. Without any improvements to Route 9, there would also be some increase in vehicle delay to motorists exiting Flagg Road onto Route 9 with the right turn movement remaining at LOS 'E' during the peak hours. However, existing or future Flagg Road residents can use Flagg Road to reach the center of Town, the schools, and Route 85 instead of using Route 9 during the peak hours and thus not add to or be further delayed at the Route 9 intersection.

- Providing a 3rd westbound travel lane on Route 9 from Deerfoot Road thru I-495 that has been discussed by MassDOT in its transportation improvement plan for this area would be expected to significantly improve exiting Flagg Road and the ability for motorists to safely merge or weave into the Route 9 westbound traffic stream.

- The proposed development results in relatively small incremental effects on traffic operations related to the Route 9 intersection with Crystal Pond Road and essentially no change in operating condition at this location.

- With the development, motorists will be able to enter and exit Blackthorn Drive with short delays even with the added traffic from the project.

Recommended Mitigation Plan

Recognizing that the project will generate a higher amount of new traffic in the immediate area, a set of recommended mitigating actions developed to reduce the project's impact and enhance the safety and overall operating conditions of the roadway system. The proposed actions are as follows:

- The existing section of Flagg Road within 300 feet of Route 9 should be improved to include providing a consistent width with a preferred 24 to 26 foot wide pavement section depending on available right of way and physical characteristics. At the southern end of this 300 foot section is a rock outcrop and culvert where guardrail exists and the pavement width narrows. While this short section of road currently exists and accommodates two way traffic, it would be desirable to scale back the outcrop and other related work to provide an additional 2 to 3 feet of pavement width in this particular area as well.

- A STOP sign and STOP bar should be installed on the Blackthorn Drive approach to Flagg Road and on the Bantry Road approach to Blackthorn Drive.

- While safe stopping sight distance exists, to increase the corner sight distance looking south

at the existing Flagg Road/Blackthorn Drive intersection, lowering the height of stonewall at the southwest corner of the intersection should be considered. If the stonewall can not be modified, alternative actions such as an advance warning sign on Flagg Road and/or placement of a concave mirror opposite Blackthorn Drive could be installed.

- To enhance safe traffic flow along Flagg Road, install advance curve warning signs and an advance intersection warning signs approaching Route 9 and Deerfoot Road. Figure 11 at the end of the report illustrates possible signs and locations.

- Within the existing neighborhood, it may be desirable to proactively manage traffic movement as the project is constructed. The objective would be to maintain or manage reasonably low travel speeds, maintain high visibility and have appropriate traffic control within the neighborhood. Possible actions include installing STOP signs at the internal intersections and the use of speed humps or other physical speed control techniques. The specific actions could be developed jointly by town officials and the residents in the neighborhood along with the Applicant.

- It is recommended the Applicant work with the regional business groups and planning agencies to continue encouraging the MassDOT to improve the westbound section of Route 9 in the project area. An alternative was presented in the recent recommendations by MassDOT for improving Route 9 in this area. This would include of the construction of the consistent 3rd lane on Route 9 westbound from Deerfoot Road east of Crystal Pond Road through the I-495 interchange. The lane, which will facilitate improved exiting from the side streets and driveways between Crystal Pond Road and I-495 and largely involve reconstructing the existing Route 9 shoulder.

Existing Conditions

To begin to understand the impacts of a potential development, an understanding of the area transportation system is needed. Inventories were completed to identify the physical and operational characteristics of the system. The following sections describe the existing transportation system.

A. EXISTING ROADWAY NETWORK

The study area was selected based on previous work and knowledge of the project area. It has also considered traffic related issues that have been raised in the past at the State as well as regional planning levels. The study area intersections for this analysis included:

- Route 9 at Flagg Road
- Blackthorn Drive at Bantry Road
- Route 9 at Park Central Drive
- Route 9 and the I-495 ramp
- Flagg Road at Blackthorn Drive
- Main Street at Deerfoot Road
- Route 9 at Crystal Pond Road

Figure 2 illustrates the study area roadways and intersections while subsequent photographs show the current conditions of the study network. In addition to the intersections, the Flagg Road and Deerfoot Road roadway segments were reviewed. A general description of these roadways follows:

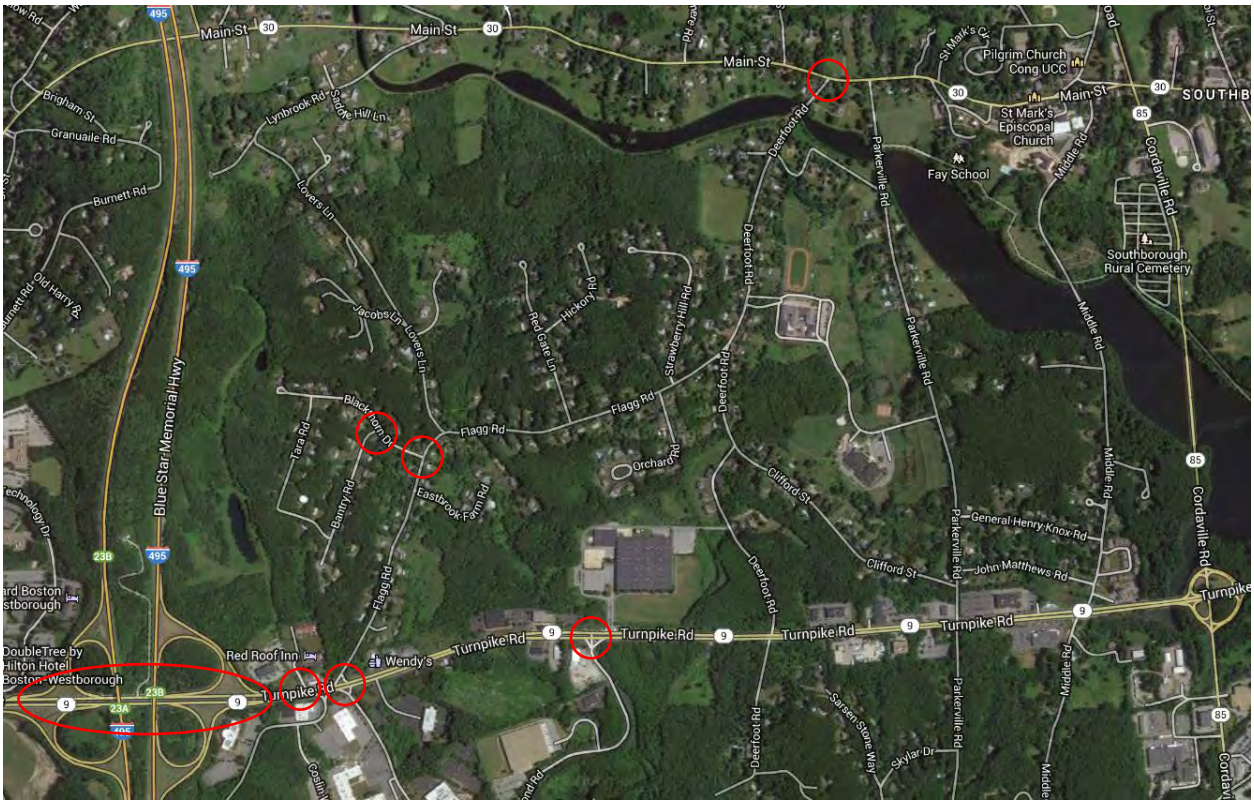


Figure 2 - Study Area Intersections

1. Route 9

Route 9, which is under the jurisdiction of the MassDOT, runs in a general east-west direction within the area. It is a major State highway that extends from Pittsfield to Boston. Within the Southborough area, Route 9 is a major arterial roadway providing connections to I-495 and the Massachusetts Turnpike (I-90) in Framingham.

Route 9, near Park Central Drive and Flagg Road has a total width of approximately 98 feet. Eastbound and westbound traffic is divided by a 14-foot median in the immediate project area along with a shoulder that is up to 15 feet in width. Pavement markings along both the eastbound and westbound sections currently consist of a single yellow inside edge line, broken white lane lines, and single white outside edge lines. The westbound section contains a two through lanes with a 12 foot wide turning lane into Flagg Road. West of Flagg Road, the additional lane does not exist though there is a shoulder provided in varying widths to I-495. The bituminous pavement surface in the area was generally in good condition. Route 9 contains sloped edging and a sidewalk exists between the Wendy's Restaurant and Flagg Road.

Route 9 at Flagg Road

Flagg Road forms an unsignalized three way intersection with Route 9. The Route 9 westbound approach at this location contains two through lanes and a deceleration lane/turn lane at Flagg Road. The right turn exit on the Flagg Road approach is under "STOP" control. A small triangular shaped island separates the entering and exiting traffic on Flagg Road.

Photograph 1: Intersection of Flagg Road with Route 9 Westbound

Photograph 2: Park Central Drive Looking East on westbound side

2. Flagg Road

Flagg Road is a two-lane roadway in Southborough under local jurisdiction and is oriented in a general north-south direction though the middle portion curves into an east-west alignment. Flagg Road connects with Deerfoot Road and Main Street (Route 30) in the north and Route 9 to the south. It functions as a minor collector and local roadway intersecting with a number of subdivision roads. These include Eastbrook Farm Road, Blackthorn Drive, Lovers Lane, Red Gate Lane, Orchard Road and Strawberry Hill Road. Flagg Road also connects with Deerfoot Road to form a three-way unsignalized intersection with an acute angle of intersection.

Flagg Road north of its intersection with Route 9 is approximately 20-22 feet wide and narrows to 17-18 feet in some portions of the roadway north of the proposed site drive with a single travel lane in each direction. About 300 feet north of the intersection is a culvert crossing with guardrail in place along each side of the road. There were no pavement markings including a centerline observed along the roadway. There are no sidewalks along Flagg Road. Trees and utility poles exist along the roadway in close proximity to the pavement edge. Posted speed limit signs on Flagg Road near Route 9 were not observed but a 25 mph sign was posted in the northbound direction approximately 0.1 miles from Route 9.

Land use along Flagg Road consists primarily of residential homes with some wooded undeveloped parcels.

3. Blackthorn Drive

Blackthorn Drive is a two-lane local residential subdivision roadway under local jurisdiction and is oriented in an east-west direction. Starting with a cul-de-sac at its west end, Blackthorn Drive connects Flagg Road in the east to form a three-way unsignalized intersection. It intersects with both Tara Road and Bantry Road which together form a loop with Blackthorn Drive.

There are no pavement markings observed along the roadway. There are no sidewalks along the road. The pavement width is approximately 23 feet wide. Land use along Blackthorn Drive is residential.

Flagg Road at Blackthorn Drive

Blackthorn Drive forms an unsignalized three way intersection with Flagg Road. While no signage was noted in the field, it was observed that Blackthorn Drive operates under STOP control.

4. Bantry Road

Bantry Road is a two-lane local residential roadway and is oriented in a north-south direction. Starting with a cul-de-sac at its southern end, Bantry Road connects with Blackthorn Drive in the north to form a three-way unsignalized intersection. It also intersects with Tara Road to its west.

There are no pavement markings and sidewalks along the roadway. The road is approximately 23 feet wide. Land use along Bantry Road is residential.

Blackthorn Drive at Bantry Road

Bantry Road forms an unsignalized three way intersection with Blackthorn Drive. None of the three approaches is under "STOP" control although observations noted that motorists operate as if STOP control existed on Bantry Road.

5. Deerfoot Road

Deerfoot Road is a two-lane roadway in Southborough under local jurisdiction aligned in a general north-south direction connecting Route 9 in the south to Main Street (Route 30) in the north. Deerfoot Road north of its intersection with Flagg Road is approximately 22 to 24 feet wide and is relatively straight with some gentle changes in vertical alignment. No pavement markings were observed along Deerfoot Road with the exception of near the school. There are no sidewalks along Deerfoot Road. The roadway is in fairly good condition. Trees and utility poles exist along the roadway in close proximity to the pavement edge. The intersection of Flagg Road with Deerfoot Road is at more of a skewed angle, however, there are multiple legs and traffic control that accommodate all turning movements.

There are three painted crosswalks and one "School" legend pavement marking on the Deerfoot Road segment. All these pavement markings are in fairly good condition. Signage along the roadway consist of speed limit signs (posted speed limit is 25 mph, and in school zone is 20 mph when flashing), pedestrian crossing signs and school area signs. Along Deerfoot Road, flashing signals were installed to warn of speed limits in school zone. Most of the signs and flashing signals are in good condition with one noted issue that one tree partially blocks the school zone sign (S1-1) along Deerfoot Road northbound.

Along Deerfoot Road from Flagg Road to Main Street segment, the majority of the area is residential, and P. Brent Trottier Middle School is located on the east side of the segment.

6. Main Street (Route 30)

Route 30, which is an urban minor arterial roadway, comes under the jurisdiction of the MassDOT west of Deerfoot Road and Town jurisdiction east of Deerfoot Road continuing easterly through the Town center. It has a general east-west alignment within the area. It extends from Grafton to Packard's Corner in Boston. Within the Southborough area, Route 30 is two-lane roadway called Main Street, provides connections to East Main Street in Westborough and the Boston Road in Southborough. Main Street connects with Deerfoot Road to form a three-way unsignalized intersection.

In the vicinity of its intersection with Deerfoot Road, the posted speed limit on Main Street (Route 30) is 30 mph for eastbound traffic and 35 mph for westbound traffic. The roadway is approximately 27 feet wide. Pavement markings along the roadway consist of double yellow center lines and single white edge lines.

There is no sidewalk on Main Street in the vicinity of its intersection with Deerfoot Road. The roadway is in fairly good condition. Trees and utility poles exist along the roadway.

Main Street (Route 30) at Deerfoot Road

Deerfoot Road forms an unsignalized three way "T" type intersection with Main Street (Route 30). Each approach contains one lane. The Deerfoot Road northbound approach is under "STOP" control. Currently, there is a 22 feet long 12 inch wide stop line and a seriously faded "STOP" word pavement marking on the Deerfoot Road northbound approach. No other pavement marking is observed in this approach. The Main Street eastbound lane is about 12 feet wide with 1 foot wide shoulder, and the Main Street westbound lane is about 13 feet wide with 1 foot wide shoulder.

7. Park Central Drive

Park Central Drive is a two-lane private drive that runs in a general north-south direction. Park Central Drive is the current access roadway for the existing office building and the Red Roof Inn. In addition, the gas station that was recently reconstructed and converted to a new Cumberland Farms uses Park Central Drive for its exiting traffic. Park Central Drive is approximately 44 feet wide with a single travel lane in each direction although there are no pavement markings such as double yellow centerline to separate directional flows. A 4 to 5 feet wide bituminous sidewalk exists along the east side of Park Central Drive with granite curbing.

Route 9 at Park Central Drive

Park Central Drive forms an unsignalized "T" type intersection with Route 9 and is located approximately 325 feet east of the I-495 northbound on-ramp. It is currently a two-way drive with one travel lane per direction. The southbound approach of Park Central Drive to Route 9 is under "STOP" control and all exiting traffic from Park Central Drive is restricted to right turns. There is a short deceleration/turn lane on Route 9 between Park Central Drive and the I-495 northbound on-ramp.

8. Crystal Pond Road

Crystal Pond Road is a two-lane roadway in Southborough under local jurisdiction, which runs in a general north-south direction. Crystal Pond Road connects with Route 9 on the south side approximately 2,500 feet east of Flagg Road. The street connects with Coslin Drive to the south that also provides access to the existing industrial/office uses on the south side of Route 9 and east of I-495.

Crystal Pond Road is approximately 48 feet wide at the Route 9 intersection where turn lanes are provided at the intersection. The roadway reduces to 26 feet with a single travel lane in each direction 300 feet south of Route 9. There were no pavement markings on Crystal Pond Road beyond the immediate intersection with the exception of edge lines. The edges of the roadway are marked with white edge lines and provide approximately 2 feet paved shoulders adjacent to granite curbing. A sidewalk exists along the west side rounding at the Crystal Pond Road intersection with Route 9.

Route 9 at Crystal Pond Road

The Route 9 signalized intersection with Crystal Pond Road is a "3-way" intersection, with Crystal Pond Road providing the northbound approach and Route 9 providing the eastbound and westbound

approaches. The eastbound and westbound approaches to this intersection each contain a left turn/U-turn lane, two through travel lanes, and a shared through/right travel lane. The traffic signal is a fully actuated signal with protected and overlapping movements. The northbound approach contains two exclusive left turn lanes and channelized right turn lane for Route 9 eastbound. Potential improvements have been studied for this location including in the Final EIR for EMC[1], as well as the recent MassDOT study of I-495/I-90 and Route 9.

In general, land uses currently along Crystal Pond Road south of Route 9 include office space, business and R&D space. Just east of Crystal Pond Road on the westbound side of the highway is the former Verizon site, which currently functions as a warehouse. West of Crystal Pond Road, the Madison Place apartment complex is currently under construction. Access from Madison Place will be via Crystal Pond Road.

Route 9 at Crystal Pond Road looking eastbound

B. TRAFFIC VOLUMES

Developing traffic volume analysis networks for this study included using both historical data and new data collected as part of this study. These included the 2011 volumes collected at the Route 9/Crystal Pond Road intersection as part of the Madison Place development traffic study[2]. In addition, data collected at Flagg Road and Park Central Drive as part of previous analyses[3] completed for this subject site were used as well. New traffic was collected along Blackthorn Drive, Flagg Road and Deerfoot Road as part of this study. Data collection consisted of both 24-48 hour automatic traffic recorder (ATR) counts as well as manual peak period turning movement counts (TMC) at the study intersections. Adjustments were made using the Crystal Pond Road intersection volumes as a control. In general, volumes in the section of

[1] Vollmer Associates, Draft Environmental Impact Report – EMC Corporation, Southborough & Westborough, MA, September 29, 2006.

[2] Bristol Traffic & Transportation Consulting, LLC, Traffic Impact Study, Proposed Madison Place 40B Development, 2011.

[3] MS Transportation Systems, Inc., Traffic Impact & Access Study, Proposed Park Central Expansion, 2008.

Route 9 have decreased to an extent between 2008 and 2011. Historical data is included in the Appendix. Table 1 summarizes the recent volume data collected on Blackthorn Drive, Flagg Road and Deerfoot Road. As shown each of the roadways are considered low volume streets. Deerfoot Road between the school and Main Street was the highest volume section of the three local roads, largely influenced by the school location.

TABLE 1
SUMMARY OF TRAFFIC VOLUMES
Blackthorn Drive, Flagg Road & Deerfoot Road

Roadway	Date of Count	24 Hour Weekday	AM Peak Hour	Peak %	PM Peak Hour	Peak %
Blackthorn Drive						
	5/29/13	387	40	10.3%	39	10.1%
	5/30/13	394	35	8.9%	44	11.2%
	Average	390*	38	9.7%	42	10.7%
Flagg Road (near Route 9)						
	2/5/13	944	102	10.8%	80	8.0%
	2/6/13	978	80	8.2%	90	9.2%
	Average	960*	91	9.5%	85	8.8%
Deerfoot Road (near Main Street)						
	2/5/13	1620	251	15.5%	160	9.9%
	2/6/13	1882	251	13.3%	179	9.5%
	Average	1750*	251	14.4%	170	9.7%

* rounded

Figures 3 and 4 illustrate the existing weekday morning and weekday afternoon peak hour traffic volumes at the study intersections.

C. CRASH DATA REVIEW

As part of the updated analysis, new crash history was compiled and reviewed for the study locations for the 2008 to 2010 period. The review was completed for Route 9 at Crystal Pond Road; Route 9 at Flagg Road; Blackthorn Drive at Bantry Road; Flagg Road at Blackthorn Drive; Main Street (Route 30) at Deerfoot Road; and Route 9 at Central Park Drive. The data are summarized in Table 2. Accident data for the Town of Southborough were obtained from the MassDOT Crash Record System (CRS), which is compiled with information from the Registry of Motor Vehicles (RMV).

Review of intersection crash data summarized in Table 2 indicated that the intersection of Crystal Pond Road at Route 9 reported a total of twenty (20) crashes for an average of 6.7 accidents per year over the three year period. Most of the reported crashes were classified as rear-end type. Of the 20 total crashes at this location, 13 were reported as property damage only crashes. There were only four reported crashes on Flagg Road at Route 9, one on Flagg Road at Blackthorn Drive, one on Main Street at

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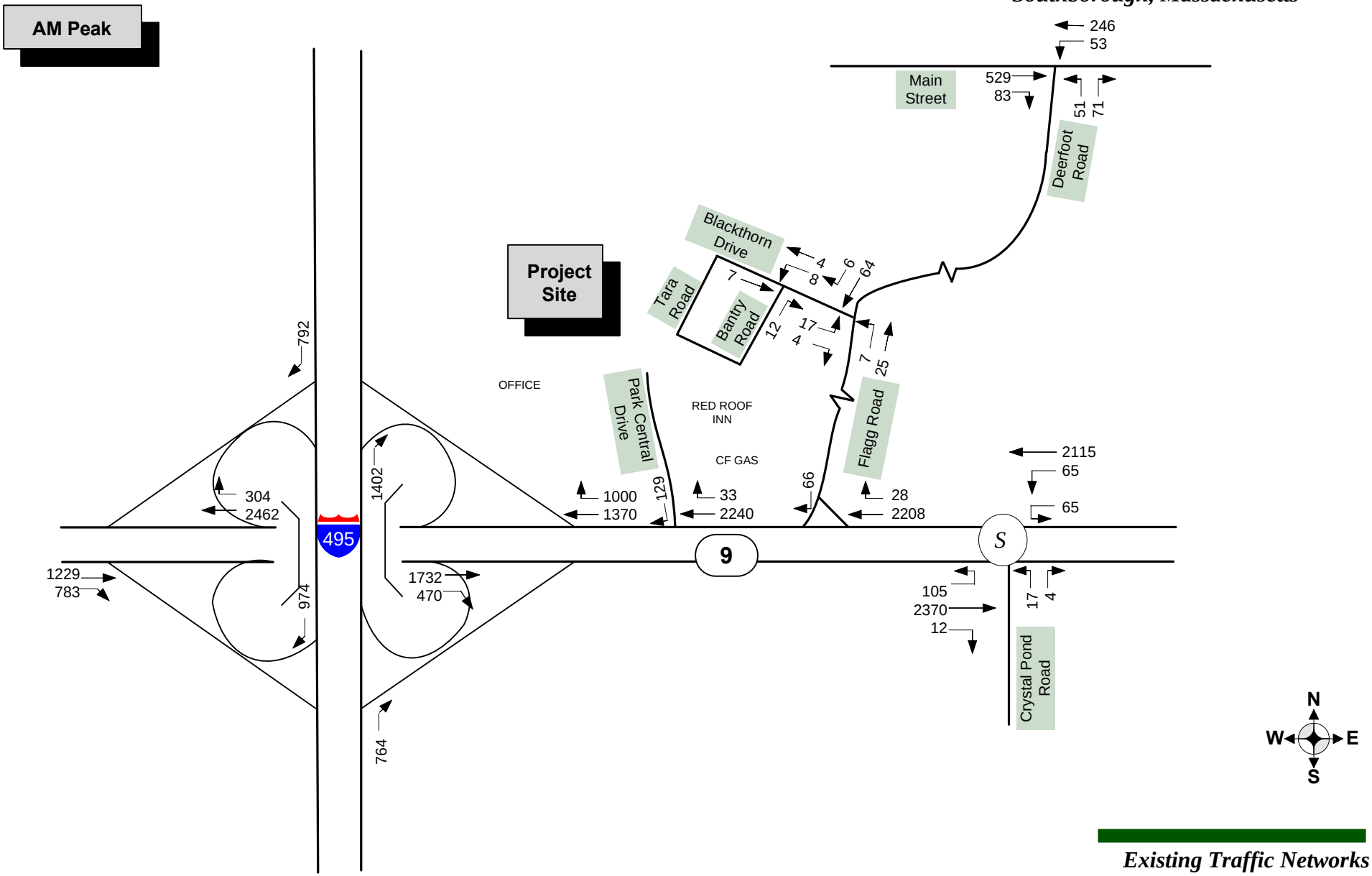

Existing Traffic Networks

Figure 3

Green International Affiliates, Inc.

S - Signalized Study Intersection

NOT TO SCALE

Proposed Residences at Park Central
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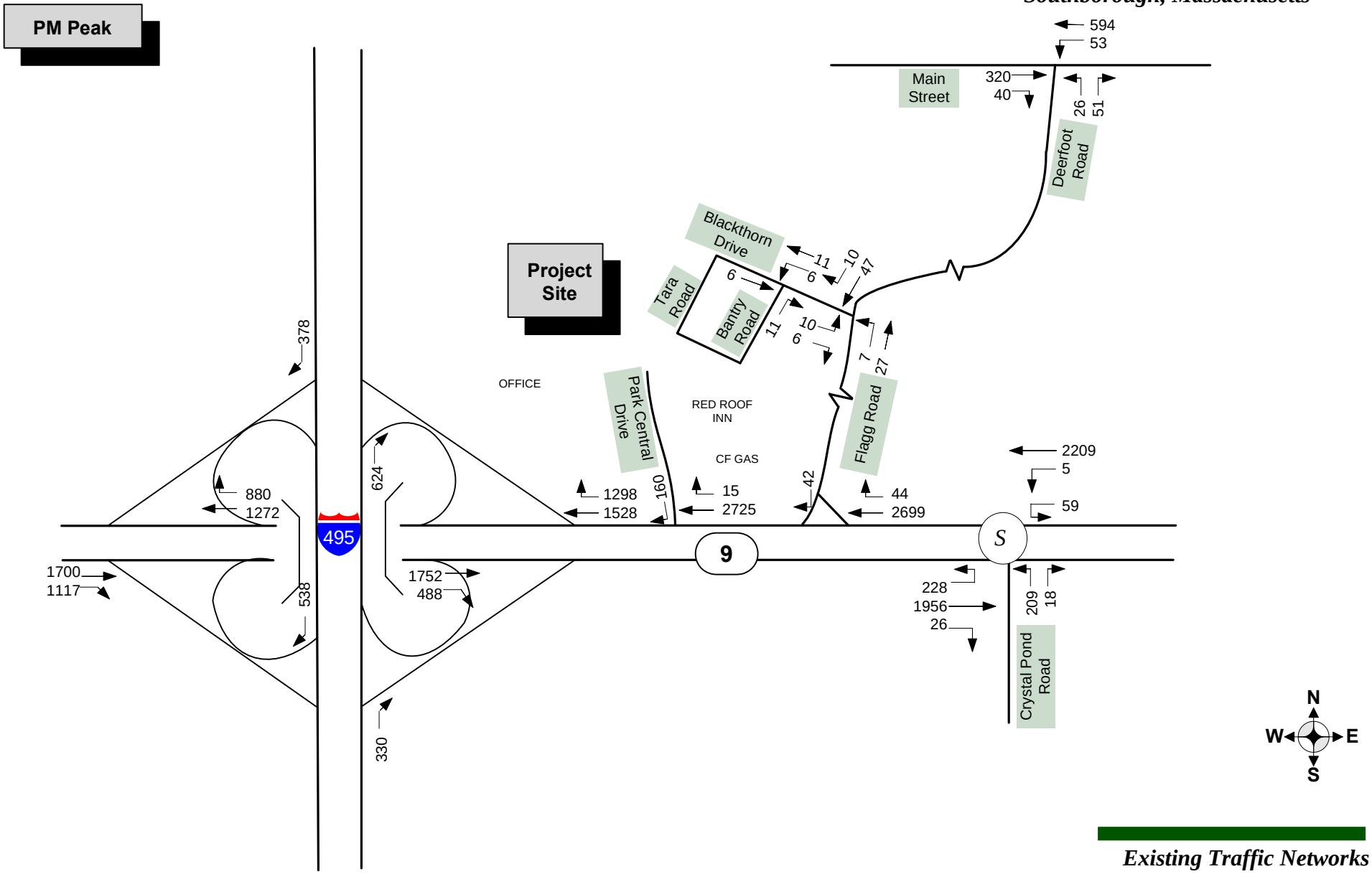


Existing Traffic Networks

Figure 4

Green International Affiliates, Inc.

S - Signalized Study Intersection

NOT TO SCALE

Deerfoot Road, and no crashes reported on Blackthorn Drive at Bantry Road and at the existing drive for Park Central during this period.

TABLE 2
SUMMARY OF INTERSECTION CRASH DATA (2008-2010)

Year	Total Acc.	Crash Type				Severity			Pavement		Weather		
		AC[a]	RE[b]	HO[c]	U[d]	PD[e]	PI[f]	F[g]	Dry	Wet[h]	Clear	Snow	Rain[i]
Route 9 at Crystal Pond Road													
2008	9	0	9	0	0	7	2	0	8	1	7	0	2
2009	7	0	7	0	0	4	3	0	6	1	4	0	3
2010	4	0	3	1	0	2	2	0	4	0	4	0	0
Route 9 at Flagg Road													
2008	2	0	2	0	0	2	0	0	1	1	1	0	1
2009	2	1	1	0	0	2	0	0	1	1	1	0	1
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
Route 9 at Park Central Drive													
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
Blackthorn Drive at Bantry Road													
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0
Flagg Road at Blackthorn Drive													
2008	0	0	0	0	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	1	0	0	0	1	1	0	0	0	1	0	0	1
Main Street (Route 30) at Deerfoot Road													
2008	1	1	0	0	0	0	1	0	1	0	1	0	0
2009	0	0	0	0	0	0	0	0	0	0	0	0	0
2010	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Based on data provided by the MassDOT
[a] Angle Collision [b] Rear-End [c] Head On [d] Unknown [e] Property Damage Only [f] Personal Injury [g] Fatality
[h] Wet, Snowy or Icy [i] Rain, Cloudy or Foggy

As part of this safety review, the "crash rate" for the study intersections was also determined. The calculation of the crash rate accounts for the amount of traffic that enters the intersection, and relates the number of accidents at a location directly to the amount of traffic that passes through the location. It becomes a more comprehensive measure for identifying potentially hazardous locations compared to simple averages. The calculated rate is compared to the District wide averages. Intersections experiencing crash rates greater than the above averages are potentially experiencing an unusually high number or higher than expected number of crashes relative to traffic volumes at that particular location and may warrant further investigation or improvements. For the MassDOT District 3 area, which covers the study area Cities and Towns, has an average crash rate of 0.66 crashes per million entering vehicles (MEV) for unsignalized intersections and 0.90 crashes per MEV for signalized intersections. Table 3 summarizes the results.

TABLE 3
SUMMARY OF INTERSECTION CRASH RATE (2008-2010)

Intersection	Type of Control	Total No. of Crashes (3 Years)	Average No. of Crashes/Yr.	Crash Rate (per MEV)
Park Central Drive at Route 9	Unsignalized	0	0	0.00
Flagg Road at Route 9	Unsignalized	4	1.3	0.11
Crystal Pond Road at Route 9	Signalized	20	6.7	0.33
Bantry Road at Blackthorn Drive	Unsignalized	0	0	0.00
Flagg Road at Blackthorn Drive	Unsignalized	1	0.3	0.63
Main St (Rt. 30) at Deerfoot Road	Unsignalized	1	0.3	0.08

Note: Unsignalized intersections: MassDOT District 3 average crash rate: 0.66.
Signalized intersections: MassDOT District 3 average crash rate: 0.90.

All unsignalized intersections had lower crash rates than the current MassDOT District 3 averages. The Crystal Pond Road signalized intersection with Route 9 experienced 6.7 reported crashes per year also had a crash rate lower than the average. Detailed intersection crash rate worksheets for the study intersections are included in the Appendix.

Based on the review of crash frequency and crash rates, it was concluded that the study intersections that have the strongest relation to the proposed project including Route 9 at Flagg Road are not deficient in terms of crash experience. The Route 9/Crystal Pond Road intersection though well below the MassDOT average crash rate has been the subject of further study – most recently by MassDOT as part of the I-495/I-90/Route 9 study.

In addition to the study intersections, a review of the data showed that there were five (5) reported crashes along the Flagg Road segment at various locations over the three year period while two (2) crashes were reported for the Deerfoot Road segment between Flagg Road and Main Street over the same period. In total, approximately two reported crashes per year for the combined length of Flagg Road and the northern portion of Deerfoot Road (between Flagg Road and Main Street). The majority of reported crashes were single vehicle type crashes and property damage only. Given the length of roadway section, the volumes and number of crashes, the analysis of the crash data has not indicated any specific safety deficiency.

Probable Impacts of the Project

In this section of the report, the impacts of the proposed residences at Park Central 40B development on the roadway network within the study area are described. For the purpose of this study, a Build year of 2018 was selected which presumes a 5 year forecast from the approval would be anticipated in 2018. The No-Build traffic volume network was developed by taking into account existing traffic volumes, area traffic volume growth for five years, and traffic from potential site specific (background) developments together. The impact of No-Build and Build traffic conditions during the weekday morning and afternoon peak hours were then evaluated.

A. NO-BUILD TRAFFIC VOLUMES

In general, growth in traffic is expected to occur over the years due to a combination of population and economic activity. In the project area, there is one definitive project of size currently underway. A number of projects have been put on hold or possibly abandoned as a result of the economy over the past 4 to 5 years. In developing No-Build traffic projections, both growth rate analysis and the identification of site specific developments were completed.

1. Background Traffic Growth

To establish a traffic growth rate for the study area, historical traffic count data from the MassDOT Traffic Count Reports. Historical traffic data from the MassDOT permanent count station (listed previously) indicated an annual traffic growth rate for the area of virtually no change and in some cases, decreasing traffic for the past 4 to 5 years. The group data from MassDOT shows virtually no recent substantive change on volumes across the District 3 region.

However, to account for growth that will eventually return and may occur outside the project area, growth rates of ½% per year for 3 years and 1% per year for the following 3 years were selected as being reasonable for analysis purposes at this time. In addition to the background growth rate, site-specific developments as noted below in the area were also identified and associated trips applied to the networks.

2. Site Specific Developments

As part of developing the No-Build traffic conditions, information on additional approved or planned projects that are anticipated within the build-out time frame of five (5) years in the vicinity of the proposed project (that could impact the study area/intersections) was researched. As indicated previously, the Madison Place development that includes 140 apartment units was approved in 2012 and is presently under construction. The development will be accessed entirely from Crystal Pond Road until MassDOT begins to implement major improvements at the Route 9 intersection with Crystal Pond Road.

It would appear that the EMC plans that include development of a new corporate campus to the west of Madison Place continue to be on hold. There is no indication at this point when major components of that project will be initiated. For the purposes of this analysis, only Madison Place was specifically incorporated into the networks.

3. No-Build Traffic Volumes

Consequently, the No-Build traffic networks were developed based on the above items extending the network to the Year 2018. Peak hour trips estimated for Madison Place were taken from the traffic study completed for that project.

The year 2018 No-Build traffic volumes reflect traffic from the above noted site-specific development and background growth added to the present traffic volumes. The estimated year 2018 No-Build traffic volumes projected for the weekday morning and weekday afternoon peak hours at the study intersections are shown in Figures 5 and 6.

B. SITE GENERATED TRAFFIC VOLUMES

In this section, traffic forecasts related to the proposed Residences at Park Central development are described. The proposed development includes a total of 180 residential condominium units. Access to the site will be via Tara Road and Bantry Road then to Blackthorn Drive, which connects to Flagg Road. Under this plan, all residential traffic generated by the residences project would be segregated from the commercial traffic that could occur in the future on the Park Central site.

1. Trip Generation

In order to estimate the number of trips that will be generated by the proposed development, statistics published by the Institute of Transportation Engineers (ITE) in Trip Generation[4] for similar land uses were examined. ITE trip generation statistics represent a compilation of trip data from studies/projects throughout the United States for different types of land uses and developments.

To estimate daily and peak hour trips for the proposed residences at Park Central development, the ITE trip generation data and models for Residential Condominium (Land Use Code 230) were used in this study. The estimated trips generated for the proposed park expansion are presented in Table 4. Detailed trip generation calculations are included in the Appendix.

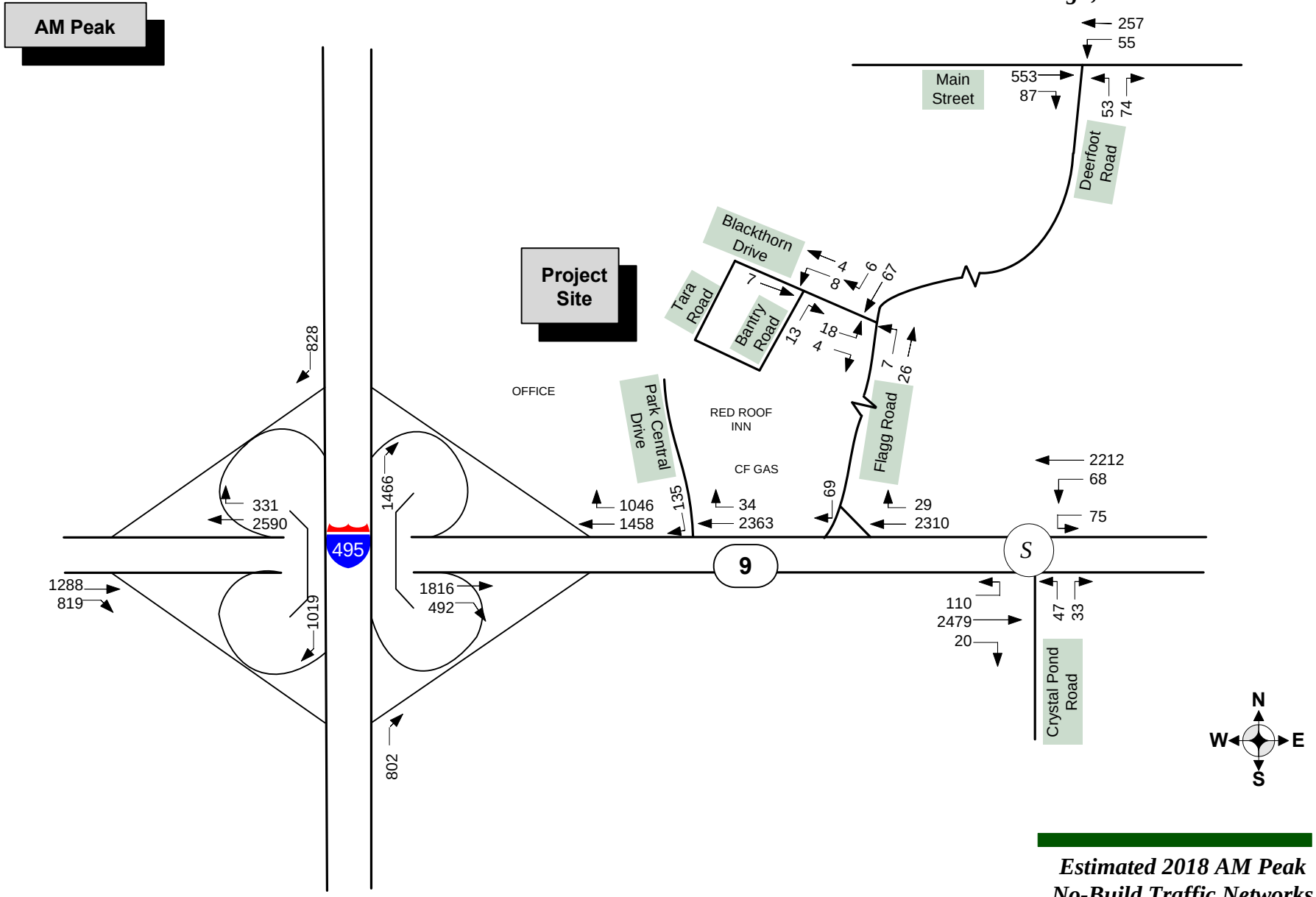
TABLE 4
SUMMARY OF ESTIMATED PROJECT TRIP GENERATION

Time Period	In	Out	Total
Weekday – 24 hrs	537	537	1,074
AM Peak Hour	14	69	83
PM Peak Hour	65	32	97

Source: ITE Trip Generation 9th Edition – LUC 230

[4] Institute of Transportation Engineers. Trip Generation, 9th Edition. 2012.

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts



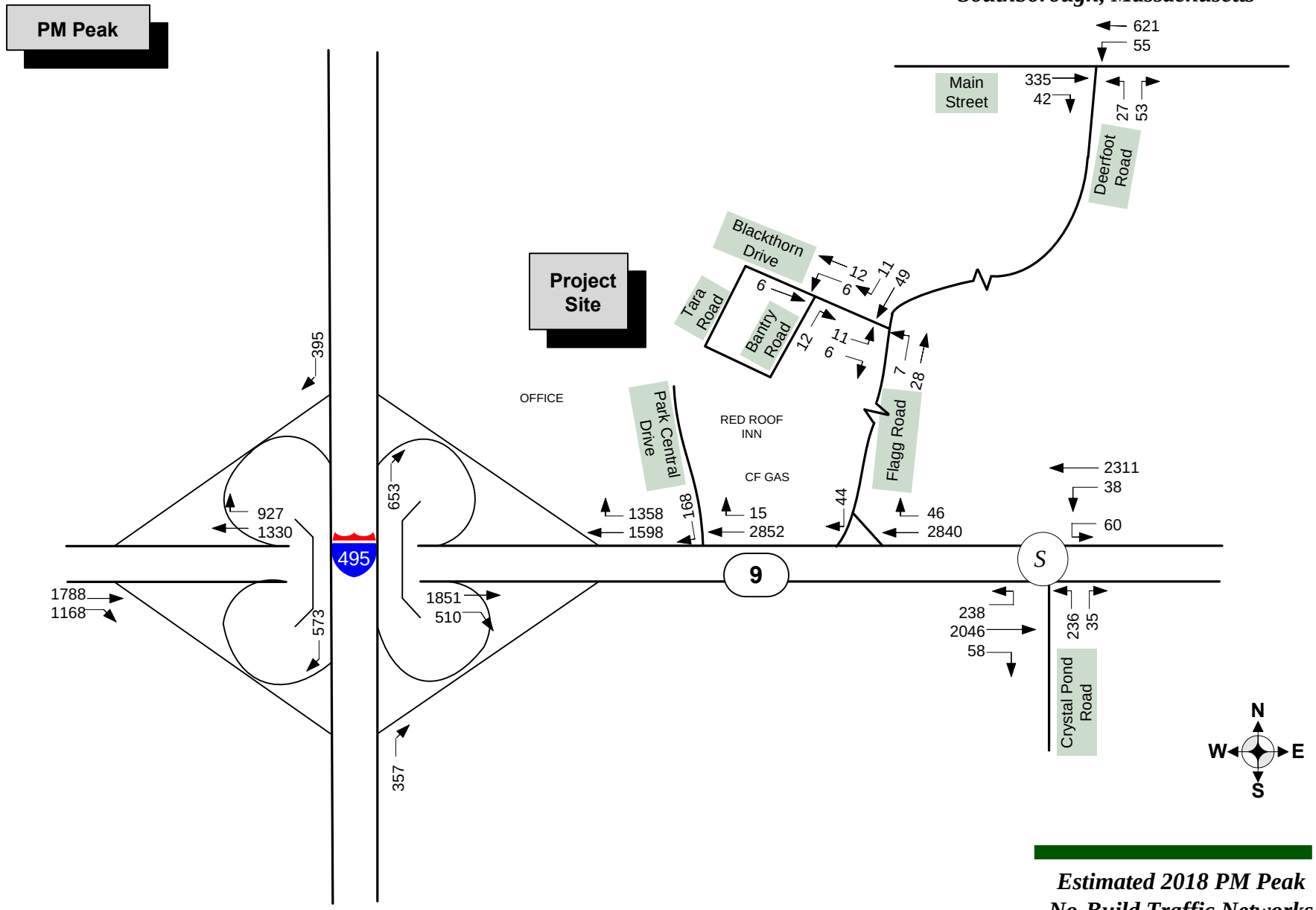
Estimated 2018 AM Peak
No-Build Traffic Networks

Green International Affiliates, Inc.

S - Signalized Study Intersection

Figure 5
NOT TO SCALE

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts



Estimated 2018 PM Peak
No-Build Traffic Networks

Green International Affiliates, Inc.

S - Signalized Study Intersection

Figure 6
NOT TO SCALE

As shown in Table 4, the proposed Park Central residence development is expected to generate 1,074 vehicle trips on a typical weekday. The added trips include 537 entering and 537 exiting trips over the 24 hour period. The weekday morning peak hour is expected to generate 83 more external trips with 14 inbound and 69 outbound trips. The weekday afternoon peak hour is expected to generate 97 more external trips with 65 inbound and 32 outbound.

2. Trip Distribution/Assignment

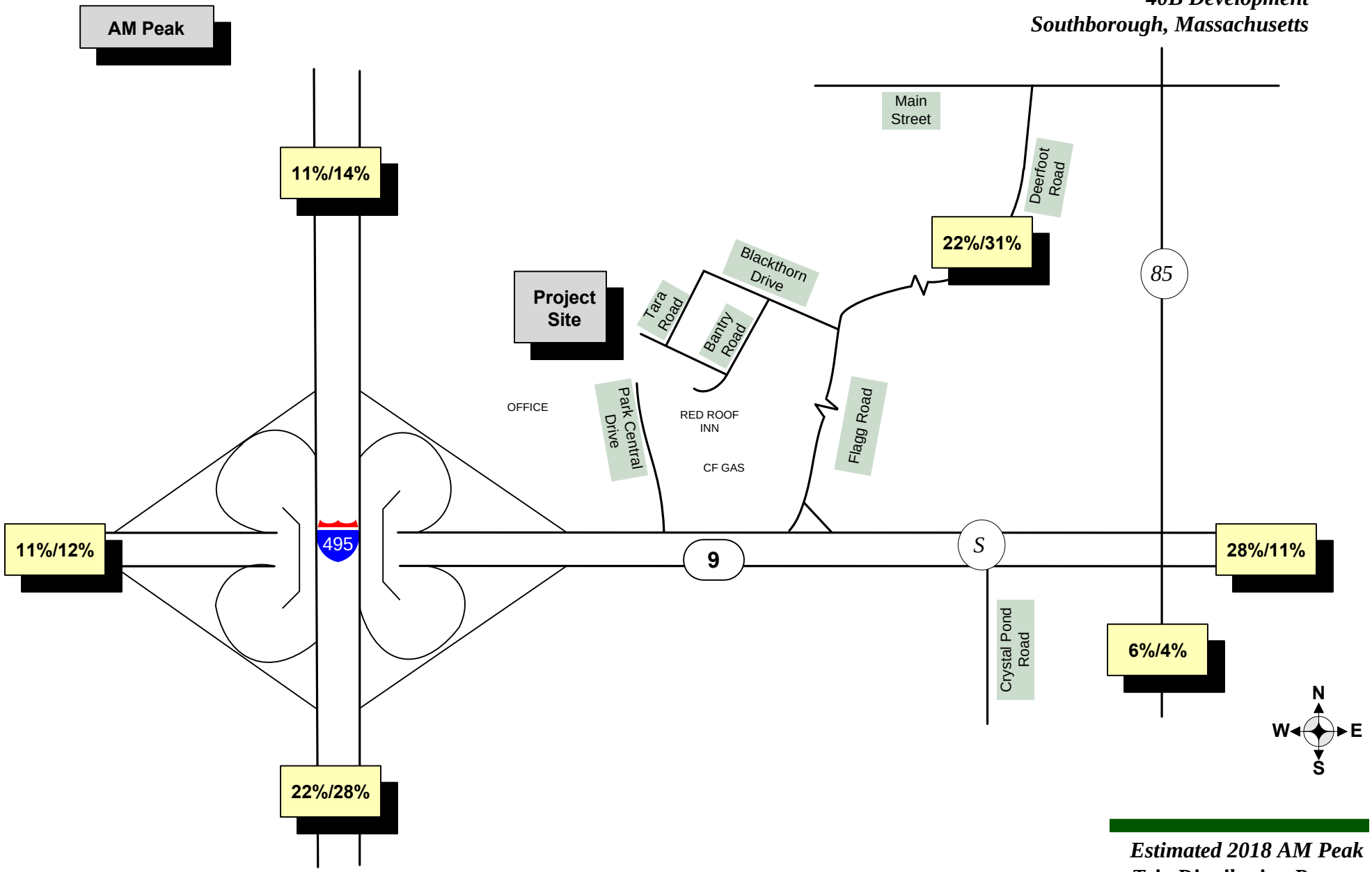
Once the number of trips projected to be generated by the development has been determined, these trips are then assigned to the site driveways and study area roadways based on trip distribution patterns determined for the proposed development. Directional distribution of generated trips to and from the site is expected to follow existing traffic patterns, which, in turn, are a function of regional population densities, shopping opportunities, areas of employment, and recreational activities.

For this study, traffic flow patterns within the study area as well as access options to the site were reviewed. Employment trip origin patterns for Southborough residents from the most recently available census data were also reviewed and became the basis for the traffic assignments. In addition to the census data, consideration of the abutting roadway network, typical peak hour conditions and the work place location, the trip distribution percentages were used to assign the project trips. The overall arrival/departure trip distribution percentages are presented in Figures 7 and 8.

3. Build Traffic Volumes

Trips projected for the proposed project were assigned to the study area roadways using the trip distribution percentages shown in Figures 7 (morning arrival/departure) and 8 (afternoon arrival/departure). Estimated peak hour site traffic volumes were then added to the No-Build traffic volumes shown in Figures 5 and 6 to establish the 2018 Build condition traffic volume network. Figures 9 and 10 present the Build traffic volume network for the weekday morning and afternoon peak hours, respectively.

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts



Estimated 2018 AM Peak
Trip Distribution Pattern

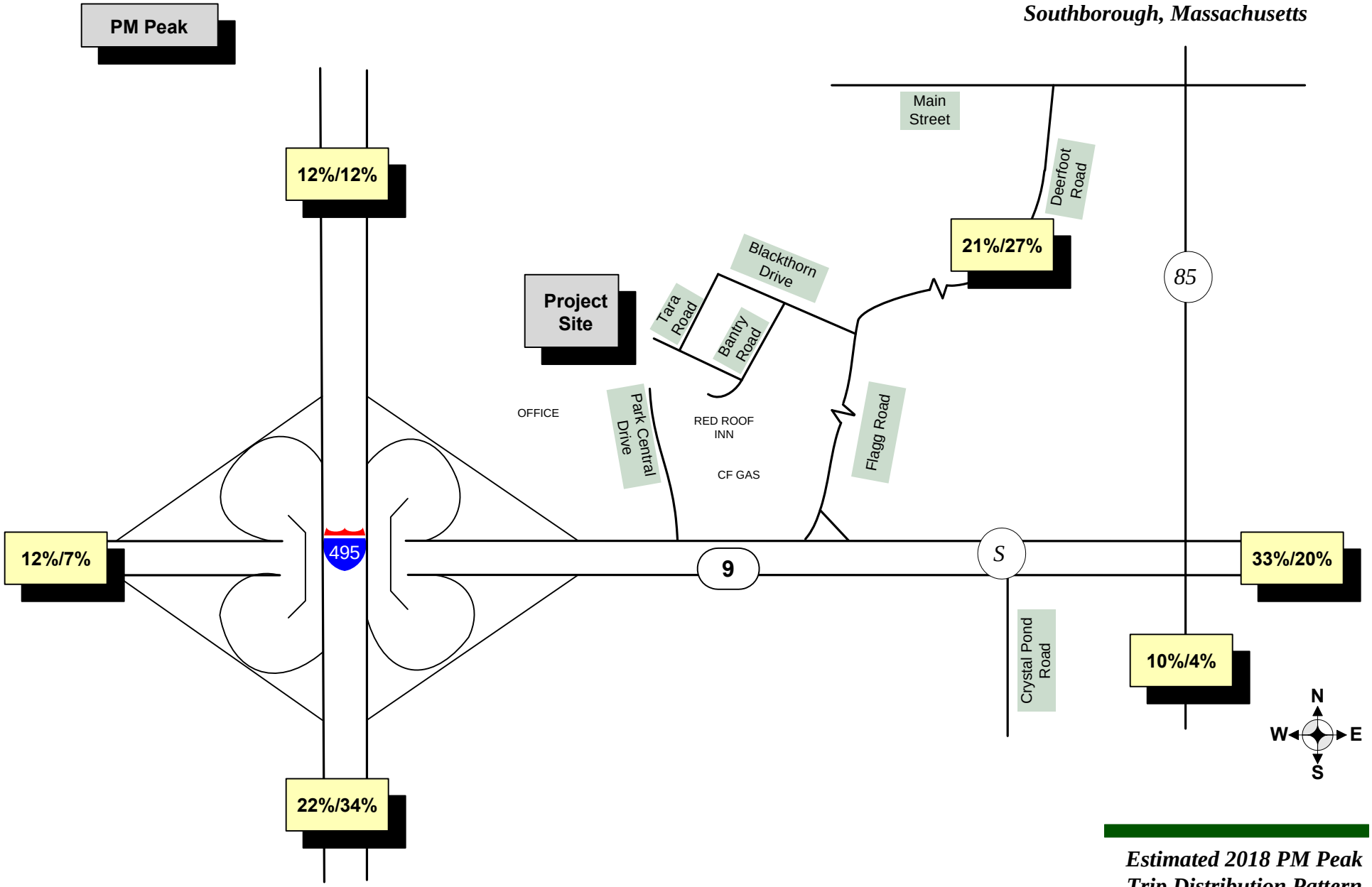
Green International Affiliates, Inc.

arrival%/depart %

S - Signalized Study Intersection

Figure 7
NOT TO SCALE

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts



Estimated 2018 PM Peak
Trip Distribution Pattern

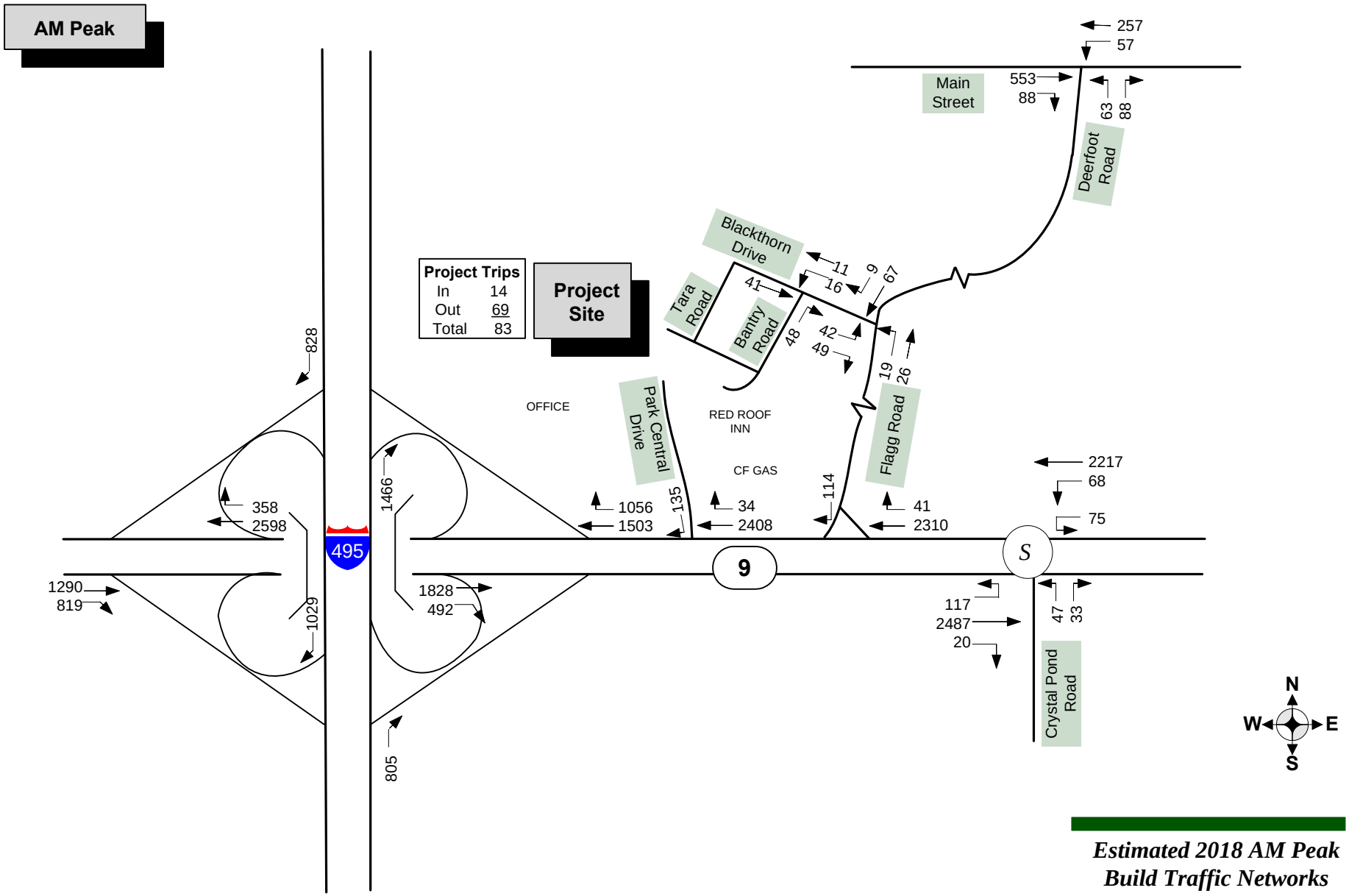
Figure 8
NOT TO SCALE

Green International Affiliates, Inc.

arrival%/depart %

S - Signalized Study Intersection

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts



Estimated 2018 AM Peak
Build Traffic Networks

Green International Affiliates, Inc.

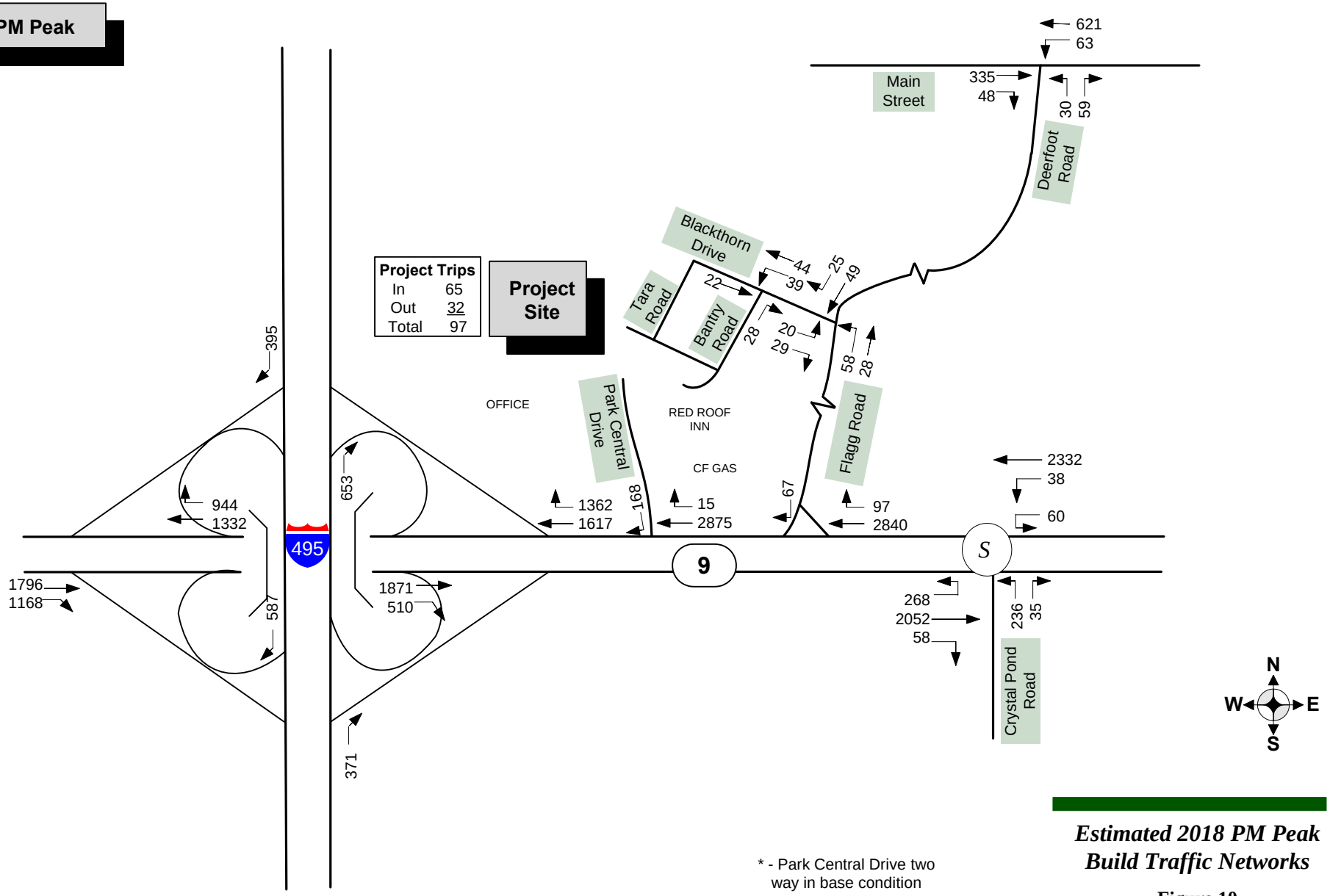
S - Signalized Study Intersection

Figure 9

NOT TO SCALE

Proposed Residences at Park Central
40B Development
Southborough, Massachusetts

PM Peak



* - Park Central Drive two way in base condition

S - Signalized Study Intersection

Estimated 2018 PM Peak Build Traffic Networks

Figure 10

NOT TO SCALE

Green International Affiliates, Inc.

C. ANALYSIS

This traffic study focused on the analysis of various roadways and intersections identified previously within the study area. Previous sections of this report described the development of the 2018 No-Build and 2018 Build traffic volume network considering site-specific developments and estimated site traffic. Included in this section is an examination of the incremental increases in traffic expected on study area roadways under Build conditions, capacity/Level of Service (LOS) analysis for the study intersections under all scenarios and sight distance evaluation at the site access location.

1. Traffic Volume Increases

A comparison of No-Build and Build volumes on the surrounding roadway system was completed. The increases will largely be concentrated on Route 9 given the existing highway median, the expected orientation of site trips and the proposed access-egress plan for the development. There will be some increase in traffic on Flagg Road north of Blackthorn Drive as it connects to Route 30 via Deerfoot and one can access the center of town, the local schools and Route 85. However, the increases to Flagg Road volume during the peak hours are expected to be manageable and well within the roadway's capacity, which is examined in the next section of the report. Table 5 summarizes these increases in traffic volumes for the study area roadways.

TABLE 5
SUMMARY OF ESTIMATED ROADWAY TRAFFIC INCREASES

Location	Weekday Morning Peak Hour			Weekday Afternoon Peak Hour		
	No-Build	Build	Δ Volume	No-Build	Build	Δ Volume
Flagg Road						
North of Blackthorn Drive	117	144	27	99	122	23
North of Route 9	98	155	57	90	164	74
Deerfoot Road						
Between Flagg Rd. and Main St.	269	296	27	177	200	23
Route 9 Eastbound						
East of Crystal Pond Road	2587	2595	8	2141	2147	6
West of Park Central Drive	2618	2633	15	2208	2242	34
Route 9 Westbound						
East of Crystal Pond Road	2355	2360	5	2409	2430	21
West of Park Central Drive	2504	2559	55	2956	2979	23
I-495 Exit 23 SB Ramps						
Off-Ramp to Route 9 EB	1019	1029	10	573	587	14
On-Ramp from Route 9 WB	331	358	27	927	944	17
I-495 Exit 23 NB Ramps						
On-Ramp from Route 9 WB	1046	1056	10	1358	1362	4
Off-Ramp to Route 9 EB	802	805	3	357	371	14

The key findings from Table 5 include the following:

- As expected, the largest traffic effect of the project will be on Flagg Road north of Blackthorn Drive.

- The section of Route 9 westbound between Park Central Drive and the I-495 Interchange would experience increases due to the traffic increase from Flagg Road to Route 9. This traffic reaches I-495, Route 9 WB or uses the interchange to reverse direction to reach Route

9 EB. The section of Route 9 eastbound between Crystal Pond Road and the I-495 Interchange would also experience increases due to the project in relation to traffic entering the site from the west on Route 9. This includes residents traveling from via I-495 or Route 9 west of I-495 who would first travel east on Route 9, reverse direction at the Crystal Pond Road intersection and then travel Route 9 westbound to reach the site.

- There will be measurable increases to peak hour traffic volumes on Flagg Road north of Blackthorn Drive and on Deerfoot Road, however, it is estimated that these increases will be on the order of less than one vehicle trip per minute and at that level, it would not be generally noticeable by the average motorist or have a major affect on traffic flow operations.

- Obviously, there will be noticeable increases in traffic volumes on Blackthorn Drive and the local access roadways as these streets provide the project's access and connections to the collector and arterial roadways.

2. Capacity/Level of Service (LOS) Analysis

For this analysis, the study intersections in the vicinity of the project were examined with regard to flow rates, capacity and delay characteristics to determine the Level of Service (LOS) provided under existing and future (No-Build and Build) traffic conditions. These included Route 9 at Crystal Pond Road; Route 9 at Flagg Road, Route 9 at Park Central Drive, Flagg Road at Blackthorn Drive, Blackthorn Drive at Bantry Road, and Main Street (Route 30) at Deerfoot Road. Additionally, the capacities of the road segments were examined.

Level of Service is an indicator of operating conditions which occur on a given roadway feature while accommodating varying levels of traffic volumes. It is a qualitative measure that accounts for a number of operational factors including roadway geometry, speed and traffic composition. When all of these measures are assessed and a Level of Service is assigned to a roadway or intersection, presenting a qualitative "index" to the operational qualities of the section under study. Level of Service is classified in the Highway Capacity Manual[5] into six levels that are designated 'A' through 'F' based on the control delay ranges they fall under. These are presented in Table 6 for both unsignalized and signalized intersections.

TABLE 6
LEVEL OF SERVICE CRITERIA FOR INTERSECTIONS

Level of Service	Unsignalized Intersections Control Delay Range (sec)	Signalized Intersections Control Delay Range (sec)
A	<= 10	<= 10
B	> 10 and <= 15	> 10 and <= 20
C	> 15 and <= 25	> 20 and <= 35
D	> 25 and <= 35	> 35 and <= 55
E	> 35 and <= 50	> 55 and <= 80
F	> 50	> 80

Source: Highway Capacity Manual

In practice, any given roadway/intersection may operate at a wide range of levels of service depending upon time of day, day of week or period of year. It should also be noted that for unsignalized intersections,

[5] Transportation Research Board. Highway Capacity Manual, Washington, D.C. 2010.

the Level of Service is not computed for the intersection as a whole. Instead the level of service is determined by the computed or measured control delay for each individual critical movement.

The study intersections were evaluated as per techniques published in the Highway Capacity Manual (HCM). The HCS computer model that follows the procedures established in the HCM, were used to analyze the study intersections. Using existing roadway features and intersection controls, traffic operations at the study area intersections were evaluated for existing as well as future conditions. Analysis results are presented in Tables 7 and 8 for the study intersections and summarized as follows:

The Level of Service analysis indicated that:

- There would be no change in operations at the Flagg Road/Blackthorn Drive and Blackthorn Drive/Bantry Road intersections between the No-Build and Build conditions which are estimated to operate at LOS 'A' during both peak hours, with the residential project fully built and occupied.

- There would be no change in operations at the Main Street/Deerfoot Road intersection between the No-Build and Build conditions which is estimated to operate at LOS 'E' in the AM peak hour and LOS "C" during the PM peak hour. The morning peak hour condition reflects the school arrival activity and once that passes, the levels of service and vehicle delay would be improved. .

* In general, peak hour conditions along Route 9 become congested with high volumes and characterized by long vehicle queues at signalized intersections. The proposed development will not change this in any substantive manner.

* The Route 9/Flagg Road intersection is estimated to operate at LOS 'E' (38.5 seconds delay) in the AM peak hour and LOS 'E' (47.0 seconds delay) during the PM peak hour under the Build condition. While the traffic signal at Crystal Pond Road provides some gaps in the traffic stream, there are times when motorists exiting Flagg Road have increased difficulty merging or weaving into the Route 9 westbound traffic stream. The MassDOT is proposing improvements to Route 9 westbound to improve this condition up through the I-495 interchange. This action coupled with reducing or restricting exiting from Park Central Drive would provide a continuous 3rd westbound lane and longer length to merge and weave into the desired travel lane enhancing safe movement although there could be some added delay.

* The Route 9/Crystal Pond Road intersection currently and is estimated to operate at LOS 'E/F' during the peak hours with relatively long delays and vehicle queuing in the peak direction of flow with no change between No-Build and Build conditions. The proposed development is anticipated to have minimal effect on the operations at this location although adding traffic in both Route 9 directions. MassDOT has identified long term improvements at this location.

Traffic flow improvements at the Route 9/Crystal Pond Road intersection and along Route 9 are expected to be addressed in the long range by MassDOT and possibly by some of the private developers and land

owners in the area. A number of options were identified in the past studies including instituting a jughandle design at the intersection. Signal timing optimization could also be employed in the short term that would reduce the overall vehicle delays at the intersection.

In addition to the intersection analyses, the roadway segments of Flagg Road north of the site and Deerfoot Road north of Flagg Road were also evaluated. While the available capacity techniques are geared more to major roads and two lane highways, the method for two lane facilities was used to provide an approximate level of capacity for both these two roadways. The method takes into account roadway width, travel speeds, volumes, directional flow rates and the availability of passing zones.

Table 7
Summary of Level of Service Analysis
Unsignalized Intersections

Intersection	Existing			2018 No Build			2018 Build		
	V/C	Avg Del	LOS	V/C	Avg Del	LOS	V/C	Avg Del	LOS
AM Peak Hour									
Route 9 at Flagg Road									
Southbound right	0.29	25.9	D	0.32	28.7	D	0.54	38.5	E
Route 9 at Park Central Dr									
Southbound right	0.64	44.3	E	0.73	57.5	F	0.76	62.3	F
Flagg Rd at Blackthorn Dr									
Eastbound exit	0.03	9.2	A	0.03	9.2	A	0.13	9.6	A
Northbound left	0.01	7.4	A	0.01	7.4	A	0.02	7.4	A
Blackthorn Dr at Bantry Rd									
Westbound left-thru	0.01	7.2	A	0.01	7.2	A	0.01	7.3	A
Northbound right	0.01	8.4	A	0.01	8.4	A	0.06	8.7	A
Main St at Deerfoot Rd									
Westbound left-thru	0.08	9.6	A	0.09	9.8	A	0.09	9.8	A
Northbound left-right	0.55	31.9	D	0.60	37.0	E	0.72	47.1	E
PM Peak Hour									
Route 9 at Flagg Road									
Southbound right	0.26	33.6	D	0.30	38.3	E	0.46	47.0	E
Route 9 at Park Central Dr									
Southbound right	1.01	>100	F	1.17	>100	F	1.18	>100	F
Flagg Rd at Blackthorn Dr									
Eastbound exit	0.02	9.0	A	0.02	9.0	A	0.07	9.5	A
Northbound left	0.01	7.3	A	0.01	7.3	A	0.05	7.5	A
Blackthorn Dr at Bantry Rd									
Westbound left-thru	0.01	7.2	A	0.01	7.2	A	0.03	7.3	A
Northbound right	0.01	8.4	A	0.01	8.4	A	0.03	8.5	A
Main St at Deerfoot Rd									
Westbound left-thru	0.05	8.2	A	0.05	8.3	A	0.06	8.4	A
Northbound left-right	0.23	17.2	C	0.25	18.3	C	0.28	19.1	C

Table 8

Summary of Level of Service Analysis
Route 9 at Crystal Pond Road

	Existing Conditions				2018 No-Build				2018 Build			
	v/c	Delay	LOS	95TH Q	v/c	Delay	LOS	95TH Q	v/c	Delay	LOS	95TH Q
AM PEAK HOUR												
Eastbound Thru	1.11	74.3	E	1151	1.21	117.1	F	1238	1.21	119.2	F	1245
Eastbound Left	1.44	>200	F	210	1.55	>200	F	219	1.64	>200	F	231
Westbound	0.69	12.2	B	406	0.75	15.0	B	444	0.75	15.1	B	446
Westbound Left	1.77	>200	F	253	2.01	>200	F	280	2.01	>200	F	280
Northbound Left	0.18	46.9	D	17	0.24	45.0	D	35	0.24	45.0	D	35
Northbound Right	0.00	45.9	D	11	0.02	44.0	D	31	0.02	43.9	D	31
Overall	**1.20**	**61.1**	**E**	**-**	**1.28**	**87.7**	**F**	**-**	**1.28**	**90.0**	**F**	**-**
PM PEAK HOUR												
Eastbound Thru	0.98	39.0	D	1131	1.04	54.7	D	1243	1.04	55.6	E	1249
Eastbound Left	4.20	>200	F	558	4.39	>200	F	585	4.93	>200	F	649
Westbound	0.77	19.3	B	609	0.81	21.3	C	683	0.82	21.6	C	695
Westbound Left	1.17	>200	F	173	1.80	>200	F	261	1.80	>200	F	261
Northbound Left	0.62	57.0	E	135	0.65	57.6	E	152	0.65	57.6	E	152
Northbound Right	0.01	50.5	D	25	0.02	50.1	D	34	0.02	50.1	D	34
Overall	**1.46**	**105.4**	**F**	**-**	**1.53**	**121.3**	**F**	**-**	**1.62**	**142.8**	**F**	**-**

A peak hour capacity is determined and compared with the volume traveling the roadway. The analysis results indicated that the volume to capacity ratio for Flagg Road is below 0.10 while the Deerfoot Road section in the vicinity of Main Street is below 0.20. In other words, ten percent or less of the Flagg Road capacity is being used and 20 percent or less of the northern section of Deerfoot Road capacity is being utilized. Calculation sheets are included in the Appendix while Table 9 summarizes the analysis results for the future No-Build and Build conditions. As can be seen, there is no expected change in operating conditions with the project and the additional traffic added to these roadway segments due to the proposed residential project will be easily accommodated.

TABLE 9
SUMMARY OF ROADWAY LINK
PEAK HOUR LOS/CAPACITY ANALYSIS
No-Build vs. Build

Roadway	2018 No Build						2018 Build					
	AM Peak			PM Peak			AM Peak			PM Peak		
	Cap	V/C	LOS	Cap	V/C	LOS	Cap	V/C	LOS	Cap	V/C	LOS
Flagg Road	1,656	0.05	A	1,685	0.04	A	1,656	0.05	A	1,685	0.04	A
Deerfoot Road	1,675	0.16	C	1,685	0.06	B	1,680	0.17	C	1,685	0.07	B

3. Sight Distance Analysis

Adequate sight distance is an important safety consideration at intersections. As part of this study, a sight distance analysis was conducted at the intersections of Blackthorn Drive at Flagg Road and Main Street (Route 30) at Deerfoot Road. The study examined stopping sight distance (SSD) and corner sight distance (CSD).

SSD, which is the more important of the two, is the distance required for an approaching driver at a height

of 3.5 feet to perceive and react accordingly to an object 2 feet high at the driveway. The values are based on a perception and reaction time of 2.5 seconds and braking distance required under wet, level pavements. Corner or intersection sight distance (CSD) is based on the time required to perceive, react, and complete desired exiting maneuver from a driveway once the driver decides to execute the maneuver. Values for exiting sight distance represent the time to (1) turn left or right, in addition to accelerating to the operating speed of the roadway, without causing approaching vehicles to reduce speed by more than 10 mph, and (2) upon turning left, to clear the near half of the intersection without conflicting with the vehicles approaching from the left.

Corner sight distance is more related to operations and to some degree, the convenience or inconvenience of on-coming motorists. When the roadway is either on an upgrade or downgrade, grade correction factors may be applied. Minimum criteria are defined by the American Association of State and Highway and Transportation Officials (AASHTO)[6]. SSD relates specifically to safety. As indicated by AASHTO, if the CSD at least meets or exceeds the SSD criteria, then there is adequate safe sight distance available for motorists to avoid collisions.

The posted speed limit noted on Flagg Road in the vicinity of Flagg Road at Blackthorn Drive intersection was 25 miles per hour (mph). For analysis purposes speed criteria for 25 mph and 30 mph were evaluated. Table 10 presents the AASHTO criteria and a summary of the sight distance analysis for Blackthorn Drive at Flagg Road and Main Street (Route 30) at Deerfoot Road.

As shown in Table 10, for the Blackthorn Drive at Flagg Road intersection, stopping sight distances are expected to be easily satisfied with regard to both locations and in every direction. The corner sight distance for looking south from the Blackthorn Drive approach is somewhat restricted by the stonewall located in the southwest corner of the intersection. In order to clearly see the Flagg Road/Eastbrook Farm Road intersection, which is approximately 350 feet to the south, motorists need to pull further from the Blackthorn Drive approach into the intersection. Modifying the wall's height or adjusting its corner would increase the available distance, however, does exceed the minimum SSD criteria in that direction. Also, both the stopping sight distance and the corner sight distance are easily satisfied at the Main Street at Deerfoot Road intersection.

TABLE 10

[6] American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, Washington, D.C., 2011.

SUMMARY OF SIGHT DISTANCE ANALYSIS

Sight Distance	Criteria (ft) 25 mph	Criteria (ft) 30 mph	Criteria (ft) 35 mph	Measured Distance (ft)	Criteria Satisfied
Flagg Road at Blackthorn Drive					
Stopping Sight Distance					
Approaching from North	155	200	-	300+	yes
Approaching from South	155	200	-	600+	yes
Corner Sight Distance – Left Turn					
Looking North	280	335	-	340+	yes
Looking South	280	335	-	220+/-	no
Corner Sight Distance – Right Turn					
Looking North	240	290	-	340+	yes
Looking South	240	290	-	220+/-	no
Main Street at Deerfoot Road					
Stopping Sight Distance					
Approaching from East	-	200	250	950+	yes
Approaching from West	-	200	250	530+	yes
Corner Sight Distance – Left Turn					
Looking East	-	335	390	900+	yes
Looking West	-	335	390	500+	yes
Corner Sight Distance – Right Turn					
Looking East	-	290	335	900+	yes
Looking West	-	290	335	500+	yes

Conclusion/Recommendations

The previous sections have presented information on the existing transportation network, the estimated traffic forecasts and the analysis results related to the proposed development project in Southborough. As previously indicated, the proposed development consists of 180 residential condominium units. The analysis has shown that the project will not create any new deficiencies, will have a small impact on existing locations that experience peak hour constraints, and can be safely accessed from Flagg Road.

Conclusions

Based on the analysis, the following conclusions were developed:

- The proposed development will generate approximately 1,074 vehicle trips over the course of the 24 hour day with 537 entering trips and 537 exiting trips. Peak hour vehicle trip estimates are 83 and 97 vehicle trips during the AM and PM peak hours, respectively, or an average of less than two (2) trips per minute.

- The analysis has shown that with full development, the Flagg Road/Blackthorn Drive intersection will continue to operate at high levels of service (LOS 'A') with motorists experiencing short delays.

- Minimal changes in operating conditions are anticipated at the local intersections along Flagg Road and Deerfoot Road.

- Flagg Road and Deerfoot Road currently experience relatively low volumes and can accommodate additional traffic volume. Obviously, there would be added volumes to Blackthorn Drive, Bantry Road and Tata Road due to the project's access connections under this alternative plan.

- The proposed residential development will generate new vehicle trips over the course of the day, however, given the project's location near Route 9 and I-495, most of the vehicle trips will be oriented to the regional highway system and the increase in trips should be manageable.

- Regardless of the development of the Residences at Park Central project, the traffic flow conditions in the Route 9 corridor reflect certain levels of congestion and delay during the peak commuter hours. The State and regional planning agencies continue to explore long-term improvements for Route 9 corridor to help alleviate current and anticipated travel delays to the extent practical.

- The proposed access plan, which completely separates the potential commercial development from the residential development, can safely accommodate the proposed Residences project.

Recommendations

While the analysis has shown that proposed residential development can be accommodated, it is recognized that the project will generate an increase of traffic on the area roadways. Consequently, a set of recommended actions developed to reduce the project's impact and enhance the safety and overall operating conditions of the roadway system. The proposed actions are as follows:

- The existing section of Flagg Road within 300 feet of Route 9 should be improved to include providing a consistent width with a preferred 24 to 26 foot wide pavement section depending on available right of way and physical characteristics. At the southern end of this 300 foot section is a rock outcrop and culvert where guardrail exists and the pavement width narrows. While this short section of road currently exists and accommodates two way traffic, it would be desirable to scale back the outcrop and other related work to provide an additional 2 to 3 feet of pavement width in this particular area as well.

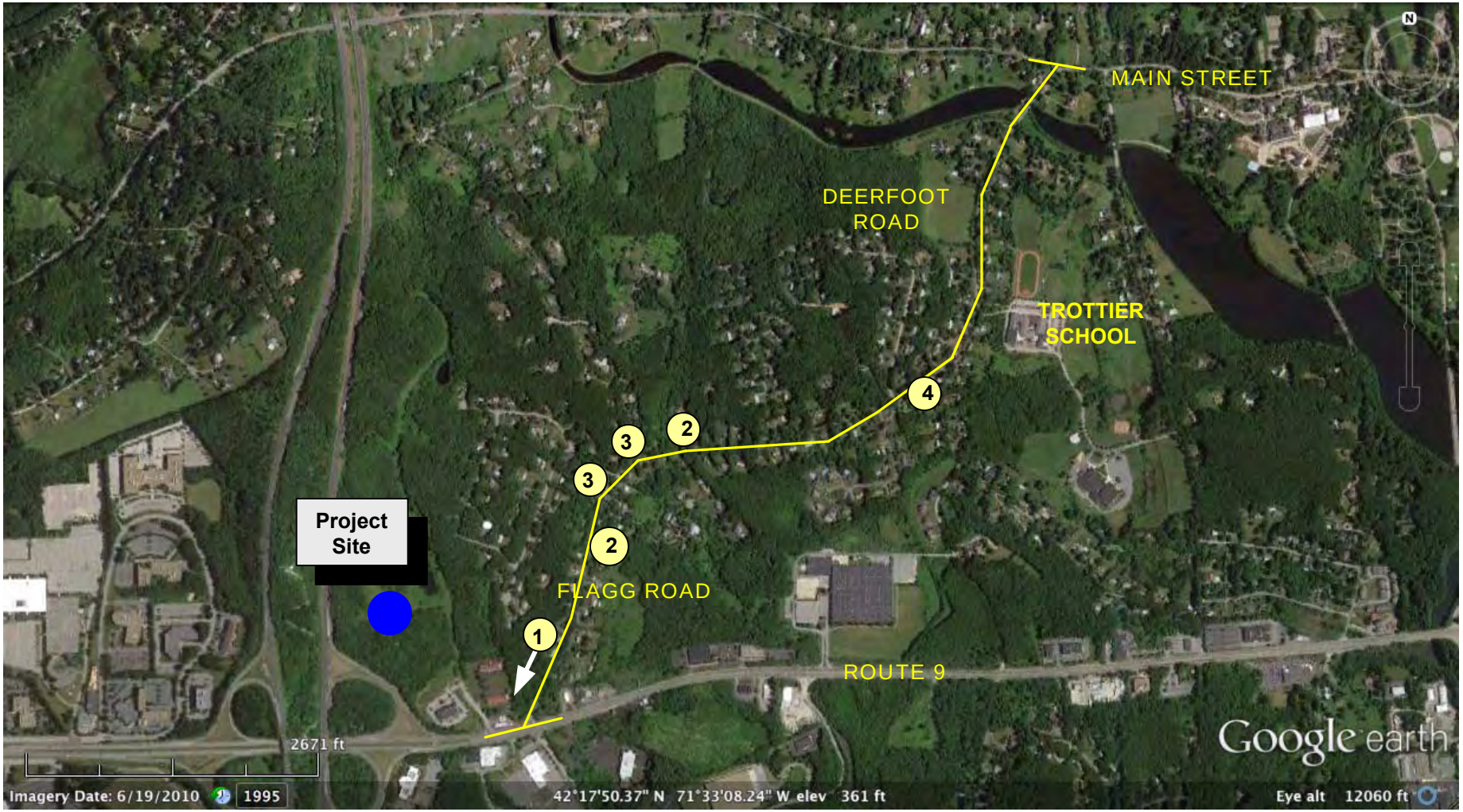
- STOP signs and STOP bars should be installed on the Blackthorn Drive approach to Flagg Road and on the Bantry Road approach to Blackthorn Drive.

- While safe stopping sight distance exists, to increase the corner sight distance looking south at the existing Flagg Road/Blackthorn Drive intersection, lowering the height of stonewall at the southwest corner of the intersection could be considered. If the stonewall can not be modified, alternative action such as an advance warning sign on Flagg Road and/or placement of a concave mirror opposite Blackthorn Drive could be installed.

- To enhance safe traffic flow along Flagg Road, install advance curve warning signs and an advance intersection warning signs approaching Route 9 and Deerfoot Road. Figure 11 at the end of the report illustrates possible signs and locations.

- Within the existing neighborhood, it may be desirable to proactively manage traffic movement as the project is constructed. The objective would be to maintain or manage reasonably low travel speeds, maintain high visibility and have appropriate traffic control within the neighborhood. Possible actions include installing STOP signs at the internal intersections and the use of speed humps or other physical speed control techniques. The specific actions could be developed jointly by town officials and the residents in the neighborhood along with the Applicant.

- It is recommended the Applicant work with the regional business groups and planning agencies to continue encouraging the MassDOT to improve the westbound section of Route 9 in the project area. An alternative was presented in the recent recommendations by MassDOT for improving Route 9 in this area. This would include of the construction of the consistent 3rd lane on Route 9 westbound from Deerfoot Road east of Crystal Pond Road through the I-495 interchange. The lane, which will facilitate improved exiting from the side streets and driveways between Crystal Pond Road and I-495 and largely involve reconstructing the existing Route 9 shoulder.



Green International Affiliates, Inc.

Potential Sign Plan
Flagg Road

Figure 11
NOT TO SCALE

Appendix

- **TMC data**
- **ATR data**
- **Seasonal Adjustments/Traffic Growth Data**
- **MASSDOT Crash Rate Calculations**
- **Trip Generation Summaries**
- **Trip Assignment**
- **LOS Calculations**
  - Existing Conditions
  - No-Build Conditions
  - Build Condition

Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

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

133380 A VOLUME
Site Code: 12059.004

Start	EB				WB				Combined				29-May-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	0		3		0		2		0		5		
12:15	0		1		0		0		0		1		
12:30	0		1		0		5		0		6		
12:45	0	0	2	7	0	0	5	12	0	0	7	19	
01:00	0		3		0		4		0		7		
01:15	0		6		0		4		0		10		
01:30	0		4		0		2		0		6		
01:45	0	0	2	15	0	0	2	12	0	0	4	27	
02:00	0		1		0		1		0		2		
02:15	0		3		0		5		0		8		
02:30	0		4		0		0		0		4		
02:45	0	0	7	15	0	0	2	8	0	0	9	23	
03:00	0		2		0		3		0		5		
03:15	0		3		0		4		0		7		
03:30	0		1		0		2		0		3		
03:45	1	1	3	9	1	1	4	13	2	2	7	22	
04:00	0		3		0		7		0		10		
04:15	0		8		0		4		0		12		
04:30	0		2		0		4		0		6		
04:45	0	0	2	15	0	0	3	18	0	0	5	33	
05:00	0		2		0		5		0		7		
05:15	0		4		0		4		0		8		
05:30	2		4		0		7		2		11		
05:45	0	2	6	16	0	0	4	20	0	2	10	36	
06:00	2		3		0		7		2		10		
06:15	2		2		0		6		2		8		
06:30	4		2		1		3		5		5		
06:45	3	11	5	12	1	2	7	23	4	13	12	35	
07:00	6		2		1		3		7		5		
07:15	12		3		1		0		13		3		
07:30	8		3		5		8		13		11		
07:45	3	29	2	10	3	10	3	14	6	39	5	24	
08:00	5		4		3		1		8		5		
08:15	6		1		3		2		9		3		
08:30	3		2		1		2		4		4		
08:45	3	17	1	8	1	8	3	8	4	25	4	16	
09:00	5		0		3		3		8		3		
09:15	1		1		2		2		3		3		
09:30	2		0		3		3		5		3		
09:45	4	12	0	1	4	12	4	12	8	24	4	13	
10:00	1		0		1		0		2		0		
10:15	1		0		2		0		3		0		
10:30	3		0		0		1		3		1		
10:45	0	5	0	0	3	6	0	1	3	11	0	1	
11:00	4		0		3		0		7		0		
11:15	2		0		2		3		4		3		
11:30	3		0		1		0		4		0		
11:45	2	11	0	0	2	8	0	3	4	19	0	3	
Total	88		108		47		144		135		252		
Percent	65.2%		42.9%		34.8%		57.1%						
Day Total		196				191				387			
Peak	06:45	-	05:15	-	07:30	-	05:30	-	07:15	-	05:15	-	-	-
Vol.	29	-	17	-	14	-	24	-	40	-	39	-	-	-
P.H.F.	0.604		0.531		0.700		0.857		0.769		0.886			

Blackthorn Drive
west of Flagg Road
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Client: Green International/ B. Scully

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133380 A VOLUME
Site Code: 12059.004

Start	EB				WB				Combined				30-May-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	0		3		0		5		0		8		
12:15	0		2		0		3		0		5		
12:30	0		2		1		1		1		3		
12:45	0	0	2	9	0	1	3	12	0	1	5	21	
01:00	0		1		0		3		0		4		
01:15	0		3		0		1		0		4		
01:30	0		2		0		5		0		7		
01:45	0	0	0	6	0	0	0	9	0	0	0	15	
02:00	0		0		0		5		0		5		
02:15	0		4		0		2		0		6		
02:30	0		5		0		3		0		8		
02:45	0	0	3	12	0	0	8	18	0	0	11	30	
03:00	0		3		0		3		0		6		
03:15	0		5		0		2		0		7		
03:30	0		6		0		4		0		10		
03:45	0	0	4	18	0	0	3	12	0	0	7	30	
04:00	0		1		0		6		0		7		
04:15	0		8		0		6		0		14		
04:30	0		2		0		2		0		4		
04:45	0	0	1	12	0	0	3	17	0	0	4	29	
05:00	0		3		0		3		0		6		
05:15	0		3		0		4		0		7		
05:30	3		5		0		8		3		13		
05:45	1	4	3	14	1	1	7	22	2	5	10	36	
06:00	2		3		0		10		2		13		
06:15	0		3		0		5		0		8		
06:30	4		3		2		3		6		6		
06:45	4	10	1	10	2	4	4	22	6	14	5	32	
07:00	7		4		1		1		8		5		
07:15	7		7		3		7		10		14		
07:30	8		2		3		3		11		5		
07:45	2	24	1	14	2	9	5	16	4	33	6	30	
08:00	3		0		5		2		8		2		
08:15	7		1		2		4		9		5		
08:30	4		1		0		3		4		4		
08:45	2	16	0	2	1	8	4	13	3	24	4	15	
09:00	3		0		3		2		6		2		
09:15	4		1		3		1		7		2		
09:30	2		1		2		0		4		1		
09:45	3	12	0	2	1	9	1	4	4	21	1	6	
10:00	4		0		1		0		5		0		
10:15	3		1		1		2		4		3		
10:30	3		2		3		1		6		3		
10:45	2	12	0	3	3	8	0	3	5	20	0	6	
11:00	5		0		3		2		8		2		
11:15	4		0		0		0		4		0		
11:30	5		0		2		0		7		0		
11:45	0	14	0	0	4	9	1	3	4	23	1	3	
Total	92		102		49		151		141		253		
Percent	65.2%		40.3%		34.8%		59.7%						
Day Total		194				200				394			
Peak	06:45	-	03:30	-	07:15	-	05:30	-	06:45	-	05:30	-	- -
Vol.	26	-	19	-	13	-	30	-	35	-	44	-	- -
P.H.F.	0.813		0.594		0.650		0.750		0.795		0.846		

Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

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133380 A CLASS
Site Code: 12059.004

EB

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
05/29/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
06:00	0	9	1	0	1	0	0	0	0	0	0	0	0	11
07:00	0	21	7	1	0	0	0	0	0	0	0	0	0	29
08:00	0	15	1	1	0	0	0	0	0	0	0	0	0	17
09:00	0	9	0	0	2	1	0	0	0	0	0	0	0	12
10:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
11:00	0	10	1	0	0	0	0	0	0	0	0	0	0	11
12 PM	0	7	0	0	0	0	0	0	0	0	0	0	0	7
13:00	0	12	2	0	1	0	0	0	0	0	0	0	0	15
14:00	0	7	4	1	3	0	0	0	0	0	0	0	0	15
15:00	0	8	0	1	0	0	0	0	0	0	0	0	0	9
16:00	0	12	2	0	1	0	0	0	0	0	0	0	0	15
17:00	0	13	3	0	0	0	0	0	0	0	0	0	0	16
18:00	0	7	4	0	0	0	0	1	0	0	0	0	0	12
19:00	0	6	4	0	0	0	0	0	0	0	0	0	0	10
20:00	0	2	5	0	1	0	0	0	0	0	0	0	0	8
21:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	145	36	4	9	1	0	1	0	0	0	0	0	196
Percent	0.0%	74.0%	18.4%	2.0%	4.6%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	07:00	09:00	09:00								07:00
Vol.		21	7	1	2	1								29
Midday Peak		13:00	14:00	14:00	14:00									13:00
Vol.		12	4	1	3									15
PM Peak		17:00	20:00	15:00	16:00			18:00						17:00
Vol.		13	5	1	1			1						16

Blackthorn Drive
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133380 A CLASS
Site Code: 12059.004

EB

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
05/30/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
06:00	0	6	3	0	1	0	0	0	0	0	0	0	0	10
07:00	0	19	4	1	0	0	0	0	0	0	0	0	0	24
08:00	0	14	1	1	0	0	0	0	0	0	0	0	0	16
09:00	0	9	2	0	1	0	0	0	0	0	0	0	0	12
10:00	0	9	2	0	1	0	0	0	0	0	0	0	0	12
11:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
12 PM	0	6	2	0	1	0	0	0	0	0	0	0	0	9
13:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
14:00	0	5	4	1	2	0	0	0	0	0	0	0	0	12
15:00	0	16	1	1	0	0	0	0	0	0	0	0	0	18
16:00	0	7	4	0	0	1	0	0	0	0	0	0	0	12
17:00	0	12	2	0	0	0	0	0	0	0	0	0	0	14
18:00	0	8	2	0	0	0	0	0	0	0	0	0	0	10
19:00	0	12	1	0	0	0	0	1	0	0	0	0	0	14
20:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
21:00	1	1	0	0	0	0	0	0	0	0	0	0	0	2
22:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	150	31	4	6	1	0	1	0	0	0	0	0	194
Percent	0.5%	77.3%	16.0%	2.1%	3.1%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	07:00	06:00									07:00
Vol.		19	4	1	1									24
Midday Peak		11:00	14:00	14:00	14:00									11:00
Vol.		13	4	1	2									14
PM Peak	21:00	15:00	16:00	15:00		16:00		19:00						15:00
Vol.	1	16	4	1		1		1						18

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Blackthorn Drive
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Client: Green International/ B. Scully

133380 A CLASS
Site Code: 12059.004

WB

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
05/29/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
07:00	0	5	4	1	0	0	0	0	0	0	0	0	0	10
08:00	0	3	3	1	0	0	0	1	0	0	0	0	0	8
09:00	0	8	2	0	1	1	0	0	0	0	0	0	0	12
10:00	0	5	1	0	0	0	0	0	0	0	0	0	0	6
11:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
12 PM	0	10	2	0	0	0	0	0	0	0	0	0	0	12
13:00	0	8	1	0	3	0	0	0	0	0	0	0	0	12
14:00	0	4	2	1	1	0	0	0	0	0	0	0	0	8
15:00	0	12	0	1	0	0	0	0	0	0	0	0	0	13
16:00	0	17	1	0	0	0	0	0	0	0	0	0	0	18
17:00	0	18	2	0	0	0	0	0	0	0	0	0	0	20
18:00	0	20	3	0	0	0	0	0	0	0	0	0	0	23
19:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
20:00	0	6	2	0	0	0	0	0	0	0	0	0	0	8
21:00	0	9	3	0	0	0	0	0	0	0	0	0	0	12
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Total	0	151	28	4	6	1	0	1	0	0	0	0	0	191
Percent	0.0%	79.1%	14.7%	2.1%	3.1%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	07:00	07:00	06:00	09:00		08:00						09:00
Vol.		8	4	1	1	1		1						12
Midday Peak		12:00	12:00	14:00	13:00									12:00
Vol.		10	2	1	3									12
PM Peak		18:00	18:00	15:00										18:00
Vol.		20	3	1										23

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WB

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
05/30/1														
3	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
06:00	0	2	1	0	1	0	0	0	0	0	0	0	0	4
07:00	0	4	4	1	0	0	0	0	0	0	0	0	0	9
08:00	0	6	1	1	0	0	0	0	0	0	0	0	0	8
09:00	0	5	3	0	1	0	0	0	0	0	0	0	0	9
10:00	0	7	1	0	0	0	0	0	0	0	0	0	0	8
11:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
12 PM	0	10	1	0	1	0	0	0	0	0	0	0	0	12
13:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
14:00	0	14	2	1	1	0	0	0	0	0	0	0	0	18
15:00	0	9	2	1	0	0	0	0	0	0	0	0	0	12
16:00	0	15	1	0	0	1	0	0	0	0	0	0	0	17
17:00	0	21	1	0	0	0	0	0	0	0	0	0	0	22
18:00	0	20	1	0	0	0	0	1	0	0	0	0	0	22
19:00	0	16	0	0	0	0	0	0	0	0	0	0	0	16
20:00	0	13	0	0	0	0	0	0	0	0	0	0	0	13
21:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
22:00	1	2	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
Total	1	165	24	4	4	1	0	1	0	0	0	0	0	200
Percent	0.5%	82.5%	12.0%	2.0%	2.0%	0.5%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	07:00	07:00	06:00									07:00
Vol.		6	4	1	1									9
Midday Peak		14:00	11:00	14:00	12:00									14:00
Vol.		14	2	1	1									18
PM Peak	22:00	17:00	15:00	15:00		16:00		18:00						17:00
Vol.	1	21	2	1		1		1						22

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

Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

133380 A SPEED
Site Code: 12059.004

EB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total	85th % ile	AVE MPH
05/29/ 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	26	26
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	32	30
06:00	0	0	0	0	0	0	1	2	6	1	1	0	0	0	11	28	26
07:00	0	0	0	0	0	**1**	**3**	**9**	**8**	**6**	**2**	0	0	0	**29**	28	25
08:00	0	0	0	0	0	1	2	2	4	6	1	**1**	0	0	17	30	26
09:00	0	0	0	0	**1**	0	2	2	2	4	1	0	0	0	12	29	25
10:00	0	0	0	0	0	0	1	1	2	0	1	0	0	0	5	30	25
11:00	0	0	0	0	0	**1**	0	**4**	4	2	0	0	0	0	11	27	25
12 PM	0	0	0	0	0	1	0	2	2	1	**1**	0	0	0	7	29	25
13:00	0	0	0	0	0	1	1	3	**7**	1	1	**1**	0	0	**15**	29	26
14:00	0	0	0	0	0	0	**4**	2	4	**4**	1	0	0	0	15	29	25
15:00	0	0	0	0	0	0	2	2	2	2	0	**1**	0	0	9	29	26
16:00	0	0	0	0	**1**	**1**	1	**3**	4	**4**	**1**	0	0	0	15	29	25
17:00	0	0	0	0	1	0	0	3	**8**	4	0	0	0	0	**16**	28	25
18:00	0	0	0	0	0	1	1	1	4	3	1	1	0	0	12	30	27
19:00	0	0	0	0	1	1	1	2	2	3	0	0	0	0	10	28	24
20:00	0	0	0	0	1	0	**3**	0	0	3	1	0	0	0	8	30	24
21:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	23	23
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	0	0	0	0	5	8	22	39	60	45	13	4	0	0	196		
%	0.0%	0.0%	0.0%	0.0%	2.6%	4.1%	11.2 %	19.9 %	30.6 %	23.0 %	6.6%	2.0%	0.0%	0.0%			
AM Peak					09:00	07:00	07:00	07:00	07:00	07:00	07:00	08:00			07:00		
Vol.					1	1	3	9	8	6	2	1			29		
Midday Peak						11:00	14:00	11:00	13:00	14:00	12:00	13:00			13:00		
Vol.						1	4	4	7	4	1	1			15		
PM Peak					16:00	16:00	20:00	16:00	17:00	16:00	16:00	15:00			17:00		
Vol.					1	1	3	3	8	4	1	1			16		

%iles

15th Percentile : 20 MPH
50th Percentile : 25 MPH
85th Percentile : 29 MPH
95th Percentile : 31 MPH

Stats

10 MPH Pace Speed : 21-30 MPH
Number in Pace : 148
Percent in Pace : 75.5%
Number of Vehicles > 25 MPH : 100
Percent of Vehicles > 25 MPH : 51.2%
Mean Speed(Average) : 25 MPH

PRECISION
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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

133380 A SPEED
Site Code: 12059.004

EB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total	85th % ile	AVE MPH
05/30/ 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	1	0	1	2	0	0	0	0	4	29	26
06:00	0	0	0	0	0	0	1	2	4	3	0	0	0	0	10	28	26
07:00	0	**1**	0	0	0	**1**	2	**6**	4	**6**	**4**	0	0	0	**24**	30	25
08:00	0	0	0	0	**1**	1	1	2	**6**	4	1	0	0	0	16	28	25
09:00	0	0	0	0	0	0	**3**	2	2	4	1	0	0	0	12	29	25
10:00	0	0	0	0	0	1	3	2	2	3	0	1	0	0	12	29	25
11:00	0	0	0	0	0	**1**	0	**3**	**4**	**4**	2	0	0	0	**14**	30	26
12 PM	0	0	0	0	0	0	**2**	2	4	1	0	0	0	0	9	26	24
13:00	0	0	0	0	0	1	0	1	1	1	2	0	0	0	6	31	27
14:00	0	0	0	0	0	0	1	2	4	1	**3**	**1**	0	0	12	32	28
15:00	0	0	0	0	0	1	**4**	3	**8**	2	0	0	0	0	**18**	26	24
16:00	0	0	0	0	0	0	0	1	7	**3**	1	0	0	0	12	29	27
17:00	0	0	0	0	0	0	0	4	5	3	**2**	0	0	0	14	30	27
18:00	0	0	0	0	0	**2**	1	0	4	3	0	0	0	0	10	28	25
19:00	0	0	**2**	0	0	1	0	**6**	3	2	0	0	0	0	14	27	22
20:00	0	0	0	0	0	0	0	0	1	1	0	0	0	0	2	29	27
21:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	26	24
22:00	0	0	0	0	0	0	0	0	0	2	1	0	0	0	3	31	30
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	0	1	2	0	1	9	19	37	61	45	17	2	0	0	194		
%	0.0%	0.5%	1.0%	0.0%	0.5%	4.6%	9.8%	19.1 %	31.4 %	23.2 %	8.8%	1.0%	0.0%	0.0%			
AM Peak		07:00			08:00	07:00	09:00	07:00	08:00	07:00	07:00				07:00		
Vol.		1			1	1	3	6	6	6	4				24		
Midday Peak						11:00	12:00	11:00	11:00	11:00	14:00	14:00			11:00		
Vol.						1	2	3	4	4	3	1			14		
PM Peak			19:00			18:00	15:00	19:00	15:00	16:00	17:00				15:00		
Vol.			2			2	4	6	8	3	2				18		

%iles

15th Percentile :	20 MPH
50th Percentile :	25 MPH
85th Percentile :	29 MPH
95th Percentile :	31 MPH

Stats

10 MPH Pace Speed :	22-31 MPH
Number in Pace :	147
Percent in Pace :	75.8%
Number of Vehicles > 25 MPH :	103
Percent of Vehicles > 25 MPH :	53.0%
Mean Speed(Average) :	25 MPH

PRECISION
D A T A
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Email: datarequests@pdillc.com

Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

133380 A SPEED
Site Code: 12059.004

WB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total	85th % ile	AVE MPH
05/29/ 13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	26	26
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	26	24
07:00	0	0	0	0	0	**1**	**3**	0	**5**	1	0	0	0	0	10	26	24
08:00	0	0	0	0	**1**	1	2	2	2	0	0	0	0	0	8	25	21
09:00	0	0	0	0	1	1	1	**4**	1	**2**	**2**	0	0	0	**12**	30	24
10:00	0	0	0	0	0	1	2	1	2	0	0	0	0	0	6	25	22
11:00	0	0	0	0	0	0	2	4	**2**	0	0	0	0	0	8	25	23
12 PM	0	0	0	**2**	0	**1**	**3**	4	2	0	0	0	0	0	**12**	24	20
13:00	0	0	0	0	**1**	0	2	**7**	1	**1**	0	0	0	0	12	24	22
14:00	0	0	0	1	0	1	2	2	0	1	**1**	0	0	0	8	29	22
15:00	0	0	0	**1**	0	1	2	5	3	1	0	0	0	0	13	26	22
16:00	0	0	0	0	0	**2**	1	**10**	4	1	0	0	0	0	18	25	23
17:00	0	0	0	0	**2**	0	3	5	5	**4**	**1**	0	0	0	20	28	24
18:00	0	0	0	0	0	1	**5**	7	**8**	2	0	0	0	0	**23**	26	24
19:00	0	0	0	0	0	1	4	6	3	0	0	0	0	0	14	24	22
20:00	0	0	0	0	0	0	0	3	2	3	0	0	0	0	8	28	26
21:00	0	0	0	0	0	0	3	5	4	0	0	0	0	0	12	25	23
22:00	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	23	23
23:00	0	0	0	0	0	0	1	1	1	0	0	0	0	0	3	25	23
Total	0	0	0	4	5	11	36	68	47	16	4	0	0	0	191		
%	0.0%	0.0%	0.0%	2.1%	2.6%	5.8%	18.8 %	35.6 %	24.6 %	8.4%	2.1%	0.0%	0.0%	0.0%			
AM Peak					08:00	07:00	07:00	09:00	07:00	09:00	09:00				09:00		
Vol.					1	1	3	4	5	2	2				12		
Midday Peak				12:00	13:00	12:00	12:00	13:00	11:00	13:00	14:00				12:00		
Vol.				2	1	1	3	7	2	1	1				12		
PM Peak				15:00	17:00	16:00	18:00	16:00	18:00	17:00	17:00				18:00		
Vol.				1	2	2	5	10	8	4	1				23		

%iles

15th Percentile : 18 MPH
50th Percentile : 22 MPH
85th Percentile : 26 MPH
95th Percentile : 28 MPH

Stats

10 MPH Pace Speed : 19-28 MPH
Number in Pace : 154
Percent in Pace : 80.6%
Number of Vehicles > 25 MPH : 48
Percent of Vehicles > 25 MPH : 25.1%
Mean Speed(Average) : 23 MPH

PRECISION
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Blackthorn Drive
west of Flagg Road
City, State: Southborough, MA
Client: Green International/ B. Scully

133380 A SPEED
Site Code: 12059.004

WB

Start Time	1 3	4 6	7 9	10 12	13 15	16 18	19 21	22 24	25 27	28 30	31 33	34 36	37 39	40 999	Total	85th % ile	AVE MPH
05/30/13	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	29	29
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	20	20
06:00	0	0	0	0	0	0	0	1	1	**2**	0	0	0	0	4	29	27
07:00	0	0	0	0	0	0	**2**	**3**	3	1	0	0	0	0	**9**	26	24
08:00	0	0	0	0	**2**	0	0	1	2	1	**2**	0	0	0	8	31	24
09:00	0	0	0	0	0	0	2	2	**4**	1	0	0	0	0	9	26	24
10:00	0	0	0	0	0	0	3	3	1	1	0	0	0	0	8	26	23
11:00	0	0	0	0	0	0	**4**	2	3	0	0	0	0	0	9	25	23
12 PM	0	0	0	0	0	0	2	**6**	3	1	0	0	0	0	12	26	24
13:00	0	0	0	0	0	**1**	1	1	4	1	**1**	0	0	0	9	28	25
14:00	0	0	0	0	**1**	1	2	4	**8**	**2**	0	0	0	0	**18**	26	24
15:00	0	0	0	0	0	1	1	6	3	1	0	0	0	0	12	26	23
16:00	0	0	0	1	0	**3**	4	5	1	3	0	0	0	0	17	27	22
17:00	0	0	0	1	0	1	2	**9**	5	**4**	0	0	0	0	**22**	27	24
18:00	0	0	0	**2**	0	0	**5**	8	**6**	1	0	0	0	0	22	25	22
19:00	0	0	**1**	1	**1**	3	2	5	2	1	0	0	0	0	16	24	20
20:00	0	0	0	1	0	0	3	5	2	2	0	0	0	0	13	27	23
21:00	0	0	0	0	0	0	1	0	1	2	0	0	0	0	4	29	26
22:00	0	0	0	0	0	0	0	0	2	1	0	0	0	0	3	28	27
23:00	0	0	0	0	0	0	1	1	0	1	0	0	0	0	3	28	24
Total	0	0	1	6	4	10	36	62	51	27	3	0	0	0	200		
%	0.0%	0.0%	0.5%	3.0%	2.0%	5.0%	18.0 %	31.0 %	25.5 %	13.5 %	1.5%	0.0%	0.0%	0.0%			
AM Peak					08:00		07:00	07:00	09:00	06:00	08:00				07:00		
Vol.					2		2	3	4	2	2				9		
Midday Peak					14:00	13:00	11:00	12:00	14:00	14:00	13:00				14:00		
Vol.					1	1	4	6	8	2	1				18		
PM Peak			19:00	18:00	19:00	16:00	18:00	17:00	18:00	17:00					17:00		
Vol.			1	2	1	3	5	9	6	4					22		

%iles

15th Percentile : 18 MPH
50th Percentile : 23 MPH
85th Percentile : 27 MPH
95th Percentile : 29 MPH

Stats

10 MPH Pace Speed : 19-28 MPH
Number in Pace : 155
Percent in Pace : 77.5%
Number of Vehicles > 25 MPH : 61
Percent of Vehicles > 25 MPH : 30.7%
Mean Speed(Average) : 23 MPH

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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Email: datarequests@pdillc.com

N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 A
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	6	0	0	8
07:15 AM	0	0	0	0	0	2	1	0	3	0	0	0	0	3	0	0	9
07:30 AM	0	0	0	0	0	2	1	0	4	0	0	0	0	2	0	0	9
07:45 AM	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	4
Total	0	0	0	0	0	6	3	0	10	0	0	0	0	11	0	0	30
08:00 AM	0	0	0	0	0	1	4	0	0	0	0	0	0	3	0	0	8
08:15 AM	0	0	0	0	0	0	2	0	6	0	0	0	0	2	0	0	10
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	3
Total	0	0	0	0	0	1	7	0	7	0	0	0	0	7	0	0	22
Grand Total	0	0	0	0	0	7	10	0	17	0	0	0	0	18	0	0	52
Apprch %	0	0	0	0	0	41.2	58.8	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	13.5	19.2	0	32.7	0	0	0	0	34.6	0	0	
Cars	0	0	0	0	0	5	10	0	15	0	0	0	0	18	0	0	48
% Cars	0	0	0	0	0	71.4	100	0	88.2	0	0	0	0	100	0	0	92.3
Heavy Vehicles	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4
% Heavy Vehicles	0	0	0	0	0	28.6	0	0	11.8	0	0	0	0	0	0	0	7.7

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	**2**	1	0	3	4	0	0	0	4	0	2	0	0	2	9
07:45 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	1	**4**	0	**5**	0	0	0	0	0	0	**3**	0	0	**3**	8
08:15 AM	0	0	0	0	0	0	0	2	0	2	**6**	0	0	0	**6**	0	2	0	0	2	**10**
Total Volume	0	0	0	0	0	0	4	8	0	12	12	0	0	0	12	0	7	0	0	7	31
% App. Total	0	0	0	0		0	33.3	66.7	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.500	.000	.600	.500	.000	.000	.000	.500	.000	.583	.000	.000	.583	.775
Cars	0	0	0	0	0	0	3	8	0	11	10	0	0	0	10	0	7	0	0	7	28
% Cars	0	0	0	0	0	0	75.0	100	0	91.7	83.3	0	0	0	83.3	0	100	0	0	100	90.3
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
% Heavy Vehicles	0	0	0	0	0	0	25.0	0	0	8.3	16.7	0	0	0	16.7	0	0	0	0	0	9.7

PRECISION
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INDUSTRIES, LLC
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Email: datarequests@pdillc.com

N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 A
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Cars

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	6	0	0	8
07:15 AM	0	0	0	0	0	1	1	0	3	0	0	0	0	3	0	0	8
07:30 AM	0	0	0	0	0	2	1	0	3	0	0	0	0	2	0	0	8
07:45 AM	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	4
Total	0	0	0	0	0	5	3	0	9	0	0	0	0	11	0	0	28
08:00 AM	0	0	0	0	0	0	4	0	0	0	0	0	0	3	0	0	7
08:15 AM	0	0	0	0	0	0	2	0	5	0	0	0	0	2	0	0	9
08:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	1	0	0	0	0	0	0	2	0	0	3
Total	0	0	0	0	0	0	7	0	6	0	0	0	0	7	0	0	20
Grand Total	0	0	0	0	0	5	10	0	15	0	0	0	0	18	0	0	48
Apprch %	0	0	0	0	0	33.3	66.7	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	10.4	20.8	0	31.2	0	0	0	0	37.5	0	0	

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	**6**	0	0	**6**	**8**
07:15 AM	0	0	0	0	0	0	1	**1**	0	2	**3**	0	0	0	**3**	0	3	0	0	3	8
07:30 AM	0	0	0	0	0	0	**2**	1	0	**3**	3	0	0	0	3	0	2	0	0	2	8
07:45 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	0	0	0	0	0	4
Total Volume	0	0	0	0	0	0	5	3	0	8	9	0	0	0	9	0	11	0	0	11	28
% App. Total	0	0	0	0		0	62.5	37.5	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.625	.750	.000	.667	.750	.000	.000	.000	.750	.000	.458	.000	.000	.458	.875

PRECISION
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N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 A
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Heavy Vehicles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
08:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4
Apprch %	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	0	

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	**1**	0	0	0	**1**	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	3
% App. Total	0	0	0	0		0	100	0	0		100	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.000	.000	.500	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.750

PRECISION
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N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 A
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Peds and Bicycles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Grand Total	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	0	4
Apprch %	0	0	0	0	0	0	0	100	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	0	0	0	25	0	0	0	25	0	50	0	0	

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

PRECISION
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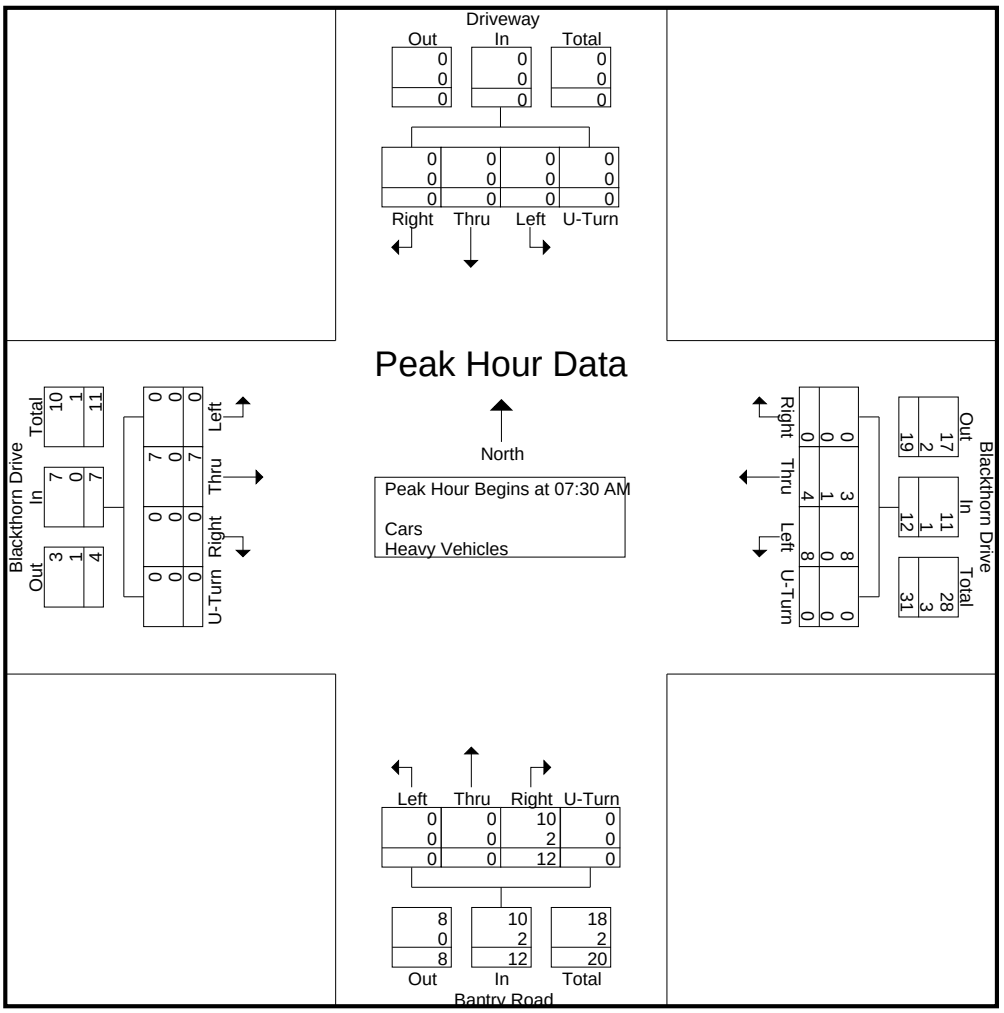
N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 A
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	**2**	1	0	3	4	0	0	0	4	0	2	0	0	2	9
07:45 AM	0	0	0	0	0	0	1	1	0	2	2	0	0	0	2	0	0	0	0	0	4
08:00 AM	0	0	0	0	0	0	1	**4**	0	**5**	0	0	0	0	0	0	**3**	0	0	**3**	8
08:15 AM	0	0	0	0	0	0	0	2	0	2	**6**	0	0	0	**6**	0	2	0	0	2	**10**
Total Volume	0	0	0	0	0	0	4	8	0	12	12	0	0	0	12	0	7	0	0	7	31
% App. Total	0	0	0	0		0	33.3	66.7	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.500	.500	.000	.600	.500	.000	.000	.000	.500	.000	.583	.000	.000	.583	.775
Cars	0	0	0	0	0	0	3	8	0	11	10	0	0	0	10	0	7	0	0	7	28
% Cars	0	0	0	0	0	0	75.0	100	0	91.7	83.3	0	0	0	83.3	0	100	0	0	100	90.3
Heavy Vehicles	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3
% Heavy Vehicles	0	0	0	0	0	0	25.0	0	0	8.3	16.7	0	0	0	16.7	0	0	0	0	0	9.7



N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

PRECISION DATA INDUSTRIES, LLC
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Email: datarequests@pdillc.com

File Name : 133380 AA
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Cars - Heavy Vehicles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	1	0	0	5
03:15 PM	0	0	0	0	0	1	1	0	4	0	0	0	0	0	0	0	6
03:30 PM	0	0	0	0	0	1	2	0	3	0	0	0	0	3	0	0	9
03:45 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	2	0	0	6
Total	0	0	0	0	0	6	5	0	9	0	0	0	0	6	0	0	26
04:00 PM	0	0	0	0	0	6	0	0	1	0	0	0	0	0	0	0	7
04:15 PM	0	0	0	0	0	2	3	0	6	0	0	0	0	1	0	0	12
04:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3
04:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
Total	0	0	0	0	0	10	5	0	7	0	0	0	0	4	0	0	26
05:00 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	6
05:15 PM	0	0	0	0	0	2	2	0	1	0	0	0	0	1	0	0	6
05:30 PM	0	0	0	0	0	5	1	0	2	0	0	0	0	3	0	0	11
05:45 PM	0	0	0	0	0	4	3	0	3	0	0	0	0	0	0	0	10
Total	0	0	0	0	0	14	6	0	9	0	0	0	0	4	0	0	33
Grand Total	0	0	0	0	0	30	16	0	25	0	0	0	0	14	0	0	85
Apprch %	0	0	0	0	0	65.2	34.8	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	35.3	18.8	0	29.4	0	0	0	0	16.5	0	0	
Cars	0	0	0	0	0	27	16	0	22	0	0	0	0	14	0	0	79
% Cars	0	0	0	0	0	90	100	0	88	0	0	0	0	100	0	0	92.9
Heavy Vehicles	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	6
% Heavy Vehicles	0	0	0	0	0	10	0	0	12	0	0	0	0	0	0	0	7.1

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	1	2	0	3	3	0	0	0	3	0	**3**	0	0	**3**	9
03:45 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	2	0	0	2	6
04:00 PM	0	0	0	0	0	0	**6**	0	0	**6**	1	0	0	0	1	0	0	0	0	0	7
04:15 PM	0	0	0	0	0	0	2	**3**	0	5	**6**	0	0	0	**6**	0	1	0	0	1	**12**
Total Volume	0	0	0	0	0	0	11	6	0	17	11	0	0	0	11	0	6	0	0	6	34
% App. Total	0	0	0	0		0	64.7	35.3	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.458	.500	.000	.708	.458	.000	.000	.000	.458	.000	.500	.000	.000	.500	.708
Cars	0	0	0	0	0	0	8	6	0	14	8	0	0	0	8	0	6	0	0	6	28
% Cars	0	0	0	0	0	0	72.7	100	0	82.4	72.7	0	0	0	72.7	0	100	0	0	100	82.4
Heavy Vehicles	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	0	0	0	0	6
% Heavy Vehicles	0	0	0	0	0	0	27.3	0	0	17.6	27.3	0	0	0	27.3	0	0	0	0	0	17.6

PRECISION
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N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 AA
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Cars

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	1	0	0	5
03:15 PM	0	0	0	0	0	1	1	0	4	0	0	0	0	0	0	0	6
03:30 PM	0	0	0	0	0	0	2	0	2	0	0	0	0	3	0	0	7
03:45 PM	0	0	0	0	0	2	1	0	1	0	0	0	0	2	0	0	6
Total	0	0	0	0	0	5	5	0	8	0	0	0	0	6	0	0	24
04:00 PM	0	0	0	0	0	5	0	0	1	0	0	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	1	3	0	4	0	0	0	0	1	0	0	9
04:30 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	1	0	0	3
04:45 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
Total	0	0	0	0	0	8	5	0	5	0	0	0	0	4	0	0	22
05:00 PM	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	6
05:15 PM	0	0	0	0	0	2	2	0	1	0	0	0	0	1	0	0	6
05:30 PM	0	0	0	0	0	5	1	0	2	0	0	0	0	3	0	0	11
05:45 PM	0	0	0	0	0	4	3	0	3	0	0	0	0	0	0	0	10
Total	0	0	0	0	0	14	6	0	9	0	0	0	0	4	0	0	33
Grand Total	0	0	0	0	0	27	16	0	22	0	0	0	0	14	0	0	79
Apprch %	0	0	0	0	0	62.8	37.2	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	34.2	20.3	0	27.8	0	0	0	0	17.7	0	0	

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	3	0	0	3	**3**	0	0	0	**3**	0	0	0	0	0	6
05:15 PM	0	0	0	0	0	0	2	2	0	4	1	0	0	0	1	0	1	0	0	1	6
05:30 PM	0	0	0	0	0	0	**5**	1	0	6	2	0	0	0	2	0	**3**	0	0	**3**	**11**
05:45 PM	0	0	0	0	0	0	4	**3**	0	**7**	3	0	0	0	3	0	0	0	0	0	10
Total Volume	0	0	0	0	0	0	14	6	0	20	9	0	0	0	9	0	4	0	0	4	33
% App. Total	0	0	0	0		0	70	30	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.700	.500	.000	.714	.750	.000	.000	.000	.750	.000	.333	.000	.000	.333	.750

PRECISION
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N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 AA
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Heavy Vehicles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2
04:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	4
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	6
Apprch %	0	0	0	0	0	100	0	0	100	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	50	0	0	50	0	0	0	0	0	0	0	

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	**1**	0	0	**1**	1	0	0	0	1	0	0	0	0	0	2
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	1	0	0	1	**2**	0	0	0	**2**	0	0	0	0	0	**3**
Total Volume	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	0	0	0	0	6
% App. Total	0	0	0	0		0	100	0	0		100	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.375	.000	.000	.000	.375	.000	.000	.000	.000	.000	.500

PRECISION
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N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 AA
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Peds and Bicycles

	Driveway From North				Blackthorn Drive From East				Bantry Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2
04:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	1	0	0	0	3	0	0	0	0	4
Apprch %	0	0	0	0	0	0	0	100	0	0	0	100	0	0	0	0	
Total %	0	0	0	0	0	0	0	25	0	0	0	75	0	0	0	0	

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:15 PM																					
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**	0	0	0	0	0	**2**
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	3
% App. Total	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.375

PRECISION
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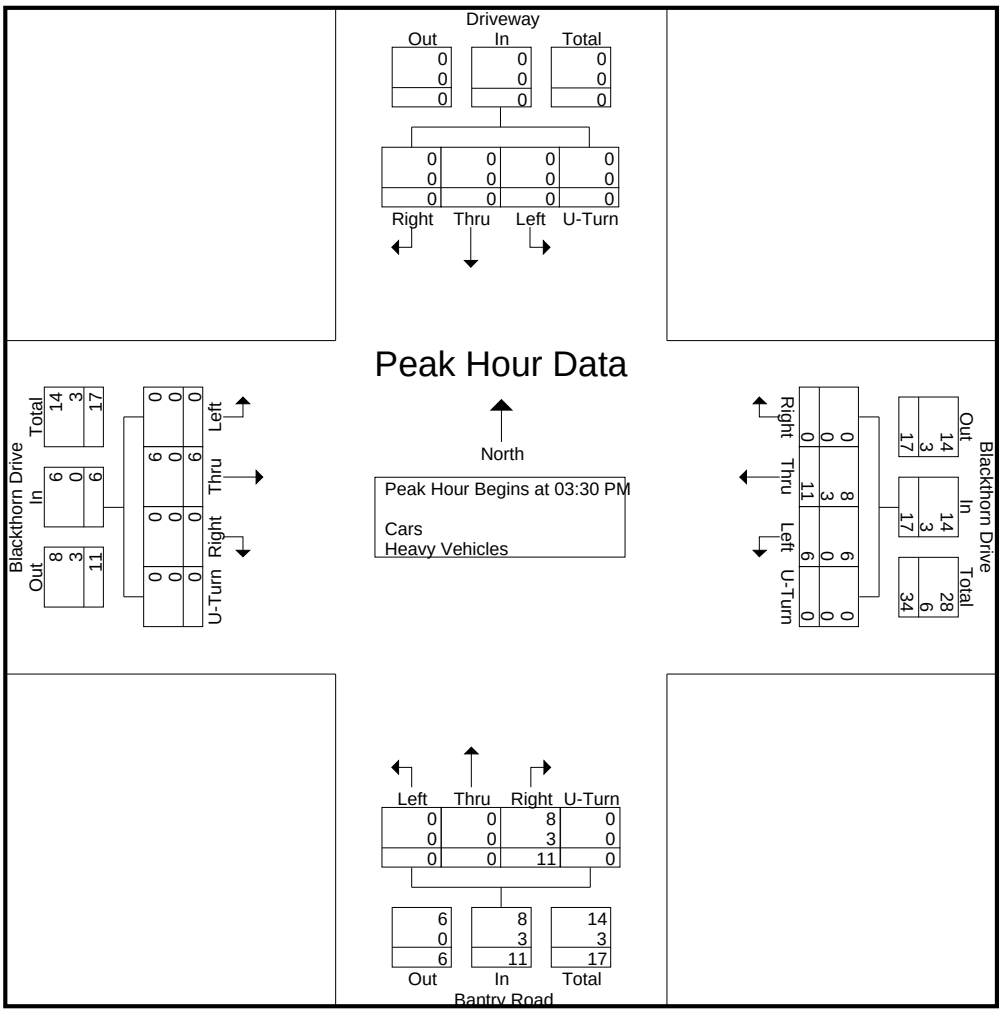
N/S: Driveway/ Bantry Road
E/W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 AA
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

	Driveway From North					Blackthorn Drive From East					Bantry Road From South					Blackthorn Drive From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	0	0	0	0	0	0	1	2	0	3	3	0	0	0	3	0	**3**	0	0	**3**	9
03:45 PM	0	0	0	0	0	0	2	1	0	3	1	0	0	0	1	0	2	0	0	2	6
04:00 PM	0	0	0	0	0	0	**6**	0	0	**6**	1	0	0	0	1	0	0	0	0	0	7
04:15 PM	0	0	0	0	0	0	2	**3**	0	5	**6**	0	0	0	**6**	0	1	0	0	1	**12**
Total Volume	0	0	0	0	0	0	11	6	0	17	11	0	0	0	11	0	6	0	0	6	34
% App. Total	0	0	0	0		0	64.7	35.3	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.458	.500	.000	.708	.458	.000	.000	.000	.458	.000	.500	.000	.000	.500	.708
Cars	0	0	0	0	0	0	8	6	0	14	8	0	0	0	8	0	6	0	0	6	28
% Cars	0	0	0	0	0	0	72.7	100	0	82.4	72.7	0	0	0	72.7	0	100	0	0	100	82.4
Heavy Vehicles	0	0	0	0	0	0	3	0	0	3	3	0	0	0	3	0	0	0	0	0	6
% Heavy Vehicles	0	0	0	0	0	0	27.3	0	0	17.6	27.3	0	0	0	27.3	0	0	0	0	0	17.6



N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

PRECISION
D A T A
INDUSTRIES, LLC
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File Name : 133380 B
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
07:00 AM	1	9	0	1	0	0	2	5	0	18
07:15 AM	0	12	0	11	3	0	1	6	0	33
07:30 AM	2	10	0	3	1	0	3	5	0	24
07:45 AM	2	26	0	8	0	0	0	3	0	39
Total	5	57	0	23	4	0	6	19	0	114
08:00 AM	2	16	0	3	3	0	0	3	0	27
08:15 AM	1	6	0	7	1	0	4	4	0	23
08:30 AM	0	17	0	3	0	0	3	0	0	23
08:45 AM	0	16	0	4	1	0	1	2	0	24
Total	3	55	0	17	5	0	8	9	0	97
Grand Total	8	112	0	40	9	0	14	28	0	211
Apprch %	6.7	93.3	0	81.6	18.4	0	33.3	66.7	0	
Total %	3.8	53.1	0	19	4.3	0	6.6	13.3	0	
Cars	8	112	0	38	7	0	14	26	0	205
% Cars	100	100	0	95	77.8	0	100	92.9	0	97.2
Heavy Vehicles	0	0	0	2	2	0	0	2	0	6
% Heavy Vehicles	0	0	0	5	22.2	0	0	7.1	0	2.8

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	12	0	12	**11**	**3**	0	**14**	1	**6**	0	7	33
07:30 AM	**2**	10	0	12	3	1	0	4	**3**	5	0	**8**	24
07:45 AM	2	**26**	0	**28**	8	0	0	8	0	3	0	3	**39**
08:00 AM	2	16	0	18	3	3	0	6	0	3	0	3	27
Total Volume	6	64	0	70	25	7	0	32	4	17	0	21	123
% App. Total	8.6	91.4	0		78.1	21.9	0		19	81	0		
PHF	.750	.615	.000	.625	.568	.583	.000	.571	.333	.708	.000	.656	.788
Cars	6	64	0	70	24	5	0	29	4	16	0	20	119
% Cars	100	100	0	100	96.0	71.4	0	90.6	100	94.1	0	95.2	96.7
Heavy Vehicles	0	0	0	0	1	2	0	3	0	1	0	1	4
% Heavy Vehicles	0	0	0	0	4.0	28.6	0	9.4	0	5.9	0	4.8	3.3

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N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 B
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
07:00 AM	1	9	0	1	0	0	2	5	0	18
07:15 AM	0	12	0	10	2	0	1	6	0	31
07:30 AM	2	10	0	3	1	0	3	4	0	23
07:45 AM	2	26	0	8	0	0	0	3	0	39
Total	5	57	0	22	3	0	6	18	0	111
08:00 AM	2	16	0	3	2	0	0	3	0	26
08:15 AM	1	6	0	6	1	0	4	3	0	21
08:30 AM	0	17	0	3	0	0	3	0	0	23
08:45 AM	0	16	0	4	1	0	1	2	0	24
Total	3	55	0	16	4	0	8	8	0	94
Grand Total	8	112	0	38	7	0	14	26	0	205
Apprch %	6.7	93.3	0	84.4	15.6	0	35	65	0	
Total %	3.9	54.6	0	18.5	3.4	0	6.8	12.7	0	

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	12	0	12	**10**	**2**	0	**12**	1	**6**	0	**7**	31
07:30 AM	**2**	10	0	12	3	1	0	4	**3**	4	0	7	23
07:45 AM	2	**26**	0	**28**	8	0	0	8	0	3	0	3	**39**
08:00 AM	2	16	0	18	3	2	0	5	0	3	0	3	26
Total Volume	6	64	0	70	24	5	0	29	4	16	0	20	119
% App. Total	8.6	91.4	0		82.8	17.2	0		20	80	0		
PHF	.750	.615	.000	.625	.600	.625	.000	.604	.333	.667	.000	.714	.763

PRECISION
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N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 B
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	1	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	1	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	1	0	3
08:00 AM	0	0	0	0	1	0	0	0	0	1
08:15 AM	0	0	0	1	0	0	0	1	0	2
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	1	0	3
Grand Total	0	0	0	2	2	0	0	2	0	6
Apprch %	0	0	0	50	50	0	0	100	0	
Total %	0	0	0	33.3	33.3	0	0	33.3	0	

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	0	0	0	**1**	**1**	0	**2**	0	0	0	0	**2**
07:30 AM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	1	0	1	0	0	0	0	1
Total Volume	0	0	0	0	1	2	0	3	0	1	0	1	4
% App. Total	0	0	0		33.3	66.7	0		0	100	0		
PHF	.000	.000	.000	.000	.250	.500	.000	.375	.000	.250	.000	.250	.500

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N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 B
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	1	1
07:45 AM	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	0	0	0	0	0	2	2
08:00 AM	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	1	1	1	0	0	0	0	1	4
08:45 AM	0	0	0	0	0	0	0	0	1	1
Total	0	1	1	1	0	0	0	0	2	5
Grand Total	0	1	1	1	0	0	0	0	4	7
Apprch %	0	50	50	100	0	0	0	0	100	
Total %	0	14.3	14.3	14.3	0	0	0	0	57.1	

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:45 AM													
07:45 AM	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	**1**	**1**	**2**	**1**	0	0	**1**	0	0	1	1	**4**
Total Volume	0	1	1	2	1	0	0	1	0	0	2	2	5
% App. Total	0	50	50		100	0	0		0	0	100		
PHF	.000	.250	.250	.250	.250	.000	.000	.250	.000	.000	.500	.500	.313

PRECISION
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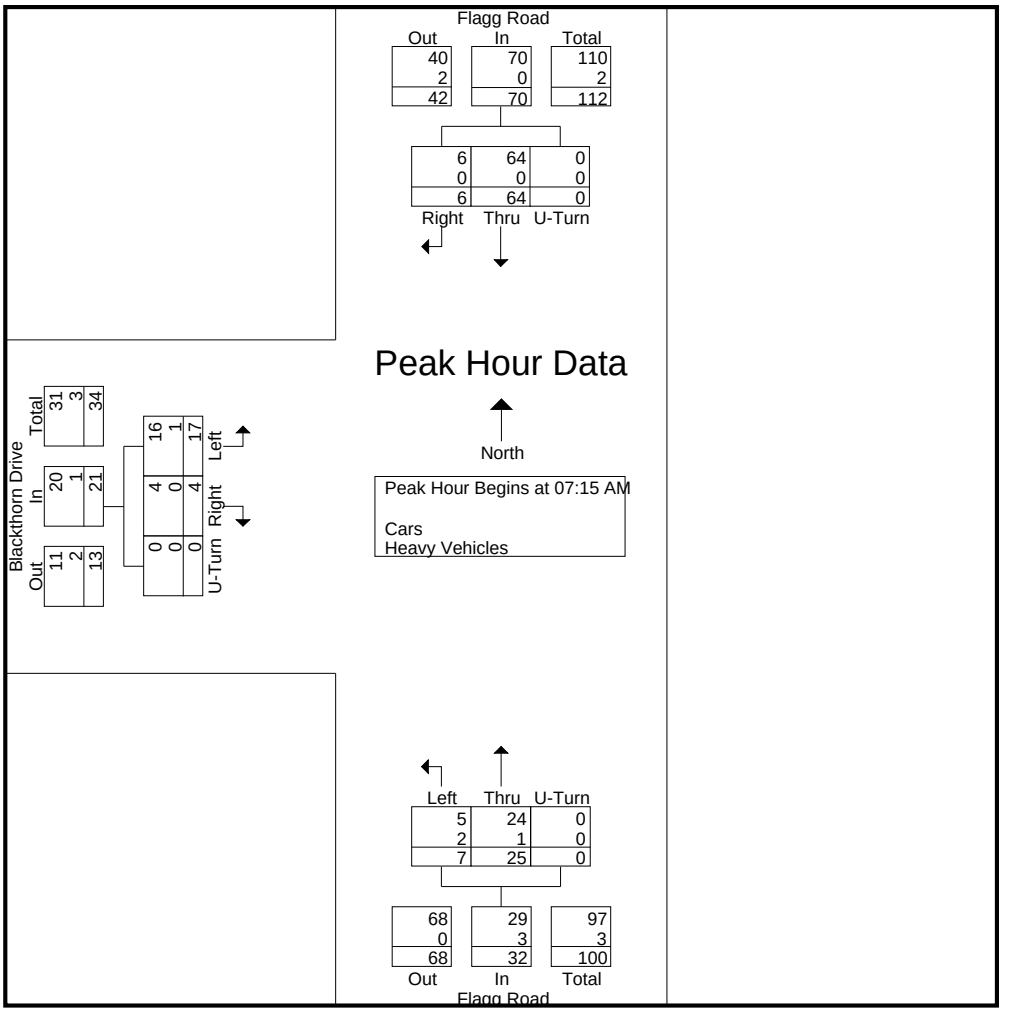
N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 B
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	0	12	0	12	**11**	**3**	0	**14**	1	**6**	0	7	33
07:30 AM	**2**	10	0	12	3	1	0	4	**3**	5	0	**8**	24
07:45 AM	2	**26**	0	**28**	8	0	0	8	0	3	0	3	**39**
08:00 AM	2	16	0	18	3	3	0	6	0	3	0	3	27
Total Volume	6	64	0	70	25	7	0	32	4	17	0	21	123
% App. Total	8.6	91.4	0		78.1	21.9	0		19	81	0		
PHF	.750	.615	.000	.625	.568	.583	.000	.571	.333	.708	.000	.656	.788
Cars	6	64	0	70	24	5	0	29	4	16	0	20	119
% Cars	100	100	0	100	96.0	71.4	0	90.6	100	94.1	0	95.2	96.7
Heavy Vehicles	0	0	0	0	1	2	0	3	0	1	0	1	4
% Heavy Vehicles	0	0	0	0	4.0	28.6	0	9.4	0	5.9	0	4.8	3.3



N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

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File Name : 133380 BB
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
03:00 PM	3	14	0	7	2	0	2	1	1	30
03:15 PM	1	13	0	2	0	0	3	2	0	21
03:30 PM	2	9	0	10	2	0	3	3	0	29
03:45 PM	0	13	0	6	3	0	1	3	0	26
Total	6	49	0	25	7	0	9	9	1	106
04:00 PM	6	8	0	3	0	0	2	0	0	19
04:15 PM	2	9	0	6	4	0	2	6	0	29
04:30 PM	2	17	0	12	0	0	1	1	0	33
04:45 PM	3	10	0	6	2	0	0	1	0	22
Total	13	44	0	27	6	0	5	8	0	103
05:00 PM	1	9	0	7	2	0	0	4	0	23
05:15 PM	3	9	1	6	2	0	3	1	0	25
05:30 PM	6	17	0	2	2	0	2	3	0	32
05:45 PM	5	11	0	5	2	0	4	0	0	27
Total	15	46	1	20	8	0	9	8	0	107
Grand Total	34	139	1	72	21	0	23	25	1	316
Apprch %	19.5	79.9	0.6	77.4	22.6	0	46.9	51	2	
Total %	10.8	44	0.3	22.8	6.6	0	7.3	7.9	0.3	
Cars	32	136	1	70	20	0	22	23	1	305
% Cars	94.1	97.8	100	97.2	95.2	0	95.7	92	100	96.5
Heavy Vehicles	2	3	0	2	1	0	1	2	0	11
% Heavy Vehicles	5.9	2.2	0	2.8	4.8	0	4.3	8	0	3.5

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:45 PM													
03:45 PM	0	13	0	13	6	3	0	9	1	3	0	4	26
04:00 PM	**6**	8	0	14	3	0	0	3	**2**	0	0	2	19
04:15 PM	2	9	0	11	6	**4**	0	10	2	**6**	0	**8**	29
04:30 PM	2	**17**	0	**19**	**12**	0	0	**12**	1	1	0	2	**33**
Total Volume	10	47	0	57	27	7	0	34	6	10	0	16	107
% App. Total	17.5	82.5	0		79.4	20.6	0		37.5	62.5	0		
PHF	.417	.691	.000	.750	.563	.438	.000	.708	.750	.417	.000	.500	.811
Cars	8	45	0	53	26	7	0	33	5	9	0	14	100
% Cars	80.0	95.7	0	93.0	96.3	100	0	97.1	83.3	90.0	0	87.5	93.5
Heavy Vehicles	2	2	0	4	1	0	0	1	1	1	0	2	7
% Heavy Vehicles	20.0	4.3	0	7.0	3.7	0	0	2.9	16.7	10.0	0	12.5	6.5

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N/S: Flagg Road
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 BB
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
03:00 PM	3	14	0	7	2	0	2	1	1	30
03:15 PM	1	13	0	2	0	0	3	2	0	21
03:30 PM	2	9	0	10	1	0	3	2	0	27
03:45 PM	0	12	0	6	3	0	1	3	0	25
Total	6	48	0	25	6	0	9	8	1	103
04:00 PM	5	7	0	2	0	0	2	0	0	16
04:15 PM	1	9	0	6	4	0	1	5	0	26
04:30 PM	2	17	0	12	0	0	1	1	0	33
04:45 PM	3	10	0	5	2	0	0	1	0	21
Total	11	43	0	25	6	0	4	7	0	96
05:00 PM	1	9	0	7	2	0	0	4	0	23
05:15 PM	3	9	1	6	2	0	3	1	0	25
05:30 PM	6	16	0	2	2	0	2	3	0	31
05:45 PM	5	11	0	5	2	0	4	0	0	27
Total	15	45	1	20	8	0	9	8	0	106
Grand Total	32	136	1	70	20	0	22	23	1	305
Apprch %	18.9	80.5	0.6	77.8	22.2	0	47.8	50	2.2	
Total %	10.5	44.6	0.3	23	6.6	0	7.2	7.5	0.3	

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	1	9	0	10	**7**	**2**	0	**9**	0	**4**	0	4	23
05:15 PM	3	9	**1**	13	6	2	0	8	3	1	0	4	25
05:30 PM	**6**	**16**	0	**22**	2	2	0	4	2	3	0	**5**	**31**
05:45 PM	5	11	0	16	5	2	0	7	**4**	0	0	4	27
Total Volume	15	45	1	61	20	8	0	28	9	8	0	17	106
% App. Total	24.6	73.8	1.6		71.4	28.6	0		52.9	47.1	0		
PHF	.625	.703	.250	.693	.714	1.00	.000	.778	.563	.500	.000	.850	.855

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W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 BB
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Heavy Vehicles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	U-Turn	Thru	Left	U-Turn	Right	Left	U-Turn	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	1	0	0	1	0	2
03:45 PM	0	1	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	1	0	3
04:00 PM	1	1	0	1	0	0	0	0	0	3
04:15 PM	1	0	0	0	0	0	1	1	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	1	0	0	0	0	0	1
Total	2	1	0	2	0	0	1	1	0	7
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	1	0	0	0	0	0	0	0	1
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	1	0	0	0	0	0	0	0	1
Grand Total	2	3	0	2	1	0	1	2	0	11
Apprch %	40	60	0	66.7	33.3	0	33.3	66.7	0	
Total %	18.2	27.3	0	18.2	9.1	0	9.1	18.2	0	

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:30 PM													
03:30 PM	0	0	0	0	0	**1**	0	**1**	0	**1**	0	1	2
03:45 PM	0	**1**	0	1	0	0	0	0	0	0	0	0	1
04:00 PM	**1**	1	0	**2**	**1**	0	0	1	0	0	0	0	**3**
04:15 PM	1	0	0	1	0	0	0	0	**1**	1	0	**2**	3
Total Volume	2	2	0	4	1	1	0	2	1	2	0	3	9
% App. Total	50	50	0		50	50	0		33.3	66.7	0		
PHF	.500	.500	.000	.500	.250	.250	.000	.500	.250	.500	.000	.375	.750

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W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 BB
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Flagg Road From North			Flagg Road From South			Blackthorn Drive From West			
Start Time	Right	Thru	Peds	Thru	Left	Peds	Right	Left	Peds	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	
Total %										

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
03:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0		0	0	0		0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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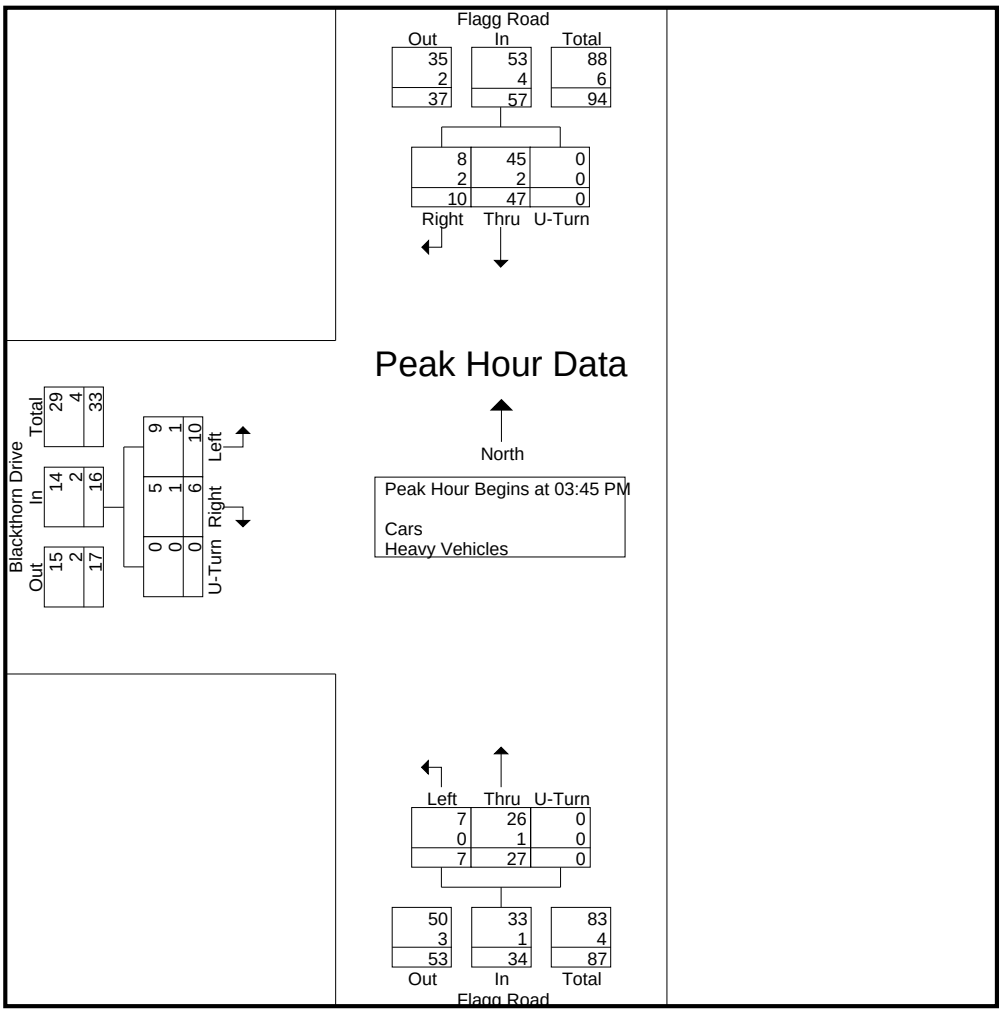
W: Blackthorn Drive
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 BB
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

	Flagg Road From North				Flagg Road From South				Blackthorn Drive From West				
Start Time	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:45 PM													
03:45 PM	0	13	0	13	6	3	0	9	1	3	0	4	26
04:00 PM	**6**	8	0	14	3	0	0	3	**2**	0	0	2	19
04:15 PM	2	9	0	11	6	**4**	0	10	2	**6**	0	**8**	29
04:30 PM	2	**17**	0	**19**	**12**	0	0	**12**	1	1	0	2	**33**
Total Volume	10	47	0	57	27	7	0	34	6	10	0	16	107
% App. Total	17.5	82.5	0		79.4	20.6	0		37.5	62.5	0		
PHF	.417	.691	.000	.750	.563	.438	.000	.708	.750	.417	.000	.500	.811
Cars	8	45	0	53	26	7	0	33	5	9	0	14	100
% Cars	80.0	95.7	0	93.0	96.3	100	0	97.1	83.3	90.0	0	87.5	93.5
Heavy Vehicles	2	2	0	4	1	0	0	1	1	1	0	2	7
% Heavy Vehicles	20.0	4.3	0	7.0	3.7	0	0	2.9	16.7	10.0	0	12.5	6.5



S: Deerfoot Road
E/W: Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ B. Scully

PRECISION DATA INDUSTRIES, LLC
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File Name : 133380 C
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	33	6	0	20	5	0	7	115	0	186
07:15 AM	39	4	0	14	3	0	19	137	0	216
07:30 AM	49	11	0	11	8	0	16	152	0	247
07:45 AM	76	29	1	28	19	0	49	130	0	332
Total	197	50	1	73	35	0	91	534	0	981
08:00 AM	69	3	0	16	22	0	13	113	0	236
08:15 AM	52	9	0	16	2	0	5	134	0	218
08:30 AM	52	5	0	12	2	0	3	123	0	197
08:45 AM	61	8	0	10	5	0	12	96	0	192
Total	234	25	0	54	31	0	33	466	0	843
Grand Total	431	75	1	127	66	0	124	1000	0	1824
Apprch %	85	14.8	0.2	65.8	34.2	0	11	89	0	
Total %	23.6	4.1	0.1	7	3.6	0	6.8	54.8	0	
Cars	415	74	1	126	66	0	123	970	0	1775
% Cars	96.3	98.7	100	99.2	100	0	99.2	97	0	97.3
Heavy Vehicles	16	1	0	1	0	0	1	30	0	49
% Heavy Vehicles	3.7	1.3	0	0.8	0	0	0.8	3	0	2.7

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	49	11	0	60	11	8	0	19	16	**152**	0	168	247
07:45 AM	**76**	**29**	**1**	**106**	**28**	19	0	**47**	**49**	130	0	**179**	**332**
08:00 AM	69	3	0	72	16	**22**	0	38	13	113	0	126	236
08:15 AM	52	9	0	61	16	2	0	18	5	134	0	139	218
Total Volume	246	52	1	299	71	51	0	122	83	529	0	612	1033
% App. Total	82.3	17.4	0.3		58.2	41.8	0		13.6	86.4	0		
PHF	.809	.448	.250	.705	.634	.580	.000	.649	.423	.870	.000	.855	.778
Cars	238	51	1	290	70	51	0	121	83	516	0	599	1010
% Cars	96.7	98.1	100	97.0	98.6	100	0	99.2	100	97.5	0	97.9	97.8
Heavy Vehicles	8	1	0	9	1	0	0	1	0	13	0	13	23
% Heavy Vehicles	3.3	1.9	0	3.0	1.4	0	0	0.8	0	2.5	0	2.1	2.2

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S: Deerfoot Road
E/W: Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 C
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Cars

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	32	6	0	20	5	0	7	109	0	179
07:15 AM	38	4	0	14	3	0	19	132	0	210
07:30 AM	48	11	0	10	8	0	16	151	0	244
07:45 AM	71	29	1	28	19	0	49	124	0	321
Total	189	50	1	72	35	0	91	516	0	954
08:00 AM	67	2	0	16	22	0	13	112	0	232
08:15 AM	52	9	0	16	2	0	5	129	0	213
08:30 AM	52	5	0	12	2	0	3	119	0	193
08:45 AM	55	8	0	10	5	0	11	94	0	183
Total	226	24	0	54	31	0	32	454	0	821
Grand Total	415	74	1	126	66	0	123	970	0	1775
Apprch %	84.7	15.1	0.2	65.6	34.4	0	11.3	88.7	0	
Total %	23.4	4.2	0.1	7.1	3.7	0	6.9	54.6	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	48	11	0	59	10	8	0	18	16	**151**	0	167	244
07:45 AM	**71**	**29**	**1**	**101**	**28**	19	0	**47**	**49**	124	0	**173**	**321**
08:00 AM	67	2	0	69	16	**22**	0	38	13	112	0	125	232
08:15 AM	52	9	0	61	16	2	0	18	5	129	0	134	213
Total Volume	238	51	1	290	70	51	0	121	83	516	0	599	1010
% App. Total	82.1	17.6	0.3		57.9	42.1	0		13.9	86.1	0		
PHF	.838	.440	.250	.718	.625	.580	.000	.644	.423	.854	.000	.866	.787

PRECISION
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INDUSTRIES, LLC
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S: Deerfoot Road
E/W: Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 C
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Heavy Vehicles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
07:00 AM	1	0	0	0	0	0	0	6	0	7
07:15 AM	1	0	0	0	0	0	0	5	0	6
07:30 AM	1	0	0	1	0	0	0	1	0	3
07:45 AM	5	0	0	0	0	0	0	6	0	11
Total	8	0	0	1	0	0	0	18	0	27
08:00 AM	2	1	0	0	0	0	0	1	0	4
08:15 AM	0	0	0	0	0	0	0	5	0	5
08:30 AM	0	0	0	0	0	0	0	4	0	4
08:45 AM	6	0	0	0	0	0	1	2	0	9
Total	8	1	0	0	0	0	1	12	0	22
Grand Total	16	1	0	1	0	0	1	30	0	49
Apprch %	94.1	5.9	0	100	0	0	3.2	96.8	0	
Total %	32.7	2	0	2	0	0	2	61.2	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	1	0	0	1	0	0	0	0	0	**6**	0	**6**	7
07:15 AM	1	0	0	1	0	0	0	0	0	5	0	5	6
07:30 AM	1	0	0	1	**1**	0	0	**1**	0	1	0	1	3
07:45 AM	**5**	0	0	**5**	0	0	0	0	0	6	0	6	**11**
Total Volume	8	0	0	8	1	0	0	1	0	18	0	18	27
% App. Total	100	0	0		100	0	0		0	100	0		
PHF	.400	.000	.000	.400	.250	.000	.000	.250	.000	.750	.000	.750	.614

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S: Deerfoot Road
E/W: Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 C
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Peds and Bicycles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
07:00 AM	1	0	0	0	0	0	0	0	0	1
07:15 AM	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	0	0	0	0	0	0	1
Total	2	0	0	0	0	0	0	0	0	2
08:00 AM	1	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	0	0	0	0	0	1
Grand Total	3	0	0	0	0	0	0	0	0	3
Apprch %	100	0	0	0	0	0	0	0	0	
Total %	100	0	0	0	0	0	0	0	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:00 AM													
07:00 AM	**1**	0	0	**1**	0	0	0	0	0	0	0	0	**1**
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	1	0	0	1	0	0	0	0	0	0	0	0	1
Total Volume	2	0	0	2	0	0	0	0	0	0	0	0	2
% App. Total	100	0	0		0	0	0		0	0	0		
PHF	.500	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.500

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S: Deerfoot Road
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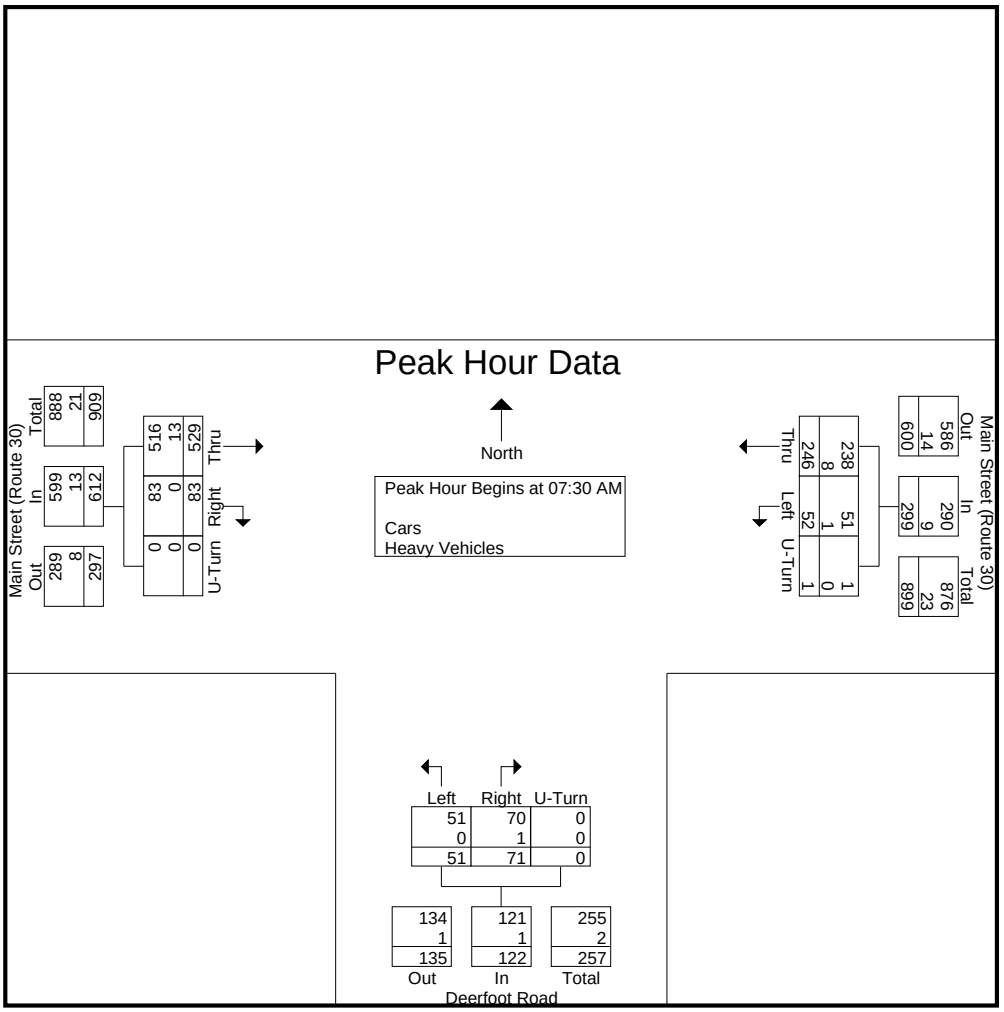
File Name : 133380 C
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:30 AM													
07:30 AM	49	11	0	60	11	8	0	19	16	**152**	0	168	247
07:45 AM	**76**	**29**	**1**	**106**	**28**	19	0	**47**	**49**	130	0	**179**	**332**
08:00 AM	69	3	0	72	16	**22**	0	38	13	113	0	126	236
08:15 AM	52	9	0	61	16	2	0	18	5	134	0	139	218
Total Volume	246	52	1	299	71	51	0	122	83	529	0	612	1033
% App. Total	82.3	17.4	0.3		58.2	41.8	0		13.6	86.4	0		
PHF	.809	.448	.250	.705	.634	.580	.000	.649	.423	.870	.000	.855	.778
Cars	238	51	1	290	70	51	0	121	83	516	0	599	1010
% Cars	96.7	98.1	100	97.0	98.6	100	0	99.2	100	97.5	0	97.9	97.8
Heavy Vehicles	8	1	0	9	1	0	0	1	0	13	0	13	23
% Heavy Vehicles	3.3	1.9	0	3.0	1.4	0	0	0.8	0	2.5	0	2.1	2.2



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S: Deerfoot Road
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City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 CC
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Cars - Heavy Vehicles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
03:00 PM	89	15	0	12	9	0	5	61	0	191
03:15 PM	98	14	0	10	13	0	9	57	0	201
03:30 PM	72	15	0	9	7	0	4	63	0	170
03:45 PM	81	9	0	12	9	0	8	73	0	192
Total	340	53	0	43	38	0	26	254	0	754
04:00 PM	91	7	0	10	10	0	6	55	0	179
04:15 PM	107	11	0	10	9	0	8	79	0	224
04:30 PM	115	14	0	13	9	0	9	58	0	218
04:45 PM	131	13	0	9	2	0	10	77	0	242
Total	444	45	0	42	30	0	33	269	0	863
05:00 PM	136	15	0	14	9	0	9	78	0	261
05:15 PM	166	15	0	9	7	0	11	70	0	278
05:30 PM	161	10	0	19	8	0	10	95	0	303
05:45 PM	127	14	0	12	6	0	2	69	0	230
Total	590	54	0	54	30	0	32	312	0	1072
Grand Total	1374	152	0	139	98	0	91	835	0	2689
Apprch %	90	10	0	58.6	41.4	0	9.8	90.2	0	
Total %	51.1	5.7	0	5.2	3.6	0	3.4	31.1	0	
Cars	1349	148	0	136	95	0	91	818	0	2637
% Cars	98.2	97.4	0	97.8	96.9	0	100	98	0	98.1
Heavy Vehicles	25	4	0	3	3	0	0	17	0	52
% Heavy Vehicles	1.8	2.6	0	2.2	3.1	0	0	2	0	1.9

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	131	13	0	144	9	2	0	11	10	77	0	87	242
05:00 PM	136	**15**	0	151	14	**9**	0	23	9	78	0	87	261
05:15 PM	**166**	15	0	**181**	9	7	0	16	**11**	70	0	81	278
05:30 PM	161	10	0	171	**19**	8	0	**27**	10	**95**	0	**105**	**303**
Total Volume	594	53	0	647	51	26	0	77	40	320	0	360	1084
% App. Total	91.8	8.2	0		66.2	33.8	0		11.1	88.9	0		
PHF	.895	.883	.000	.894	.671	.722	.000	.713	.909	.842	.000	.857	.894
Cars	587	51	0	638	51	26	0	77	40	315	0	355	1070
% Cars	98.8	96.2	0	98.6	100	100	0	100	100	98.4	0	98.6	98.7
Heavy Vehicles	7	2	0	9	0	0	0	0	0	5	0	5	14
% Heavy Vehicles	1.2	3.8	0	1.4	0	0	0	0	0	1.6	0	1.4	1.3

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S: Deerfoot Road
E/W: Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ B. Scully

File Name : 133380 CC
Site Code : 12059.04
Start Date : 5/30/2013
Page No : 1

Groups Printed- Cars

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
03:00 PM	86	15	0	11	9	0	5	59	0	185
03:15 PM	95	14	0	10	13	0	9	53	0	194
03:30 PM	70	14	0	9	7	0	4	62	0	166
03:45 PM	77	8	0	12	8	0	8	72	0	185
Total	328	51	0	42	37	0	26	246	0	730
04:00 PM	89	7	0	9	10	0	6	55	0	176
04:15 PM	105	11	0	9	9	0	8	77	0	219
04:30 PM	113	14	0	13	7	0	9	57	0	213
04:45 PM	129	13	0	9	2	0	10	75	0	238
Total	436	45	0	40	28	0	33	264	0	846
05:00 PM	134	14	0	14	9	0	9	78	0	258
05:15 PM	165	15	0	9	7	0	11	70	0	277
05:30 PM	159	9	0	19	8	0	10	92	0	297
05:45 PM	127	14	0	12	6	0	2	68	0	229
Total	585	52	0	54	30	0	32	308	0	1061
Grand Total	1349	148	0	136	95	0	91	818	0	2637
Apprch %	90.1	9.9	0	58.9	41.1	0	10	90	0	
Total %	51.2	5.6	0	5.2	3.6	0	3.5	31	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	129	13	0	142	9	2	0	11	10	75	0	85	238
05:00 PM	134	14	0	148	14	**9**	0	23	9	78	0	87	258
05:15 PM	**165**	**15**	0	**180**	9	7	0	16	**11**	70	0	81	277
05:30 PM	159	9	0	168	**19**	8	0	**27**	10	**92**	0	**102**	**297**
Total Volume	587	51	0	638	51	26	0	77	40	315	0	355	1070
% App. Total	92	8	0		66.2	33.8	0		11.3	88.7	0		
PHF	.889	.850	.000	.886	.671	.722	.000	.713	.909	.856	.000	.870	.901

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S: Deerfoot Road
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Client: Green International/ B. Scully

File Name : 133380 CC
Site Code : 12059.04
Start Date : 5/30/2013

Groups Printed- Heavy Vehicles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	U-Turn	Right	Left	U-Turn	Right	Thru	U-Turn	Int. Total
03:00 PM	3	0	0	1	0	0	0	2	0	6
03:15 PM	3	0	0	0	0	0	0	4	0	7
03:30 PM	2	1	0	0	0	0	0	1	0	4
03:45 PM	4	1	0	0	1	0	0	1	0	7
Total	12	2	0	1	1	0	0	8	0	24
04:00 PM	2	0	0	1	0	0	0	0	0	3
04:15 PM	2	0	0	1	0	0	0	2	0	5
04:30 PM	2	0	0	0	2	0	0	1	0	5
04:45 PM	2	0	0	0	0	0	0	2	0	4
Total	8	0	0	2	2	0	0	5	0	17
05:00 PM	2	1	0	0	0	0	0	0	0	3
05:15 PM	1	0	0	0	0	0	0	0	0	1
05:30 PM	2	1	0	0	0	0	0	3	0	6
05:45 PM	0	0	0	0	0	0	0	1	0	1
Total	5	2	0	0	0	0	0	4	0	11
Grand Total	25	4	0	3	3	0	0	17	0	52
Apprch %	86.2	13.8	0	50	50	0	0	100	0	
Total %	48.1	7.7	0	5.8	5.8	0	0	32.7	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 03:00 PM													
03:00 PM	3	0	0	3	**1**	0	0	**1**	0	2	0	2	6
03:15 PM	3	0	0	3	0	0	0	0	0	**4**	0	**4**	**7**
03:30 PM	2	**1**	0	3	0	0	0	0	0	1	0	1	4
03:45 PM	**4**	1	0	**5**	0	**1**	0	1	0	1	0	1	7
Total Volume	12	2	0	14	1	1	0	2	0	8	0	8	24
% App. Total	85.7	14.3	0		50	50	0		0	100	0		
PHF	.750	.500	.000	.700	.250	.250	.000	.500	.000	.500	.000	.500	.857

PRECISION
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Groups Printed- Peds and Bicycles

	Main Street (Route 30) From East			Deerfoot Road From South			Main Street (Route 30) From West			
Start Time	Thru	Left	Peds	Right	Left	Peds	Right	Thru	Peds	Int. Total
03:00 PM	0	0	0	0	0	0	0	0	0	0
03:15 PM	0	0	0	0	0	0	0	1	0	1
03:30 PM	1	0	0	0	0	0	0	0	0	1
03:45 PM	0	0	0	0	0	0	0	1	0	1
Total	1	0	0	0	0	0	0	2	0	3
04:00 PM	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	1	0	0	0	1
04:30 PM	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	1	0	0	0	1
Total	0	0	0	0	0	2	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	1	0	1
05:15 PM	2	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	0	0	0	0	0
05:45 PM	2	0	0	0	0	0	0	0	0	2
Total	4	0	0	0	0	0	0	1	0	5
Grand Total	5	0	0	0	0	2	0	3	0	10
Apprch %	100	0	0	0	0	100	0	100	0	
Total %	50	0	0	0	0	20	0	30	0	

	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	Peds	App. Total	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	0	0	0	0	**1**	0	**1**	1
05:15 PM	**2**	0	0	**2**	0	0	0	0	0	0	0	0	**2**
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	2	0	0	2	0	0	0	0	0	0	0	0	2
Total Volume	4	0	0	4	0	0	0	0	0	1	0	1	5
% App. Total	100	0	0		0	0	0		0	100	0		
PHF	.500	.000	.000	.500	.000	.000	.000	.000	.000	.250	.000	.250	.625

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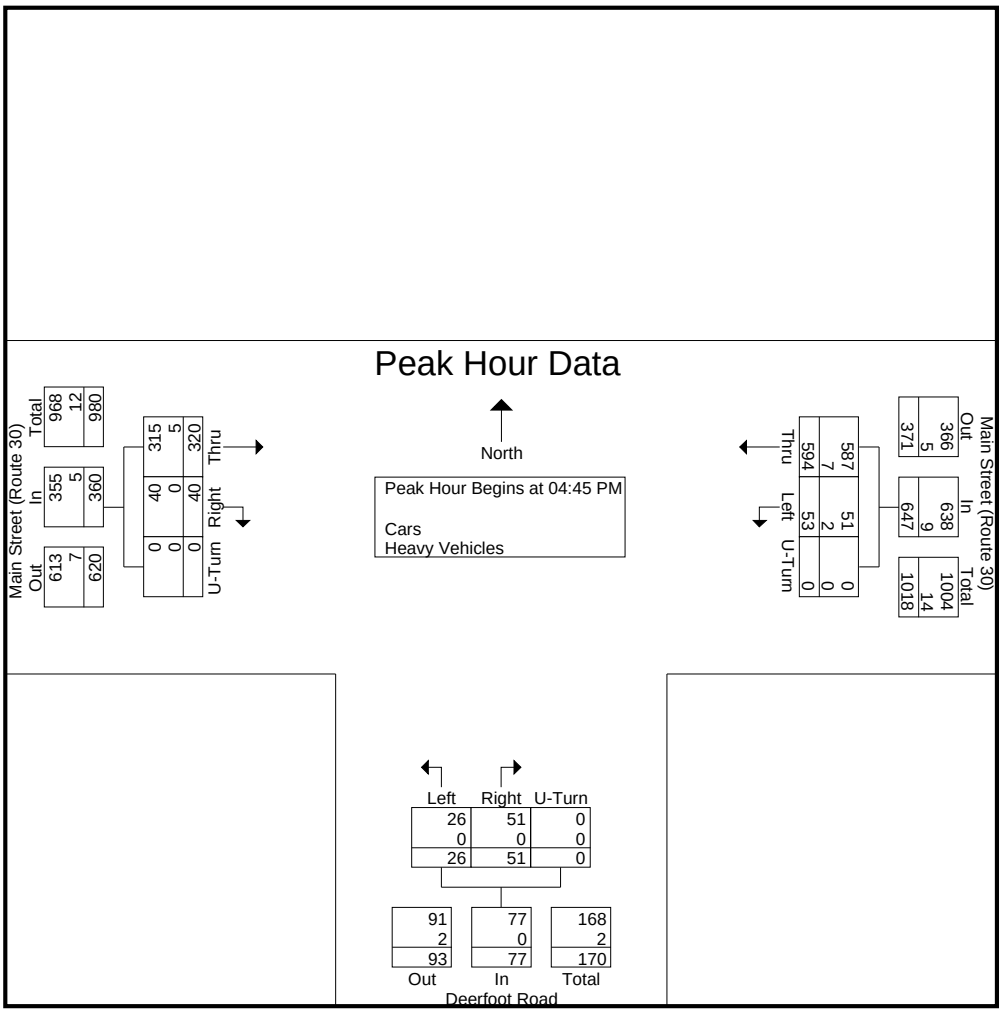
	Main Street (Route 30) From East				Deerfoot Road From South				Main Street (Route 30) From West				
Start Time	Thru	Left	U-Turn	App. Total	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:45 PM													
04:45 PM	131	13	0	144	9	2	0	11	10	77	0	87	242
05:00 PM	136	**15**	0	151	14	**9**	0	23	9	78	0	87	261
05:15 PM	**166**	15	0	**181**	9	7	0	16	**11**	70	0	81	278
05:30 PM	161	10	0	171	**19**	8	0	**27**	10	**95**	0	**105**	**303**
Total Volume	594	53	0	647	51	26	0	77	40	320	0	360	1084
% App. Total	91.8	8.2	0		66.2	33.8	0		11.1	88.9	0		
PHF	.895	.883	.000	.894	.671	.722	.000	.713	.909	.842	.000	.857	.894
Cars	587	51	0	638	51	26	0	77	40	315	0	355	1070
% Cars	98.8	96.2	0	98.6	100	100	0	100	100	98.4	0	98.6	98.7
Heavy Vehicles	7	2	0	9	0	0	0	0	0	5	0	5	14
% Heavy Vehicles	1.2	3.8	0	1.4	0	0	0	0	0	1.6	0	1.4	1.3



Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

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

133207 A volume
Site Code: TBA

Start	05-Feb-13		06-Feb-13		07-Feb-13		08-Feb-13		09-Feb-13		10-Feb-13		11-Feb-13		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	0	0	0	0	*	*	*	*	*	*	*	*	*	*	0	0
01:00	0	1	2	0	*	*	*	*	*	*	*	*	*	*	1	0
02:00	0	0	0	0	*	*	*	*	*	*	*	*	*	*	0	0
03:00	1	0	0	0	*	*	*	*	*	*	*	*	*	*	0	0
04:00	1	1	0	0	*	*	*	*	*	*	*	*	*	*	0	0
05:00	2	10	2	15	*	*	*	*	*	*	*	*	*	*	2	12
06:00	4	35	9	34	*	*	*	*	*	*	*	*	*	*	6	34
07:00	12	81	11	63	*	*	*	*	*	*	*	*	*	*	12	72
08:00	15	**87**	12	**68**	*	*	*	*	*	*	*	*	*	*	14	**78**
09:00	**20**	32	14	33	*	*	*	*	*	*	*	*	*	*	17	32
10:00	16	29	**20**	22	*	*	*	*	*	*	*	*	*	*	**18**	26
11:00	17	25	20	26	*	*	*	*	*	*	*	*	*	*	18	26
12:00 PM	31	37	27	26	*	*	*	*	*	*	*	*	*	*	29	32
01:00	14	21	29	33	*	*	*	*	*	*	*	*	*	*	22	27
02:00	24	30	29	**54**	*	*	*	*	*	*	*	*	*	*	26	**42**
03:00	37	**49**	37	31	*	*	*	*	*	*	*	*	*	*	37	40
04:00	29	33	29	36	*	*	*	*	*	*	*	*	*	*	29	34
05:00	**42**	38	**45**	45	*	*	*	*	*	*	*	*	*	*	**44**	42
06:00	35	20	41	39	*	*	*	*	*	*	*	*	*	*	38	30
07:00	32	22	36	18	*	*	*	*	*	*	*	*	*	*	34	20
08:00	15	7	20	9	*	*	*	*	*	*	*	*	*	*	18	8
09:00	19	5	17	6	*	*	*	*	*	*	*	*	*	*	18	6
10:00	5	3	10	3	*	*	*	*	*	*	*	*	*	*	8	3
11:00	5	2	2	5	*	*	*	*	*	*	*	*	*	*	4	4
Total	376	568	412	566	0	0	0	0	0	0	0	0	0	0	395	568
Day	944		978		0		0		0		0		0		963	
AM Peak	09:00	08:00	10:00	08:00											10:00	08:00
Vol.	20	87	20	68											18	78
PM Peak	17:00	15:00	17:00	14:00											17:00	14:00
Vol.	42	49	45	54											44	42

Comb. Total	944	978	0	0	0	0	0	963

ADT ADT 961 AADT 961

PRECISION
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INDUSTRIES, LLC
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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A volume
Site Code: TBA

Start	NB				SB				Combined				05-Feb-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue
12:00	0		12		0		8		0		20		
12:15	0		10		0		15		0		25		
12:30	0		6		0		7		0		13		
12:45	0	0	3	31	0	0	7	37	0	0	10	68	
01:00	0		5		0		8		0		13		
01:15	0		0		0		4		0		4		
01:30	0		4		1		5		1		9		
01:45	0	0	5	14	0	1	4	21	0	1	9	35	
02:00	0		6		0		4		0		10		
02:15	0		4		0		5		0		9		
02:30	0		4		0		10		0		14		
02:45	0	0	10	24	0	0	11	30	0	0	21	54	
03:00	0		11		0		18		0		29		
03:15	1		8		0		8		1		16		
03:30	0		9		0		7		0		16		
03:45	0	1	9	37	0	0	16	49	0	1	25	86	
04:00	0		11		0		12		0		23		
04:15	0		8		0		5		0		13		
04:30	1		5		0		11		1		16		
04:45	0	1	5	29	1	1	5	33	1	2	10	62	
05:00	1		7		2		9		3		16		
05:15	0		9		1		12		1		21		
05:30	1		18		2		8		3		26		
05:45	0	2	8	42	5	10	9	38	5	12	17	80	
06:00	1		9		4		2		5		11		
06:15	1		6		4		4		5		10		
06:30	0		13		13		6		13		19		
06:45	2	4	7	35	14	35	8	20	16	39	15	55	
07:00	1		10		16		9		17		19		
07:15	2		6		20		5		22		11		
07:30	2		8		20		6		22		14		
07:45	7	12	8	32	25	81	2	22	32	93	10	54	
08:00	3		3		16		1		19		4		
08:15	4		8		18		3		22		11		
08:30	2		4		24		2		26		6		
08:45	6	15	0	15	29	87	1	7	35	102	1	22	
09:00	3		9		6		2		9		11		
09:15	4		2		7		2		11		4		
09:30	8		5		10		1		18		6		
09:45	5	20	3	19	9	32	0	5	14	52	3	24	
10:00	6		1		9		1		15		2		
10:15	2		0		10		1		12		1		
10:30	2		1		4		0		6		1		
10:45	6	16	3	5	6	29	1	3	12	45	4	8	
11:00	3		3		5		2		8		5		
11:15	6		1		5		0		11		1		
11:30	4		1		7		0		11		1		
11:45	4	17	0	5	8	25	0	2	12	42	0	7	
Total	88		288		301		267		389		555		
Percent	22.6%		51.9%		77.4%		48.1%						
Day Total		376				568				944			
Peak	09:15		05:15		08:00		03:00		08:00		03:00		
Vol.	23		44		87		49		102		86		
P.H.F.	0.719		0.611		0.750		0.681		0.729		0.741		

PRECISION
D A T A
INDUSTRIES, LLC
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Email: datarequests@pdillc.com

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A volume
Site Code: TBA

Start	NB				SB				Combined				06-Feb-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	0		3		0		6		0		9		
12:15	0		4		0		5		0		9		
12:30	0		7		0		9		0		16		
12:45	0	0	13	27	0	0	6	26	0	0	19	53	
01:00	1		3		0		7		1		10		
01:15	1		9		0		11		1		20		
01:30	0		8		0		6		0		14		
01:45	0	2	9	29	0	0	9	33	0	2	18	62	
02:00	0		6		0		10		0		16		
02:15	0		9		0		12		0		21		
02:30	0		6		0		17		0		23		
02:45	0	0	8	29	0	0	15	54	0	0	23	83	
03:00	0		11		0		6		0		17		
03:15	0		11		0		9		0		20		
03:30	0		8		0		5		0		13		
03:45	0	0	7	37	0	0	11	31	0	0	18	68	
04:00	0		5		0		6		0		11		
04:15	0		7		0		12		0		19		
04:30	0		11		0		10		0		21		
04:45	0	0	6	29	0	0	8	36	0	0	14	65	
05:00	1		11		3		11		4		22		
05:15	0		10		8		14		8		24		
05:30	1		9		3		15		4		24		
05:45	0	2	15	45	1	15	5	45	1	17	20	90	
06:00	3		11		4		12		7		23		
06:15	1		11		3		13		4		24		
06:30	3		9		12		9		15		18		
06:45	2	9	10	41	15	34	5	39	17	43	15	80	
07:00	1		3		15		7		16		10		
07:15	2		12		7		4		9		16		
07:30	3		11		22		4		25		15		
07:45	5	11	10	36	19	63	3	18	24	74	13	54	
08:00	3		5		15		1		18		6		
08:15	3		6		19		1		22		7		
08:30	3		5		17		4		20		9		
08:45	3	12	4	20	17	68	3	9	20	80	7	29	
09:00	0		4		11		2		11		6		
09:15	8		6		5		1		13		7		
09:30	2		2		5		2		7		4		
09:45	4	14	5	17	12	33	1	6	16	47	6	23	
10:00	3		5		8		2		11		7		
10:15	2		3		2		1		4		4		
10:30	6		1		3		0		9		1		
10:45	9	20	1	10	9	22	0	3	18	42	1	13	
11:00	5		0		8		1		13		1		
11:15	6		0		5		2		11		2		
11:30	4		2		4		1		8		3		
11:45	5	20	0	2	9	26	1	5	14	46	1	7	
Total	90		322		261		305		351		627		
Percent	25.6%		51.4%		74.4%		48.6%						
Day Total		412				566				978			
Peak	10:30		05:30		07:30		02:00		07:30		05:15		
Vol.	26		46		75		54		89		91		
P.H.F.	0.722		0.767		0.852		0.794		0.890		0.948		

PRECISION
D A T A
INDUSTRIES, LLC
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Office: 508.481.3999 Fax: 508.545.1234
Email: datarequests@pdillc.com

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A class
Site Code: TBA

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
02/05/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
06:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
07:00	0	8	1	1	2	0	0	0	0	0	0	0	0	12
08:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
09:00	0	16	2	0	2	0	0	0	0	0	0	0	0	20
10:00	0	13	2	0	1	0	0	0	0	0	0	0	0	16
11:00	0	16	1	0	0	0	0	0	0	0	0	0	0	17
12 PM	0	25	5	0	0	1	0	0	0	0	0	0	0	31
13:00	0	11	2	0	1	0	0	0	0	0	0	0	0	14
14:00	0	21	2	0	1	0	0	0	0	0	0	0	0	24
15:00	0	22	13	1	1	0	0	0	0	0	0	0	0	37
16:00	0	23	5	0	1	0	0	0	0	0	0	0	0	29
17:00	0	34	8	0	0	0	0	0	0	0	0	0	0	42
18:00	0	31	4	0	0	0	0	0	0	0	0	0	0	35
19:00	0	27	5	0	0	0	0	0	0	0	0	0	0	32
20:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
21:00	0	15	3	0	1	0	0	0	0	0	0	0	0	19
22:00	0	4	1	0	0	0	0	0	0	0	0	0	0	5
23:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
Total	0	300	63	2	10	1	0	0	0	0	0	0	0	376
Percent	0.0%	79.8%	16.8%	0.5%	2.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	08:00	07:00	07:00									09:00
Vol.		16	3	1	2									20
Midday Peak		12:00	12:00		13:00	12:00								12:00
Vol.		25	5		1	1								31
PM Peak		17:00	15:00	15:00	15:00									17:00
Vol.		34	13	1	1									42

PRECISION
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Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A class
Site Code: TBA

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
02/06/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	0	1	0	1	0	0	0	0	0	0	0	0	2
06:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
07:00	0	9	1	1	0	0	0	0	0	0	0	0	0	11
08:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
09:00	0	8	4	0	2	0	0	0	0	0	0	0	0	14
10:00	1	14	3	0	1	1	0	0	0	0	0	0	0	20
11:00	0	18	2	0	0	0	0	0	0	0	0	0	0	20
12 PM	1	22	3	0	1	0	0	0	0	0	0	0	0	27
13:00	0	19	8	1	1	0	0	0	0	0	0	0	0	29
14:00	0	21	7	0	1	0	0	0	0	0	0	0	0	29
15:00	0	27	8	1	1	0	0	0	0	0	0	0	0	37
16:00	0	18	9	0	2	0	0	0	0	0	0	0	0	29
17:00	1	36	8	0	0	0	0	0	0	0	0	0	0	45
18:00	0	33	7	0	1	0	0	0	0	0	0	0	0	41
19:00	0	31	5	0	0	0	0	0	0	0	0	0	0	36
20:00	0	15	5	0	0	0	0	0	0	0	0	0	0	20
21:00	0	14	3	0	0	0	0	0	0	0	0	0	0	17
22:00	0	7	3	0	0	0	0	0	0	0	0	0	0	10
23:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	3	315	79	3	11	1	0	0	0	0	0	0	0	412
Percent	0.7%	76.5%	19.2%	0.7%	2.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	09:00	07:00	09:00									09:00
Vol.		11	4	1	2									14
Midday Peak	12:00	12:00	13:00	13:00	12:00									13:00
Vol.	1	22	8	1	1									29
PM Peak	17:00	17:00	16:00	15:00	16:00									17:00
Vol.	1	36	9	1	2									45

PRECISION
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Flagg Road approx. 1200' north of
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City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A class
Site Code: TBA

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
02/05/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
06:00	0	28	6	0	1	0	0	0	0	0	0	0	0	35
07:00	0	61	20	0	0	0	0	0	0	0	0	0	0	81
08:00	0	61	21	0	4	0	0	1	0	0	0	0	0	87
09:00	0	25	7	0	0	0	0	0	0	0	0	0	0	32
10:00	0	20	6	0	3	0	0	0	0	0	0	0	0	29
11:00	0	16	8	0	1	0	0	0	0	0	0	0	0	25
12 PM	0	31	6	0	0	0	0	0	0	0	0	0	0	37
13:00	0	13	5	1	2	0	0	0	0	0	0	0	0	21
14:00	0	20	5	1	2	1	0	0	1	0	0	0	0	30
15:00	0	30	18	0	1	0	0	0	0	0	0	0	0	49
16:00	0	22	11	0	0	0	0	0	0	0	0	0	0	33
17:00	0	30	8	0	0	0	0	0	0	0	0	0	0	38
18:00	0	13	5	0	2	0	0	0	0	0	0	0	0	20
19:00	0	16	6	0	0	0	0	0	0	0	0	0	0	22
20:00	0	5	2	0	0	0	0	0	0	0	0	0	0	7
21:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
22:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	408	139	2	16	1	0	1	1	0	0	0	0	568
Percent	0.0%	71.8%	24.5%	0.4%	2.8%	0.2%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	08:00		08:00			08:00						08:00
Vol.		61	21		4			1						87
Midday Peak		12:00	11:00	13:00	13:00	14:00			14:00					12:00
Vol.		31	8	1	2	1			1					37
PM Peak		15:00	15:00		18:00									15:00
Vol.		30	18		2									49

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

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A class
Site Code: TBA

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
02/06/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00	0	13	2	0	0	0	0	0	0	0	0	0	0	15
06:00	0	25	7	0	2	0	0	0	0	0	0	0	0	34
07:00	0	48	14	0	1	0	0	0	0	0	0	0	0	63
08:00	0	53	14	0	1	0	0	0	0	0	0	0	0	68
09:00	0	28	5	0	0	0	0	0	0	0	0	0	0	33
10:00	0	15	4	0	2	0	0	0	1	0	0	0	0	22
11:00	0	15	6	2	3	0	0	0	0	0	0	0	0	26
12 PM	0	16	10	0	0	0	0	0	0	0	0	0	0	26
13:00	0	23	9	0	1	0	0	0	0	0	0	0	0	33
14:00	0	35	16	2	1	0	0	0	0	0	0	0	0	54
15:00	0	22	9	0	0	0	0	0	0	0	0	0	0	31
16:00	0	29	3	0	3	0	0	0	1	0	0	0	0	36
17:00	0	34	9	0	1	1	0	0	0	0	0	0	0	45
18:00	0	31	8	0	0	0	0	0	0	0	0	0	0	39
19:00	0	13	4	0	1	0	0	0	0	0	0	0	0	18
20:00	0	7	2	0	0	0	0	0	0	0	0	0	0	9
21:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
22:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
23:00	0	2	3	0	0	0	0	0	0	0	0	0	0	5
Total	0	416	127	4	16	1	0	0	2	0	0	0	0	566
Percent	0.0%	73.5%	22.4%	0.7%	2.8%	0.2%	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	
AM Peak		08:00	07:00		06:00									08:00
Vol.		53	14		2									68
Midday Peak		14:00	14:00	11:00	11:00									14:00
Vol.		35	16	2	3									54
PM Peak		17:00	15:00		16:00	17:00			16:00					17:00
Vol.		34	9		3	1			1					45

PRECISION
D A T A
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Email: datarequests@pdillc.com

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A speed
Site Code: TBA

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
02/05/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	*	32
04:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	*	32
05:00	0	0	0	1	1	0	0	0	0	0	0	0	0	2	*	29
06:00	0	0	0	1	3	0	0	0	0	0	0	0	0	4	31	31
07:00	0	0	3	4	4	1	0	0	0	0	0	0	0	12	32	28
08:00	0	0	3	**5**	**7**	0	0	0	0	0	0	0	0	15	32	28
09:00	0	**1**	**5**	4	6	**3**	**1**	0	0	0	0	0	0	**20**	35	29
10:00	0	0	2	8	3	3	0	0	0	0	0	0	0	16	34	29
11:00	**1**	1	1	7	5	2	0	0	0	0	0	0	0	17	33	26
12 PM	0	1	**5**	**8**	**13**	**4**	0	0	0	0	0	0	0	**31**	33	29
13:00	1	0	4	4	3	2	0	0	0	0	0	0	0	14	31	26
14:00	0	**2**	1	6	12	3	0	0	0	0	0	0	0	24	34	29
15:00	0	**3**	6	14	13	1	0	0	0	0	0	0	0	37	32	27
16:00	0	0	1	6	16	6	0	0	0	0	0	0	0	29	35	32
17:00	0	0	3	**16**	**19**	3	**1**	0	0	0	0	0	0	**42**	33	30
18:00	0	1	1	12	14	**7**	0	0	0	0	0	0	0	35	35	30
19:00	0	1	**8**	12	7	3	1	0	0	0	0	0	0	32	33	28
20:00	0	0	0	5	7	2	1	0	0	0	0	0	0	15	34	32
21:00	0	1	1	8	8	1	0	0	0	0	0	0	0	19	32	28
22:00	0	0	0	1	3	1	0	0	0	0	0	0	0	5	32	32
23:00	0	0	1	1	3	0	0	0	0	0	0	0	0	5	31	29
Total	2	11	45	123	149	42	4	0	0	0	0	0	0	376		
%	0.5%	2.9%	12.0%	32.7%	39.6%	11.2%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak		09:00	09:00	08:00	08:00	09:00	09:00							09:00		
Vol.		1	5	5	7	3	1							20		
Midday Peak	11:00	14:00	12:00	12:00	12:00	12:00								12:00		
Vol.	1	2	5	8	13	4								31		
PM Peak		15:00	19:00	17:00	17:00	18:00	17:00							17:00		
Vol.		3	8	16	19	7	1							42		

% iles

15th Percentile : 22 MPH
50th Percentile : 29 MPH
85th Percentile : 34 MPH
95th Percentile : 37 MPH

Stats

10 MPH Pace Speed : 25-34 MPH
Number in Pace : 245
Percent in Pace : 65.2%
Number of Vehicles > 30 MPH : 161
Percent of Vehicles > 30 MPH : 42.9%
Mean Speed(Average) : 29 MPH

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

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A speed
Site Code: TBA

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
02/06/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	2	0	0	0	0	0	0	0	0	0	2	*	27
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	1	1	0	0	0	0	0	0	0	0	0	2	*	24
06:00	0	0	0	6	1	**2**	0	0	0	0	0	0	0	9	29	30
07:00	0	0	**3**	4	3	1	0	0	0	0	0	0	0	11	31	28
08:00	0	0	0	4	**6**	2	0	0	0	0	0	0	0	12	34	31
09:00	0	0	2	**8**	3	1	0	0	0	0	0	0	0	**14**	31	28
10:00	2	0	1	6	10	1	0	0	0	0	0	0	0	20	33	27
11:00	0	**1**	2	8	8	0	**1**	0	0	0	0	0	0	20	32	28
12 PM	**2**	1	**6**	7	6	**4**	1	0	0	0	0	0	0	27	35	26
13:00	0	0	5	5	**14**	4	1	0	0	0	0	0	0	**29**	34	30
14:00	0	1	2	**10**	12	4	0	0	0	0	0	0	0	29	34	29
15:00	0	0	**6**	11	17	1	**2**	0	0	0	0	0	0	37	32	30
16:00	0	0	3	10	12	**4**	0	0	0	0	0	0	0	29	34	30
17:00	0	**2**	6	13	**20**	4	0	0	0	0	0	0	0	**45**	33	29
18:00	**1**	2	3	**18**	11	4	2	0	0	0	0	0	0	41	34	28
19:00	0	1	1	14	16	4	0	0	0	0	0	0	0	36	33	30
20:00	0	0	2	5	9	3	0	**1**	0	0	0	0	0	20	34	31
21:00	0	1	0	4	10	2	0	0	0	0	0	0	0	17	33	30
22:00	0	0	0	4	5	1	0	0	0	0	0	0	0	10	33	30
23:00	0	0	0	2	0	0	0	0	0	0	0	0	0	2	*	27
Total	5	9	43	142	163	42	7	1	0	0	0	0	0	412		
%	1.2%	2.2%	10.4%	34.5%	39.6%	10.2%	1.7%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak			07:00	09:00	08:00	06:00								09:00		
Vol.			3	8	6	2								14		
Midday Peak	12:00	11:00	12:00	14:00	13:00	12:00	11:00							13:00		
Vol.	2	1	6	10	14	4	1							29		
PM Peak	18:00	17:00	15:00	18:00	17:00	16:00	15:00	20:00						17:00		
Vol.	1	2	6	18	20	4	2	1						45		

% iles

15th Percentile : 23 MPH
50th Percentile : 28 MPH
85th Percentile : 34 MPH
95th Percentile : 37 MPH

Stats

10 MPH Pace Speed : 25-34 MPH
Number in Pace : 273
Percent in Pace : 66.3%
Number of Vehicles > 30 MPH : 176
Percent of Vehicles > 30 MPH : 42.8%
Mean Speed(Average) : 29 MPH

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

Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A speed
Site Code: TBA

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
02/05/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	*	27
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	*	27
05:00	0	0	0	3	4	3	0	0	0	0	0	0	0	10	35	32
06:00	0	0	1	6	18	8	2	0	0	0	0	0	0	35	36	33
07:00	0	0	**4**	10	**35**	20	**10**	**2**	0	0	0	0	0	81	39	34
08:00	**1**	0	3	**14**	31	**29**	9	0	0	0	0	0	0	**87**	38	33
09:00	0	0	3	5	13	9	2	0	0	0	0	0	0	32	37	32
10:00	1	1	2	6	9	10	0	0	0	0	0	0	0	29	37	30
11:00	0	**1**	1	4	11	5	2	0	1	0	0	0	0	25	37	32
12 PM	0	0	1	8	**15**	**10**	0	**1**	**2**	0	0	0	0	**37**	36	33
13:00	0	0	**2**	3	6	7	3	0	0	0	0	0	0	21	39	33
14:00	0	1	1	**11**	7	5	**4**	1	0	0	0	0	0	30	39	32
15:00	0	1	**3**	**7**	**22**	**13**	2	**1**	0	0	0	0	0	**49**	36	32
16:00	0	0	0	6	13	10	**4**	0	0	0	0	0	0	33	38	34
17:00	0	**3**	2	6	13	12	2	0	0	0	0	0	0	38	37	31
18:00	0	0	1	5	8	4	2	0	0	0	0	0	0	20	37	32
19:00	**1**	1	1	5	10	4	0	0	0	0	0	0	0	22	35	29
20:00	1	1	0	2	3	0	0	0	0	0	0	0	0	7	31	23
21:00	0	0	1	0	3	1	0	0	0	0	0	0	0	5	32	31
22:00	0	0	0	0	2	1	0	0	0	0	0	0	0	3	*	34
23:00	0	0	0	0	2	0	0	0	0	0	0	0	0	2	*	32
Total	4	9	26	103	225	151	42	5	3	0	0	0	0	568		
%	0.7%	1.6%	4.6%	18.1%	39.6%	26.6%	7.4%	0.9%	0.5%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00		07:00	08:00	07:00	08:00	07:00	07:00						08:00		
Vol.	1		4	14	35	29	10	2						87		
Midday Peak		11:00	13:00	14:00	12:00	12:00	14:00	12:00	12:00					12:00		
Vol.		1	2	11	15	10	4	1	2					37		
PM Peak	19:00	17:00	15:00	15:00	15:00	15:00	16:00	15:00						15:00		
Vol.	1	3	3	7	22	13	4	1						49		

% iles

15th Percentile : 26 MPH
50th Percentile : 32 MPH
85th Percentile : 37 MPH
95th Percentile : 41 MPH

Stats

10 MPH Pace Speed : 29-38 MPH
Number in Pace : 353
Percent in Pace : 62.1%
Number of Vehicles > 30 MPH : 371
Percent of Vehicles > 30 MPH : 65.4%
Mean Speed(Average) : 32 MPH

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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Flagg Road approx. 1200' north of
Turnpike Road (Route 9)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 A speed
Site Code: TBA

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
02/06/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	**1**	9	5	0	0	0	0	0	0	0	0	15	31	28
06:00	1	0	0	**11**	12	10	0	0	0	0	0	0	0	34	36	31
07:00	0	0	0	8	25	**22**	**8**	0	0	0	0	0	0	63	39	34
08:00	**2**	0	1	9	**27**	21	8	0	0	0	0	0	0	**68**	39	33
09:00	1	0	0	3	8	17	3	**1**	0	0	0	0	0	33	39	34
10:00	0	1	1	2	6	10	2	0	0	0	0	0	0	22	38	33
11:00	0	0	1	4	8	11	2	0	0	0	0	0	0	26	37	34
12 PM	0	**1**	**3**	3	5	11	3	0	0	0	0	0	0	26	38	33
13:00	0	1	1	7	8	9	**5**	**1**	**1**	0	0	0	0	33	40	34
14:00	0	0	3	**17**	**16**	**16**	2	0	0	0	0	0	0	**54**	37	32
15:00	0	0	1	8	8	11	2	1	0	0	0	0	0	31	37	33
16:00	0	1	**3**	2	16	**14**	0	0	0	0	0	0	0	36	37	32
17:00	0	1	0	**11**	**19**	9	**3**	**2**	0	0	0	0	0	**45**	37	33
18:00	0	**3**	2	9	17	6	2	0	0	0	0	0	0	39	35	30
19:00	**1**	0	2	6	4	3	2	0	0	0	0	0	0	18	36	29
20:00	0	0	0	3	5	1	0	0	0	0	0	0	0	9	33	31
21:00	0	0	0	1	2	3	0	0	0	0	0	0	0	6	36	34
22:00	0	0	0	0	2	1	0	0	0	0	0	0	0	3	*	34
23:00	0	0	0	0	3	2	0	0	0	0	0	0	0	5	33	34
Total	5	8	19	113	196	177	42	5	1	0	0	0	0	566		
%	0.9%	1.4%	3.4%	20.0%	34.6%	31.3%	7.4%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00		05:00	06:00	08:00	07:00	07:00	09:00						08:00		
Vol.	2		1	11	27	22	8	1						68		
Midday Peak		12:00	12:00	14:00	14:00	14:00	13:00	13:00	13:00					14:00		
Vol.		1	3	17	16	16	5	1	1					54		
PM Peak	19:00	18:00	16:00	17:00	17:00	16:00	17:00	17:00						17:00		
Vol.	1	3	3	11	19	14	3	2						45		

% iles

15th Percentile : 26 MPH
50th Percentile : 32 MPH
85th Percentile : 38 MPH
95th Percentile : 41 MPH

Stats

10 MPH Pace Speed : 29-38 MPH
Number in Pace : 347
Percent in Pace : 61.3%
Number of Vehicles > 30 MPH : 374
Percent of Vehicles > 30 MPH : 66.0%
Mean Speed(Average) : 32 MPH

Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

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

133207 B volume
Site Code: TBA

Start	05-Feb-13		06-Feb-13		07-Feb-13		08-Feb-13		09-Feb-13		10-Feb-13		11-Feb-13		Week Average	
Time	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	0	0	0	1	*	*	*	*	*	*	*	*	*	*	0	0
01:00	1	1	1	0	*	*	*	*	*	*	*	*	*	*	1	0
02:00	0	0	0	0	*	*	*	*	*	*	*	*	*	*	0	0
03:00	0	0	0	0	*	*	*	*	*	*	*	*	*	*	0	0
04:00	2	1	3	1	*	*	*	*	*	*	*	*	*	*	2	1
05:00	9	1	12	7	*	*	*	*	*	*	*	*	*	*	10	4
06:00	31	21	38	24	*	*	*	*	*	*	*	*	*	*	34	22
07:00	**102**	**149**	**113**	**138**	*	*	*	*	*	*	*	*	*	*	**108**	**144**
08:00	73	81	73	67	*	*	*	*	*	*	*	*	*	*	73	74
09:00	38	48	49	36	*	*	*	*	*	*	*	*	*	*	44	42
10:00	36	24	36	22	*	*	*	*	*	*	*	*	*	*	36	23
11:00	37	32	44	31	*	*	*	*	*	*	*	*	*	*	40	32
12:00 PM	39	26	45	36	*	*	*	*	*	*	*	*	*	*	42	31
01:00	32	31	47	45	*	*	*	*	*	*	*	*	*	*	40	38
02:00	**84**	52	**95**	66	*	*	*	*	*	*	*	*	*	*	**90**	59
03:00	63	76	76	70	*	*	*	*	*	*	*	*	*	*	70	73
04:00	71	**82**	60	67	*	*	*	*	*	*	*	*	*	*	66	74
05:00	83	77	86	**93**	*	*	*	*	*	*	*	*	*	*	84	**85**
06:00	42	38	52	78	*	*	*	*	*	*	*	*	*	*	47	58
07:00	43	33	75	65	*	*	*	*	*	*	*	*	*	*	59	49
08:00	11	15	25	35	*	*	*	*	*	*	*	*	*	*	18	25
09:00	15	9	30	22	*	*	*	*	*	*	*	*	*	*	22	16
10:00	2	5	9	4	*	*	*	*	*	*	*	*	*	*	6	4
11:00	2	2	1	4	*	*	*	*	*	*	*	*	*	*	2	3
Total	816	804	970	912	0	0	0	0	0	0	0	0	0	0	894	857
Day	1620		1882		0		0		0		0		0		1751	
AM Peak	07:00	07:00	07:00	07:00											07:00	07:00
Vol.	102	149	113	138											108	144
PM Peak	14:00	16:00	14:00	17:00											14:00	17:00
Vol.	84	82	95	93											90	85

Comb. Total	1620	1882	0	0	0	0	0	1751

ADT ADT 1,751 AADT 1,751

PRECISION
D A T A
INDUSTRIES, LLC
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Email: datarequests@pdillc.com

Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B volume
Site Code: TBA

Start	NB				SB				Combined				05-Feb-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Tue
12:00	0		8		0		8		0		16		
12:15	0		12		0		12		0		24		
12:30	0		5		0		1		0		6		
12:45	0	0	14	39	0	0	5	26	0	0	19	65	
01:00	0		11		0		8		0		19		
01:15	0		6		0		7		0		13		
01:30	1		7		1		6		2		13		
01:45	0	1	8	32	0	1	10	31	0	2	18	63	
02:00	0		7		0		10		0		17		
02:15	0		10		0		20		0		30		
02:30	0		43		0		15		0		58		
02:45	0	0	24	84	0	0	7	52	0	0	31	136	
03:00	0		13		0		15		0		28		
03:15	0		12		0		21		0		33		
03:30	0		18		0		19		0		37		
03:45	0	0	20	63	0	0	21	76	0	0	41	139	
04:00	0		25		0		15		0		40		
04:15	0		15		0		13		0		28		
04:30	2		16		1		18		3		34		
04:45	0	2	15	71	0	1	36	82	0	3	51	153	
05:00	1		28		0		22		1		50		
05:15	0		25		1		17		1		42		
05:30	3		17		0		16		3		33		
05:45	5	9	13	83	0	1	22	77	5	10	35	160	
06:00	2		12		3		16		5		28		
06:15	8		15		1		7		9		22		
06:30	8		6		6		6		14		12		
06:45	13	31	9	42	11	21	9	38	24	52	18	80	
07:00	13		18		16		11		29		29		
07:15	17		6		27		14		44		20		
07:30	29		13		28		6		57		19		
07:45	43	102	6	43	78	149	2	33	121	251	8	76	
08:00	31		4		29		1		60		5		
08:15	17		3		19		8		36		11		
08:30	13		1		14		4		27		5		
08:45	12	73	3	11	19	81	2	15	31	154	5	26	
09:00	10		7		17		5		27		12		
09:15	12		4		13		1		25		5		
09:30	9		3		12		2		21		5		
09:45	7	38	1	15	6	48	1	9	13	86	2	24	
10:00	10		0		7		1		17		1		
10:15	5		1		4		0		9		1		
10:30	10		1		6		1		16		2		
10:45	11	36	0	2	7	24	3	5	18	60	3	7	
11:00	9		0		8		0		17		0		
11:15	15		0		8		1		23		1		
11:30	8		2		8		0		16		2		
11:45	5	37	0	2	8	32	1	2	13	69	1	4	
Total	329		487		358		446		687		933		
Percent	47.9%		52.2%		52.1%		47.8%						
Day Total		816				804				1620			
Peak	07:15		02:30		07:15		04:30		07:15		04:30		
Vol.	120		92		162		93		282		177		
P.H.F.	0.698		0.535		0.519		0.646		0.583		0.868		

PRECISION
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Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B volume
Site Code: TBA

Start	NB				SB				Combined				06-Feb-13
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	0		9		1		9		1		18		
12:15	0		12		0		10		0		22		
12:30	0		17		0		10		0		27		
12:45	0	0	7	45	0	1	7	36	0	1	14	81	
01:00	1		11		0		10		1		21		
01:15	0		15		0		12		0		27		
01:30	0		9		0		6		0		15		
01:45	0	1	12	47	0	0	17	45	0	1	29	92	
02:00	0		6		0		16		0		22		
02:15	0		14		0		24		0		38		
02:30	0		53		0		17		0		70		
02:45	0	0	22	95	0	0	9	66	0	0	31	161	
03:00	0		22		0		16		0		38		
03:15	0		15		0		16		0		31		
03:30	0		12		0		8		0		20		
03:45	0	0	27	76	0	0	30	70	0	0	57	146	
04:00	0		19		0		16		0		35		
04:15	0		12		0		18		0		30		
04:30	2		14		0		9		2		23		
04:45	1	3	15	60	1	1	24	67	2	4	39	127	
05:00	0		18		1		23		1		41		
05:15	1		32		1		22		2		54		
05:30	6		18		2		27		8		45		
05:45	5	12	18	86	3	7	21	93	8	19	39	179	
06:00	2		14		4		21		6		35		
06:15	8		12		2		13		10		25		
06:30	7		8		3		15		10		23		
06:45	21	38	18	52	15	24	29	78	36	62	47	130	
07:00	28		15		19		15		47		30		
07:15	13		32		18		15		31		47		
07:30	17		15		33		25		50		40		
07:45	55	113	13	75	68	138	10	65	123	251	23	140	
08:00	26		2		28		11		54		13		
08:15	14		10		11		7		25		17		
08:30	15		1		14		10		29		11		
08:45	18	73	12	25	14	67	7	35	32	140	19	60	
09:00	11		2		13		11		24		13		
09:15	12		16		8		6		20		22		
09:30	10		8		9		3		19		11		
09:45	16	49	4	30	6	36	2	22	22	85	6	52	
10:00	12		2		7		2		19		4		
10:15	9		2		8		1		17		3		
10:30	7		3		3		1		10		4		
10:45	8	36	2	9	4	22	0	4	12	58	2	13	
11:00	9		1		8		2		17		3		
11:15	18		0		7		1		25		1		
11:30	10		0		10		1		20		1		
11:45	7	44	0	1	6	31	0	4	13	75	0	5	
Total	369		601		327		585		696		1186		
Percent	53.0%		50.7%		47.0%		49.3%						
Day Total		970				912				1882			
Peak	07:00		02:30		07:15		04:45		07:15		04:45		
Vol.	113		112		147		96		258		179		
P.H.F.	0.514		0.528		0.540		0.889		0.524		0.639		

PRECISION
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Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B class
Site Code: TBA

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
02/05/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
05:00	0	7	1	0	1	0	0	0	0	0	0	0	0	9
06:00	0	26	4	0	1	0	0	0	0	0	0	0	0	31
07:00	0	87	11	1	3	0	0	0	0	0	0	0	0	102
08:00	0	52	18	0	3	0	0	0	0	0	0	0	0	73
09:00	0	31	5	0	1	1	0	0	0	0	0	0	0	38
10:00	0	23	12	0	1	0	0	0	0	0	0	0	0	36
11:00	0	26	8	0	3	0	0	0	0	0	0	0	0	37
12 PM	0	29	9	0	1	0	0	0	0	0	0	0	0	39
13:00	0	26	4	0	2	0	0	0	0	0	0	0	0	32
14:00	0	61	21	0	2	0	0	0	0	0	0	0	0	84
15:00	0	45	15	1	2	0	0	0	0	0	0	0	0	63
16:00	0	51	17	0	3	0	0	0	0	0	0	0	0	71
17:00	0	67	14	0	2	0	0	0	0	0	0	0	0	83
18:00	0	31	11	0	0	0	0	0	0	0	0	0	0	42
19:00	0	29	13	0	1	0	0	0	0	0	0	0	0	43
20:00	0	5	6	0	0	0	0	0	0	0	0	0	0	11
21:00	0	10	5	0	0	0	0	0	0	0	0	0	0	15
22:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
23:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	610	177	2	26	1	0	0	0	0	0	0	0	816
Percent	0.0%	74.8%	21.7%	0.2%	3.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	08:00	07:00	07:00	09:00								07:00
Vol.		87	18	1	3	1								102
Midday Peak		14:00	14:00		11:00									14:00
Vol.		61	21		3									84
PM Peak		17:00	16:00	15:00	16:00									17:00
Vol.		67	17	1	3									83

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Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B class
Site Code: TBA

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
02/06/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	1	0	0	0	0	0	0	0	0	0	0	3
05:00	0	7	3	0	2	0	0	0	0	0	0	0	0	12
06:00	0	26	8	0	4	0	0	0	0	0	0	0	0	38
07:00	1	90	20	0	1	0	0	1	0	0	0	0	0	113
08:00	0	60	11	0	2	0	0	0	0	0	0	0	0	73
09:00	0	34	12	0	3	0	0	0	0	0	0	0	0	49
10:00	0	27	8	0	1	0	0	0	0	0	0	0	0	36
11:00	0	29	15	0	0	0	0	0	0	0	0	0	0	44
12 PM	0	29	15	0	0	1	0	0	0	0	0	0	0	45
13:00	0	38	9	0	0	0	0	0	0	0	0	0	0	47
14:00	0	74	19	0	2	0	0	0	0	0	0	0	0	95
15:00	1	52	18	1	4	0	0	0	0	0	0	0	0	76
16:00	0	41	18	0	1	0	0	0	0	0	0	0	0	60
17:00	0	58	26	0	2	0	0	0	0	0	0	0	0	86
18:00	0	40	9	0	3	0	0	0	0	0	0	0	0	52
19:00	0	54	18	0	3	0	0	0	0	0	0	0	0	75
20:00	0	18	7	0	0	0	0	0	0	0	0	0	0	25
21:00	0	19	9	0	1	0	0	1	0	0	0	0	0	30
22:00	0	6	3	0	0	0	0	0	0	0	0	0	0	9
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	706	229	1	29	1	0	2	0	0	0	0	0	970
Percent	0.2%	72.8%	23.6%	0.1%	3.0%	0.1%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	07:00		06:00			07:00						07:00
Vol.	1	90	20		4			1						113
Midday Peak		14:00	14:00		14:00	12:00								14:00
Vol.		74	19		2	1								95
PM Peak	15:00	17:00	17:00	15:00	15:00			21:00						17:00
Vol.	1	58	26	1	4			1						86

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133207 B class
Site Code: TBA

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
02/05/1														
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	1	0	0	0	0	0	0	0	0	0	0	0	1
06:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
07:00	0	126	17	1	5	0	0	0	0	0	0	0	0	149
08:00	0	64	12	1	3	0	0	1	0	0	0	0	0	81
09:00	0	35	10	0	2	1	0	0	0	0	0	0	0	48
10:00	0	17	7	0	0	0	0	0	0	0	0	0	0	24
11:00	0	24	8	0	0	0	0	0	0	0	0	0	0	32
12 PM	0	23	3	0	0	0	0	0	0	0	0	0	0	26
13:00	0	23	6	0	2	0	0	0	0	0	0	0	0	31
14:00	0	41	9	0	1	1	0	0	0	0	0	0	0	52
15:00	0	61	14	1	0	0	0	0	0	0	0	0	0	76
16:00	0	72	9	0	1	0	0	0	0	0	0	0	0	82
17:00	0	61	16	0	0	0	0	0	0	0	0	0	0	77
18:00	0	29	8	0	1	0	0	0	0	0	0	0	0	38
19:00	0	25	8	0	0	0	0	0	0	0	0	0	0	33
20:00	0	12	3	0	0	0	0	0	0	0	0	0	0	15
21:00	0	5	4	0	0	0	0	0	0	0	0	0	0	9
22:00	0	3	2	0	0	0	0	0	0	0	0	0	0	5
23:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	641	142	3	15	2	0	1	0	0	0	0	0	804
Percent	0.0%	79.7%	17.7%	0.4%	1.9%	0.2%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	07:00	07:00	09:00		08:00						07:00
Vol.		126	17	1	5	1		1						149
Midday Peak		14:00	14:00		13:00	14:00								14:00
Vol.		41	9		2	1								52
PM Peak		16:00	17:00	15:00	16:00									16:00
Vol.		72	16	1	1									82

PRECISION
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133207 B class
Site Code: TBA

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
02/06/1														
3	0	1	0	0	0	0	0	0	0	0	0	0	0	1
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1
05:00	0	4	2	0	1	0	0	0	0	0	0	0	0	7
06:00	0	18	6	0	0	0	0	0	0	0	0	0	0	24
07:00	0	114	22	1	0	0	0	1	0	0	0	0	0	138
08:00	0	55	9	1	2	0	0	0	0	0	0	0	0	67
09:00	0	24	9	0	3	0	0	0	0	0	0	0	0	36
10:00	0	17	4	0	1	0	0	0	0	0	0	0	0	22
11:00	0	21	8	1	1	0	0	0	0	0	0	0	0	31
12 PM	0	28	7	0	0	1	0	0	0	0	0	0	0	36
13:00	0	39	5	0	1	0	0	0	0	0	0	0	0	45
14:00	0	47	17	0	2	0	0	0	0	0	0	0	0	66
15:00	0	50	18	1	1	0	0	0	0	0	0	0	0	70
16:00	0	52	12	0	2	0	0	0	1	0	0	0	0	67
17:00	0	76	16	0	1	0	0	0	0	0	0	0	0	93
18:00	0	59	15	0	3	1	0	0	0	0	0	0	0	78
19:00	0	51	14	0	0	0	0	0	0	0	0	0	0	65
20:00	0	24	11	0	0	0	0	0	0	0	0	0	0	35
21:00	0	18	4	0	0	0	0	0	0	0	0	0	0	22
22:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
23:00	0	3	1	0	0	0	0	0	0	0	0	0	0	4
Total	0	704	182	4	18	2	0	1	1	0	0	0	0	912
Percent	0.0%	77.2%	20.0%	0.4%	2.0%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	07:00	07:00	09:00			07:00						07:00
Vol.		114	22	1	3			1						138
Midday Peak		14:00	14:00	11:00	14:00	12:00								14:00
Vol.		47	17	1	2	1								66
PM Peak		17:00	15:00	15:00	18:00	18:00			16:00					17:00
Vol.		76	18	1	3	1			1					93

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

Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B speed
Site Code: TBA

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
02/05/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	1	0	0	0	0	0	0	0	0	1	*	32
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	1	1	0	0	0	0	0	0	2	*	39
05:00	0	**1**	1	1	4	0	1	**1**	0	0	0	0	0	9	32	30
06:00	0	1	3	13	7	7	0	0	0	0	0	0	0	31	35	29
07:00	0	0	4	**29**	**45**	**22**	2	0	0	0	0	0	0	**102**	35	31
08:00	0	0	**7**	19	30	13	**4**	0	0	0	0	0	0	73	36	31
09:00	0	0	0	7	19	11	1	0	0	0	0	0	0	38	36	33
10:00	0	1	4	5	12	12	2	0	0	0	0	0	0	36	37	32
11:00	**1**	0	0	5	11	**18**	1	**1**	0	0	0	0	0	37	37	33
12 PM	0	0	2	10	12	11	**4**	0	0	0	0	0	0	39	38	33
13:00	0	0	2	8	9	12	1	0	0	0	0	0	0	32	37	32
14:00	0	0	**5**	**28**	**34**	13	4	0	0	0	0	0	0	**84**	35	31
15:00	0	0	**5**	**19**	22	13	4	0	0	0	0	0	0	63	36	31
16:00	0	0	2	11	32	21	4	**1**	0	0	0	0	0	71	37	33
17:00	0	0	3	12	**36**	**28**	3	1	0	0	0	0	0	**83**	37	33
18:00	0	0	1	7	19	14	1	0	0	0	0	0	0	42	37	33
19:00	0	**3**	2	5	15	12	**5**	0	**1**	0	0	0	0	43	38	32
20:00	0	0	0	5	4	1	0	1	0	0	0	0	0	11	32	32
21:00	0	0	0	5	5	5	0	0	0	0	0	0	0	15	36	32
22:00	0	0	0	1	0	1	0	0	0	0	0	0	0	2	*	32
23:00	0	0	0	1	0	1	0	0	0	0	0	0	0	2	*	32
Total	1	6	41	191	317	216	38	5	1	0	0	0	0	816		
%	0.1%	0.7%	5.0%	23.4%	38.8%	26.5%	4.7%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak		05:00	08:00	07:00	07:00	07:00	08:00	05:00						07:00		
Vol.		1	7	29	45	22	4	1						102		
Midday Peak	11:00		14:00	14:00	14:00	11:00	12:00	11:00						14:00		
Vol.	1		5	28	34	18	4	1						84		
PM Peak		19:00	15:00	15:00	17:00	17:00	19:00	16:00	19:00					17:00		
Vol.		3	5	19	36	28	5	1	1					83		

% iles

15th Percentile :	25 MPH
50th Percentile :	31 MPH
85th Percentile :	37 MPH
95th Percentile :	40 MPH

Stats

10 MPH Pace Speed :	28-37 MPH
Number in Pace :	521
Percent in Pace :	63.8%
Number of Vehicles > 35 MPH :	220
Percent of Vehicles > 35 MPH :	26.9%
Mean Speed(Average) :	32 MPH

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

Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B speed
Site Code: TBA

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
02/06/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1	*	37
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	3	0	0	0	0	0	0	0	0	3	31	32
05:00	0	**1**	1	5	3	1	1	0	0	0	0	0	0	12	30	28
06:00	0	0	**3**	16	10	9	0	0	0	0	0	0	0	38	35	30
07:00	0	0	2	**34**	**54**	21	2	0	0	0	0	0	0	**113**	35	31
08:00	0	0	1	14	31	**23**	4	0	0	0	0	0	0	73	37	33
09:00	0	1	0	6	20	16	**6**	0	0	0	0	0	0	49	39	34
10:00	0	0	1	3	17	11	4	0	0	0	0	0	0	36	38	34
11:00	0	0	5	3	10	**18**	**8**	0	0	0	0	0	0	44	40	34
12 PM	0	0	2	8	14	17	3	**1**	0	0	0	0	0	45	38	34
13:00	0	**1**	3	6	16	16	3	1	**1**	0	0	0	0	47	38	33
14:00	0	0	**6**	**29**	**40**	17	3	0	0	0	0	0	0	**95**	35	31
15:00	0	0	2	**18**	30	23	3	0	0	0	0	0	0	76	36	32
16:00	0	**2**	2	8	18	24	**5**	**1**	0	0	0	0	0	60	38	33
17:00	0	0	**3**	13	37	**29**	4	0	0	0	0	0	0	**86**	37	33
18:00	0	0	3	11	20	13	5	0	0	0	0	0	0	52	38	33
19:00	0	0	2	10	**42**	18	3	0	0	0	0	0	0	75	36	33
20:00	0	0	0	7	8	10	0	0	0	0	0	0	0	25	37	33
21:00	0	0	1	6	19	3	1	0	0	0	0	0	0	30	34	32
22:00	0	0	0	0	4	4	0	1	0	0	0	0	0	9	36	36
23:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1	*	37
Total	0	5	37	197	396	275	55	4	1	0	0	0	0	970		
%	0.0%	0.5%	3.8%	20.3%	40.8%	28.4%	5.7%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak		05:00	06:00	07:00	07:00	08:00	09:00							07:00		
Vol.		1	3	34	54	23	6							113		
Midday Peak		13:00	14:00	14:00	14:00	11:00	11:00	12:00	13:00					14:00		
Vol.		1	6	29	40	18	8	1	1					95		
PM Peak		16:00	17:00	15:00	19:00	17:00	16:00	16:00						17:00		
Vol.		2	3	18	42	29	5	1						86		

% iles

15th Percentile : 26 MPH
50th Percentile : 32 MPH
85th Percentile : 37 MPH
95th Percentile : 40 MPH

Stats

10 MPH Pace Speed : 28-37 MPH
Number in Pace : 638
Percent in Pace : 65.8%
Number of Vehicles > 35 MPH : 284
Percent of Vehicles > 35 MPH : 29.3%
Mean Speed(Average) : 33 MPH

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

Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B speed
Site Code: TBA

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
02/05/1																
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1	*	37
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	*	27
05:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	*	27
06:00	0	0	0	9	9	3	0	0	0	0	0	0	0	21	33	31
07:00	0	0	**6**	**36**	**69**	**34**	**4**	0	0	0	0	0	0	**149**	36	32
08:00	0	0	6	17	34	22	2	0	0	0	0	0	0	81	36	32
09:00	0	**1**	2	6	17	17	4	**1**	0	0	0	0	0	48	38	33
10:00	0	1	1	5	10	7	0	0	0	0	0	0	0	24	36	31
11:00	0	**1**	0	10	6	10	4	1	0	0	0	0	0	32	39	33
12 PM	0	0	1	5	5	**13**	0	**2**	0	0	0	0	0	26	38	34
13:00	0	0	0	5	9	11	**5**	1	0	0	0	0	0	31	40	35
14:00	0	0	**2**	**17**	**18**	10	5	0	0	0	0	0	0	**52**	37	32
15:00	0	**1**	2	12	35	23	3	0	0	0	0	0	0	76	37	33
16:00	0	0	**5**	8	**38**	**25**	**6**	0	0	0	0	0	0	**82**	37	33
17:00	0	0	2	**13**	32	24	6	0	0	0	0	0	0	77	37	33
18:00	0	0	0	3	17	14	4	0	0	0	0	0	0	38	38	35
19:00	0	0	1	6	17	7	2	0	0	0	0	0	0	33	36	32
20:00	0	0	2	7	4	2	0	0	0	0	0	0	0	15	33	29
21:00	0	0	1	0	5	3	0	0	0	0	0	0	0	9	35	33
22:00	0	0	1	0	3	1	0	0	0	0	0	0	0	5	32	31
23:00	0	0	0	1	0	1	0	0	0	0	0	0	0	2	*	32
Total	0	4	32	162	328	228	45	5	0	0	0	0	0	804		
%	0.0%	0.5%	4.0%	20.1%	40.8%	28.4%	5.6%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak		09:00	07:00	07:00	07:00	07:00	07:00	09:00						07:00		
Vol.		1	6	36	69	34	4	1						149		
Midday Peak		11:00	14:00	14:00	14:00	12:00	13:00	12:00						14:00		
Vol.		1	2	17	18	13	5	2						52		
PM Peak		15:00	16:00	17:00	16:00	16:00	16:00							16:00		
Vol.		1	5	13	38	25	6							82		

% iles

15th Percentile : 26 MPH
50th Percentile : 32 MPH
85th Percentile : 37 MPH
95th Percentile : 40 MPH

Stats

10 MPH Pace Speed : 28-37 MPH
Number in Pace : 528
Percent in Pace : 65.7%
Number of Vehicles > 35 MPH : 236
Percent of Vehicles > 35 MPH : 29.3%
Mean Speed(Average) : 33 MPH

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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Deerfoot Road
approx 1600' south of Main Street (Route 30)
City, State: Southborough, MA
Client: Green International/ S. Musto

133207 B speed
Site Code: TBA

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
02/06/1																
3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	*	37
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	1	0	0	0	0	0	0	0	0	0	0	1	*	22
05:00	0	0	1	5	1	0	0	0	0	0	0	0	0	7	28	27
06:00	0	0	1	7	9	6	1	0	0	0	0	0	0	24	36	32
07:00	0	0	6	**25**	**68**	**32**	**7**	0	0	0	0	0	0	**138**	36	32
08:00	0	**1**	**9**	11	14	27	5	0	0	0	0	0	0	67	38	32
09:00	0	0	2	9	11	13	1	0	0	0	0	0	0	36	37	32
10:00	0	0	0	3	8	8	3	0	0	0	0	0	0	22	38	34
11:00	0	0	1	4	12	12	2	0	0	0	0	0	0	31	37	34
12 PM	0	0	0	4	17	11	**4**	0	0	0	0	0	0	36	38	34
13:00	0	0	0	6	14	**22**	3	0	0	0	0	0	0	45	38	34
14:00	0	0	**6**	**14**	**23**	17	4	**2**	0	0	0	0	0	**66**	37	32
15:00	0	0	1	**17**	26	20	**6**	0	0	0	0	0	0	70	37	33
16:00	0	0	1	10	34	13	5	**4**	0	0	0	0	0	67	38	34
17:00	0	0	**3**	12	**48**	**25**	5	0	0	0	0	0	0	**93**	37	33
18:00	0	0	0	13	33	25	3	2	**2**	0	0	0	0	78	37	34
19:00	0	0	1	13	25	22	4	0	0	0	0	0	0	65	37	33
20:00	0	0	0	7	14	10	4	0	0	0	0	0	0	35	38	34
21:00	0	0	1	5	5	7	3	0	0	0	**1**	0	0	22	39	35
22:00	0	0	0	1	2	0	1	0	0	0	0	0	0	4	*	33
23:00	0	0	0	0	1	3	0	0	0	0	0	0	0	4	36	36
Total	0	1	34	166	365	274	61	8	2	0	1	0	0	912		
%	0.0%	0.1%	3.7%	18.2%	40.0%	30.0%	6.7%	0.9%	0.2%	0.0%	0.1%	0.0%	0.0%			
AM Peak		08:00	08:00	07:00	07:00	07:00	07:00							07:00		
Vol.		1	9	25	68	32	7							138		
Midday Peak			14:00	14:00	14:00	13:00	12:00	14:00						14:00		
Vol.			6	14	23	22	4	2						66		
PM Peak			17:00	15:00	17:00	17:00	15:00	16:00	18:00		21:00			17:00		
Vol.			3	17	48	25	6	4	2		1			93		

% iles
15th Percentile : 27 MPH
50th Percentile : 32 MPH
85th Percentile : 37 MPH
95th Percentile : 41 MPH

Stats
10 MPH Pace Speed : 29-38 MPH
Number in Pace : 601
Percent in Pace : 65.9%
Number of Vehicles > 35 MPH : 295
Percent of Vehicles > 35 MPH : 32.3%
Mean Speed(Average) : 33 MPH

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough | COUNT DATE : 5/30/2013

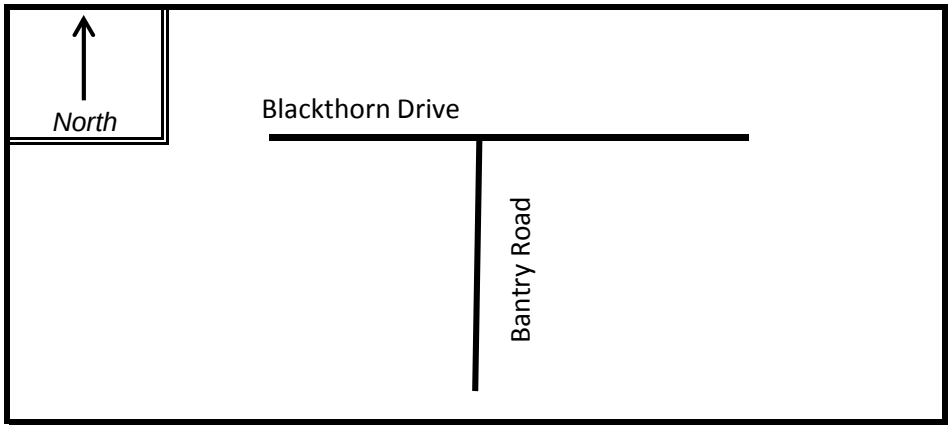
DISTRICT : 3 | UNSIGNALIZED : X | SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Blackthorn Drive

MINOR STREET(S) : Bantry Road

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 (PM) :	11	0	6	17		34

" K " FACTOR : **0.096**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **353**

TOTAL # OF CRASHES : 0

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.00**

CRASH RATE CALCULATION : **0.00**

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

Comments :

Project Title & Date: Proposed Park Central 40B Residential Project

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough COUNT DATE : 2013

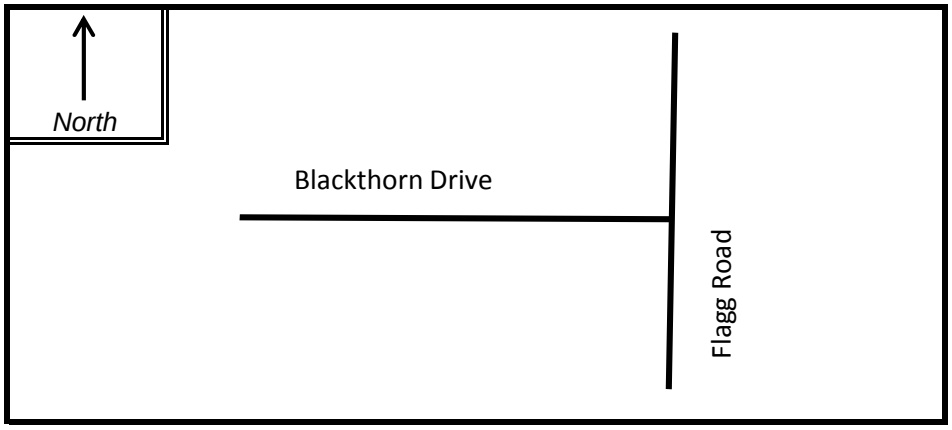
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Flagg Road

MINOR STREET(S) : Blackthorn Drive

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 (PM) :	34	53	16	0		103

" K " FACTOR : **0.071**

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **1,460**

TOTAL # OF CRASHES : 1

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : **0.63**

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

Comments : below the District 3 crash average

Project Title & Date: Proposed Park Central 40B Residential Project

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough COUNT DATE : 2013

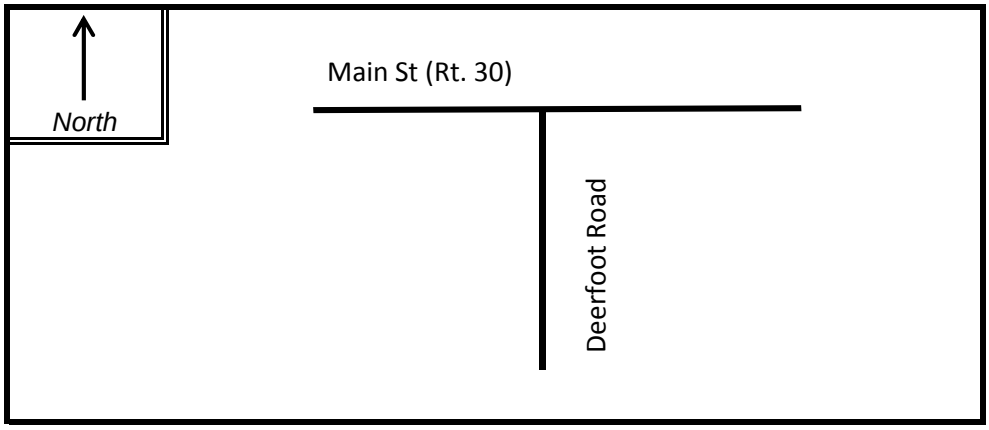
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Main Street (Route 30)

MINOR STREET(S) : Deerfoot Road

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 (PM) :	77	0	360	647		1,084

" K " FACTOR : **0.090** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **12,044**

TOTAL # OF CRASHES : 1 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **0.33**

CRASH RATE CALCULATION : **0.08** RATE = (A * 1,000,000) / (V * 365) (

Comments : below the District 3 crash average

Project Title & Date: Proposed Park Central 40B Residential Project

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough | COUNT DATE : 2013

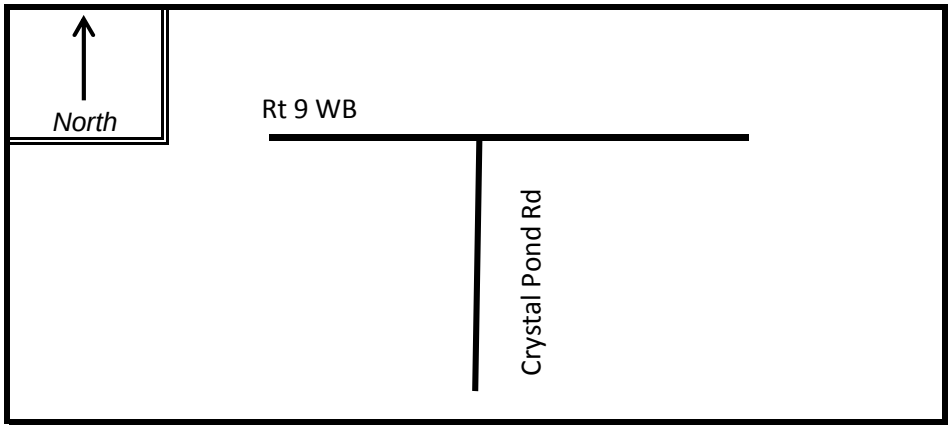
DISTRICT : 3 | UNSIGNALIZED : | SIGNALIZED : X

~ INTERSECTION DATA ~

MAJOR STREET : Rt 9

MINOR STREET(S) : Crystal Pond Rd

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 (PM) :	227	0	2,210	2,273		**4,710**

" K " FACTOR : **0.085** | INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **55,412**

TOTAL # OF CRASHES : 20 | # OF YEARS : 3 | AVERAGE # OF CRASHES PER YEAR (**A**) : **6.67**

CRASH RATE CALCULATION : **0.33**

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

Comments :

Project Title & Date: Proposed Park Central 40B Residential Project

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough COUNT DATE : 2013

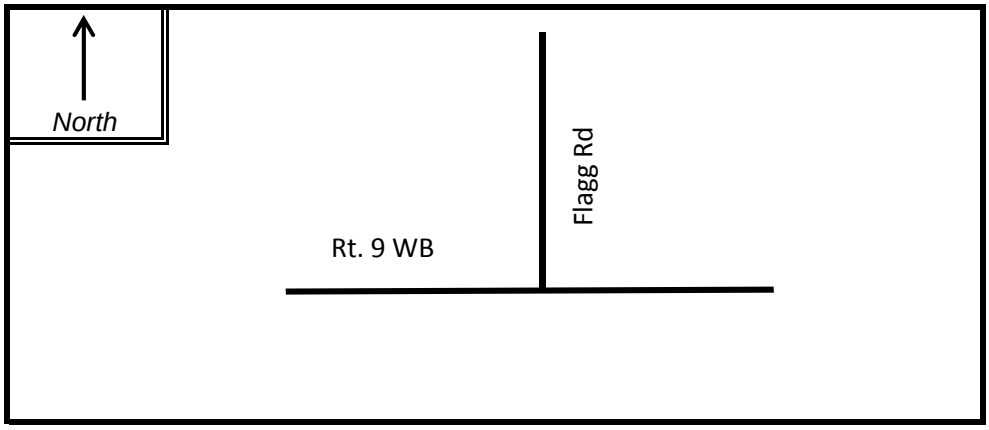
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 9

MINOR STREET(S) : Flagg Road

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 (PM) :	0	42	0	2,743		**2,785**

" K " FACTOR : **0.085** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **32,765**

TOTAL # OF CRASHES : 4 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **1.33**

CRASH RATE CALCULATION : **0.11** RATE = $\frac{(A * 1{,}000{,}000)}{V * 365}$ (

Comments : below the District 3 crash average

Project Title & Date: Proposed Park Central 40B Residential Project

INTERSECTION CRASH RATE WORKSHEET

CITY/TOWN : Southborough COUNT DATE : 2013

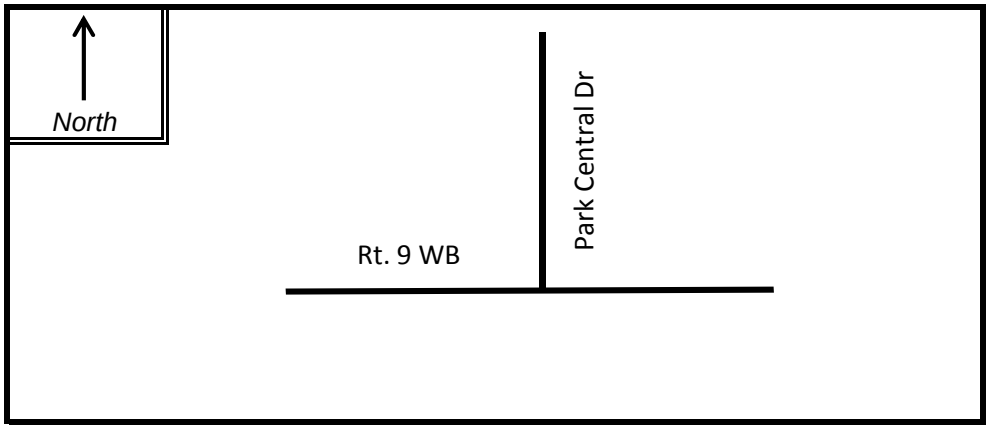
DISTRICT : 3 UNSIGNALIZED : X SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 9

MINOR STREET(S) : Park Central Drive

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 (PM) :	0	160	0	2,740		**2,900**

" K " FACTOR : **0.085** INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **34,118**

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

CRASH RATE CALCULATION : **0.00** RATE = (A * 1,000,000) / (V * 365) (

Comments : below the District 3 crash average

Project Title & Date: Proposed Park Central 40B Residential Project

TRIP GENERATION WORKSHEET

LAND USE: *Residential Condominium*
LAND USE CODE: 230 Independant Variable---Trips per Dwelling Unit

PROJECT NAME: Park Central 40B
JOB NUMBER: 12059 Number of Units: 180

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	5.81	1.53	11.79	50%	50%	56
AM PEAK	0.44	0.15	1.61	17%	83%	59
PM PEAK	0.52	0.18	1.24	67%	33%	62
PK GEN AM	0.44	0.15	0.97	19%	81%	54
PK GEN PM	0.52	0.18	1.24	64%	36%	52

	BY AVERAGE			BY REGRESSION*			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	1046	523	523	1073	537	537	0.80
AM PEAK	79	13	66	83	14	69	0.76
PM PEAK	94	63	31	97	65	32	0.80
PK GEN AM	79	15	64	82	16	66	0.80
PK GEN PM	94	60	34	97	62	35	0.82

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	5.67	1.17	11.4	50%	50%	30
PEAK HR	0.47	0.14	0.93	54%	46%	27

	BY AVERAGE			BY REGRESSION*			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	1021	511	511	1080	540	540	0.84
PEAK HR	85	46	39	95	51	44	0.84

* Use with caution. Regression not valid for small developments.

SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	4.84	1.36	8.56	50%	50%	30
PEAK HR	0.45	0.16	1.07	49%	51%	27

	BY AVERAGE			BY REGRESSION*			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	871	436	436	921	460	460	0.88
PEAK HR	81	40	41	91	45	47	0.78

* Use with caution. Regression not valid for small developments.

SOURCE: Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*6*	*0*	*6*	*11*	
Peak-Hour Factor, PHF	*1.00*	*0.71*	*0.71*	*0.71*	*0.71*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*8*	*0*	*8*	*15*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*11*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.71*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*15*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*8*		*15*				
C (m) (veh/h)		*1625*		*1080*				
v/c		*0.00*		*0.01*				
95% queue length		*0.01*		*0.04*				
Control Delay (s/veh)		*7.2*		*8.4*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.4*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing Conditions*
Analysis Time Period	*AM Peak Hour*		

Project Description	*12059 Park Central 40B Southborough*
East/West Street: *Route 9*	North/South Street: *Park Central*
Intersection Orientation: *East-West*	Study Period (hrs): *0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2240*	*33*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.95*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2357*	*38*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*129*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*151*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*151*
C (m) (veh/h)								*235*
v/c								*0.64*
95% queue length								*3.93*
Control Delay (s/veh)								*44.3*
LOS								*E*
Approach Delay (s/veh)	--	--				*44.3*		
Approach LOS	--	--				*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*wjs*	Intersection	*Flagg Road at Rt 9*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*11/11/12*	Analysis Year	*Existing Conditions*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2208*	*28*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2324*	*29*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*66*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*69*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*69*
C (m) (veh/h)								*240*
v/c								*0.29*
95% queue length								*1.15*
Control Delay (s/veh)								*25.9*
LOS								*D*
Approach Delay (s/veh)	--	--				*25.9*		
Approach LOS	--	--				*D*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*529*	*83*	*53*	*246*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*678*	*106*	*67*	*315*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*51*	*0*	*71*			
Peak-Hour Factor, PHF	*0.78*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*65*	*0*	*91*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*67*		*156*				
C (m) (veh/h)		*843*		*285*				
v/c		*0.08*		*0.55*				
95% queue length		*0.26*		*3.05*				
Control Delay (s/veh)		*9.6*		*31.9*				
LOS		*A*		*D*				
Approach Delay (s/veh)	--	--		*31.9*				
Approach LOS	--	--		*D*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*7*	*25*			*64*	*6*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.50*	*1.00*	*0.79*	*0.79*
Hourly Flow Rate, HFR (veh/h)	*8*	*31*	*0*	*0*	*81*	*7*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*17*	*0*	*4*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*21*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*8*						*26*	
C (m) (veh/h)	*1520*						*883*	
v/c	*0.01*						*0.03*	
95% queue length	*0.02*						*0.09*	
Control Delay (s/veh)	*7.4*						*9.2*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.2*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*7*	*0*	*8*	*4*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*8*	*0*	*10*	*5*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*12*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*15*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*10*		*15*				
C (m) (veh/h)		*1625*		*1080*				
v/c		*0.01*		*0.01*				
95% queue length		*0.02*		*0.04*				
Control Delay (s/veh)		*7.2*		*8.4*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.4*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Park Central*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing Conditions*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Park Central Dr*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2725*	*15*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2868*	*15*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*160*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*168*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*168*
C (m) (veh/h)								*166*
v/c								*1.01*
95% queue length								*8.06*
Control Delay (s/veh)								*128.8*
LOS								*F*
Approach Delay (s/veh)	--	--				*128.8*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2699*	*44*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2841*	*46*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*42*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*44*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*44*
C (m) (veh/h)								*169*
v/c								*0.26*
95% queue length								*0.99*
Control Delay (s/veh)								*33.6*
LOS								*D*
Approach Delay (s/veh)	--	--				*33.6*		
Approach LOS	--	--				*D*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*320*	*40*	*53*	*594*	
Peak-Hour Factor, PHF	*1.00*	*0.89*	*0.89*	*0.89*	*0.89*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*359*	*44*	*59*	*667*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*26*	*0*	*51*			
Peak-Hour Factor, PHF	*0.89*	*1.00*	*0.89*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*29*	*0*	*57*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*59*		*86*				
C (m) (veh/h)		*1167*		*380*				
v/c		*0.05*		*0.23*				
95% queue length		*0.16*		*0.86*				
Control Delay (s/veh)		*8.2*		*17.2*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--		*17.2*				
Approach LOS	--	--		*C*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*Existing*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*7*	*27*			*47*	*10*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.50*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*8*	*33*	*0*	*0*	*58*	*12*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*10*	*0*	*6*			
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.81*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*12*	*0*	*7*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*8*						*19*	
C (m) (veh/h)	*1544*						*925*	
v/c	*0.01*						*0.02*	
95% queue length	*0.02*						*0.06*	
Control Delay (s/veh)	*7.3*						*9.0*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.0*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*wjs*	Intersection	*Flagg Road at Rt 9*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*03/17/13*	Analysis Year	*2018 No Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2310*	*29*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2431*	*30*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*69*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*72*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*72*
C (m) (veh/h)								*223*
v/c								*0.32*
95% queue length								*1.34*
Control Delay (s/veh)								*28.7*
LOS								*D*
Approach Delay (s/veh)	--	--				*28.7*		
Approach LOS	--	--				*D*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 NB*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*553*	*87*	*55*	*257*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*708*	*111*	*70*	*329*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*53*	*0*	*74*			
Peak-Hour Factor, PHF	*0.78*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*67*	*0*	*94*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*70*		*161*				
C (m) (veh/h)		*818*		*267*				
v/c		*0.09*		*0.60*				
95% queue length		*0.28*		*3.59*				
Control Delay (s/veh)		*9.8*		*37.0*				
LOS		*A*		*E*				
Approach Delay (s/veh)	--	--		*37.0*				
Approach LOS	--	--		*E*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 NB*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*7*	*26*			*67*	*6*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.50*	*1.00*	*0.79*	*0.79*
Hourly Flow Rate, HFR (veh/h)	*8*	*32*	*0*	*0*	*84*	*7*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*18*	*0*	*4*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*22*	*0*	*5*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*8*						*27*	
C (m) (veh/h)	*1517*						*877*	
v/c	*0.01*						*0.03*	
95% queue length	*0.02*						*0.10*	
Control Delay (s/veh)	*7.4*						*9.2*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.2*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 No Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*7*	*0*	*8*	*4*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*8*	*0*	*10*	*5*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*13*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*10*		*16*				
C (m) (veh/h)		*1625*		*1080*				
v/c		*0.01*		*0.01*				
95% queue length		*0.02*		*0.05*				
Control Delay (s/veh)		*7.2*		*8.4*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.4*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Park Central*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 No Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Park Central Dr*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2852*	*15*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*3002*	*15*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*168*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*176*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*176*
C (m) (veh/h)								*151*
v/c								*1.17*
95% queue length								*9.84*
Control Delay (s/veh)								*184.0*
LOS								*F*
Approach Delay (s/veh)	--	--				*184.0*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 No-Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2840*	*46*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2989*	*48*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*44*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*46*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*46*
C (m) (veh/h)								*153*
v/c								*0.30*
95% queue length								*1.18*
Control Delay (s/veh)								*38.3*
LOS								*E*
Approach Delay (s/veh)	--	--				*38.3*		
Approach LOS	--	--				*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 NB*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*335*	*42*	*55*	*621*	
Peak-Hour Factor, PHF	*1.00*	*0.89*	*0.89*	*0.89*	*0.89*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*376*	*47*	*61*	*697*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*27*	*0*	*53*			
Peak-Hour Factor, PHF	*0.89*	*1.00*	*0.89*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*30*	*0*	*59*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*61*		*89*				
C (m) (veh/h)		*1147*		*359*				
v/c		*0.05*		*0.25*				
95% queue length		*0.17*		*0.96*				
Control Delay (s/veh)		*8.3*		*18.3*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--		*18.3*				
Approach LOS	--	--		*C*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 NB*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*7*	*28*			*49*	*11*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.50*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*8*	*34*	*0*	*0*	*60*	*13*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*11*	*0*	*6*			
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.81*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*13*	*0*	*7*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*8*						*20*	
C (m) (veh/h)	*1540*						*919*	
v/c	*0.01*						*0.02*	
95% queue length	*0.02*						*0.07*	
Control Delay (s/veh)	*7.3*						*9.0*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--					*9.0*	
Approach LOS	--	--					*A*	

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 No Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*6*	*0*	*6*	*12*	
Peak-Hour Factor, PHF	*1.00*	*0.71*	*0.71*	*0.71*	*0.71*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*8*	*0*	*8*	*16*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*12*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.71*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*16*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*8*		*16*				
C (m) (veh/h)		*1625*		*1080*				
v/c		*0.00*		*0.01*				
95% queue length		*0.01*		*0.05*				
Control Delay (s/veh)		*7.2*		*8.4*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.4*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Park Central*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/13/13*	Analysis Year	*2018 No Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Park Central*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2363*	*34*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.95*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2487*	*39*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*135*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*158*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*158*
C (m) (veh/h)								*215*
v/c								*0.73*
95% queue length								*4.92*
Control Delay (s/veh)								*57.5*
LOS								*F*
Approach Delay (s/veh)	--	--				*57.5*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*22*	*0*	*39*	*44*	
Peak-Hour Factor, PHF	*1.00*	*0.71*	*0.71*	*0.71*	*0.71*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*30*	*0*	*54*	*61*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*28*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*1.00*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*28*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*54*		*28*				
C (m) (veh/h)		*1596*		*1050*				
v/c		*0.03*		*0.03*				
95% queue length		*0.11*		*0.08*				
Control Delay (s/veh)		*7.3*		*8.5*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.5*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Park Central*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Park Central*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2408*	*34*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.95*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2534*	*39*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*135*
Peak-Hour Factor, PHF	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*	*0.85*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*158*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*158*
C (m) (veh/h)								*208*
v/c								*0.76*
95% queue length								*5.18*
Control Delay (s/veh)								*62.3*
LOS								*F*
Approach Delay (s/veh)	--	--				*62.3*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Flagg Road at Rt 9*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2310*	*41*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2431*	*43*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*114*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*120*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*120*
C (m) (veh/h)								*223*
v/c								*0.54*
95% queue length								*2.86*
Control Delay (s/veh)								*38.5*
LOS								*E*
Approach Delay (s/veh)	--	--				*38.5*		
Approach LOS	--	--				*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*553*	*88*	*57*	*257*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*708*	*112*	*73*	*329*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*63*	*0*	*88*			
Peak-Hour Factor, PHF	*0.78*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*80*	*0*	*112*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*73*		*192*				
C (m) (veh/h)		*818*		*266*				
v/c		*0.09*		*0.72*				
95% queue length		*0.29*		*5.04*				
Control Delay (s/veh)		*9.8*		*47.1*				
LOS		*A*		*E*				
Approach Delay (s/veh)	--	--		*47.1*				
Approach LOS	--	--		*E*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*19*	*26*			*67*	*9*
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.50*	*1.00*	*0.79*	*0.79*
Hourly Flow Rate, HFR (veh/h)	*24*	*32*	*0*	*0*	*84*	*11*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*42*	*0*	*49*			
Peak-Hour Factor, PHF	*0.79*	*0.79*	*0.79*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*53*	*0*	*62*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*24*						*115*	
C (m) (veh/h)	*1512*						*892*	
v/c	*0.02*						*0.13*	
95% queue length	*0.05*						*0.44*	
Control Delay (s/veh)	*7.4*						*9.6*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--				*9.6*		
Approach LOS	--	--				*A*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Bantry Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*AM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Bantry Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*41*	*0*	*16*	*11*	
Peak-Hour Factor, PHF	*1.00*	*0.78*	*0.78*	*0.78*	*0.78*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*52*	*0*	*20*	*14*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*0*	*0*	*48*			
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.78*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*61*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*20*		*61*				
C (m) (veh/h)		*1567*		*1021*				
v/c		*0.01*		*0.06*				
95% queue length		*0.04*		*0.19*				
Control Delay (s/veh)		*7.3*		*8.7*				
LOS		*A*		*A*				
Approach Delay (s/veh)	--	--		*8.7*				
Approach LOS	--	--		*A*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Park Central*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Park Central Dr*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2875*	*15*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*3026*	*15*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*168*
Peak-Hour Factor, PHF	*0.91*	*0.91*	*0.91*	*0.91*	*0.91*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*176*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*176*
C (m) (veh/h)								*149*
v/c								*1.18*
95% queue length								*9.98*
Control Delay (s/veh)								*190.4*
LOS								*F*
Approach Delay (s/veh)	--	--				*190.4*		
Approach LOS	--	--				*F*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Route 9 at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Route 9*	North/South Street:	*Flagg Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)					*2840*	*97*
Peak-Hour Factor, PHF	*1.00*	*0.90*	*0.90*	*1.00*	*0.95*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*2989*	*102*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*2*	*1*
Configuration					*T*	*R*
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)						*67*
Peak-Hour Factor, PHF	*1.00*	*1.00*	*0.90*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*0*	*0*	*0*	*0*	*70*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*0*	*0*	*0*	*0*	*1*
Configuration						*R*

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration								*R*
v (veh/h)								*70*
C (m) (veh/h)								*153*
v/c								*0.46*
95% queue length								*2.10*
Control Delay (s/veh)								*47.0*
LOS								*E*
Approach Delay (s/veh)	--	--				*47.0*		
Approach LOS	--	--				*E*		

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Main St at Deerfoot Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Main St (Rt. 30)*	North/South Street:	*Deerfoot Road*
Intersection Orientation:	*East-West*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)		*335*	*48*	*63*	*621*	
Peak-Hour Factor, PHF	*1.00*	*0.89*	*0.89*	*0.89*	*0.89*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*0*	*376*	*53*	*70*	*697*	*0*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration			*TR*	*LT*		
Upstream Signal		*0*			*0*	

Minor Street	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*30*	*0*	*59*			
Peak-Hour Factor, PHF	*0.89*	*1.00*	*0.89*	*1.00*	*1.00*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*33*	*0*	*66*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Eastbound	Westbound	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration		*LT*		*LTR*				
v (veh/h)		*70*		*99*				
C (m) (veh/h)		*1141*		*353*				
v/c		*0.06*		*0.28*				
95% queue length		*0.20*		*1.13*				
Control Delay (s/veh)		*8.4*		*19.1*				
LOS		*A*		*C*				
Approach Delay (s/veh)	--	--		*19.1*				
Approach LOS	--	--		*C*				

TWO-WAY STOP CONTROL SUMMARY

General Information		Site Information	
Analyst	*YC*	Intersection	*Blackthorn Dr. at Flagg Rd*
Agency/Co.	*Green*	Jurisdiction	*Southborough*
Date Performed	*6/19/13*	Analysis Year	*2018 Build*
Analysis Time Period	*PM Peak Hour*		
Project Description	*12059 Park Central 40B Southborough*		
East/West Street:	*Blackthorn Dr*	North/South Street:	*Flagg Road*
Intersection Orientation:	*North-South*	Study Period (hrs):	*0.25*

Vehicle Volumes and Adjustments

Major Street	Northbound			Southbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume (veh/h)	*58*	*28*			*49*	*25*
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.50*	*1.00*	*0.81*	*0.81*
Hourly Flow Rate, HFR (veh/h)	*71*	*34*	*0*	*0*	*60*	*30*
Percent Heavy Vehicles	*0*	--	--	*0*	--	--
Median Type	*Undivided*					
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*1*	*0*
Configuration	*LT*					*TR*
Upstream Signal		*0*			*0*	

Minor Street	Eastbound			Westbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (veh/h)	*20*	*0*	*29*			
Peak-Hour Factor, PHF	*0.81*	*0.81*	*0.81*	*0.50*	*0.50*	*0.95*
Hourly Flow Rate, HFR (veh/h)	*24*	*0*	*35*	*0*	*0*	*0*
Percent Heavy Vehicles	*0*	*0*	*0*	*0*	*0*	*0*
Percent Grade (%)		*0*			*0*	
Flared Approach		*N*			*N*	
Storage		*0*			*0*	
RT Channelized			*0*			*0*
Lanes	*0*	*1*	*0*	*0*	*0*	*0*
Configuration		*LTR*				

Delay, Queue Length, and Level of Service

Approach	Northbound	Southbound	Westbound			Eastbound		
Movement	1	4	7	8	9	10	11	12
Lane Configuration	*LT*						*LTR*	
v (veh/h)	*71*						*59*	
C (m) (veh/h)	*1518*						*852*	
v/c	*0.05*						*0.07*	
95% queue length	*0.15*						*0.22*	
Control Delay (s/veh)	*7.5*						*9.5*	
LOS	*A*						*A*	
Approach Delay (s/veh)	--	--				*9.5*		
Approach LOS	--	--				*A*		

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	228	1956	26	59	5	2209	209	18
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	4.0	4.0	6.0	6.0	4.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	11.0	11.0	50.0	15.0	15.0
Total Split (s)	23.0	85.0	85.0	23.0	23.0	85.0	25.0	25.0
Total Split (%)	17.3%	63.9%	63.9%	17.3%	17.3%	63.9%	18.8%	18.8%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	18.0	77.5	77.5		18.0	77.5	13.6	13.6
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.11	0.11
v/c Ratio	4.20	0.98	0.03		1.17	0.77	0.61	0.11
Control Delay	1481.6	40.0	5.9		216.9	20.6	61.4	20.4
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1481.6	40.0	5.9		216.9	20.6	61.4	20.4
LOS	F	D	A		F	C	E	C
Approach Delay		188.4				26.0	58.1	
Approach LOS		F				C	E	

Intersection Summary	
Cycle Length: 133	
Actuated Cycle Length: 126.7	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.20	
Intersection Signal Delay: 103.8	Intersection LOS: F
Intersection Capacity Utilization 80.3%	ICU Level of Service D
Analysis Period (min) 15	

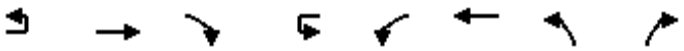
Splits and Phases: 2: Route 9 & Crystal Pond Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	248	2126	28	69	2401	227	20
v/c Ratio	4.20	0.98	0.03	1.17	0.77	0.61	0.11
Control Delay	1481.6	40.0	5.9	216.9	20.6	61.4	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1481.6	40.0	5.9	216.9	20.6	61.4	20.4
Queue Length 50th (ft)	~372	839	3	~67	499	93	0
Queue Length 95th (ft)	#558	#1131	17	#173	609	135	25
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	250		250	250			100
Base Capacity (vph)	59	2166	976	59	3112	542	267
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	4.20	0.98	0.03	1.17	0.77	0.42	0.07

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	228	1956	26	59	5	2209	209	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1786	5085	3433	1583
Flt Permitted	0.22	1.00	1.00		0.22	1.00	0.95	1.00
Satd. Flow (perm)	418	3539	1583		418	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	248	2126	28	64	5	2401	227	20
RTOR Reduction (vph)	0	0	7	0	0	0	0	18
Lane Group Flow (vph)	248	2126	21	0	69	2401	227	2
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	18.0	77.5	77.5		18.0	77.5	13.6	13.6
Effective Green, g (s)	18.0	77.5	77.5		18.0	77.5	13.6	13.6
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.11	0.11
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2166	969		59	3113	369	170
v/s Ratio Prot		c0.60				0.47	c0.07	
v/s Ratio Perm	c0.59		0.01		0.17			0.00
v/c Ratio	4.20	0.98	0.02		1.17	0.77	0.62	0.01
Uniform Delay, d1	54.3	23.9	9.6		54.3	18.0	54.0	50.5
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1480.5	15.1	0.0		170.5	1.2	3.0	0.0
Delay (s)	1534.8	39.0	9.7		224.8	19.3	57.0	50.5
Level of Service	F	D	A		F	B	E	D
Approach Delay (s)		193.1				25.0	56.5	
Approach LOS		F				C	E	

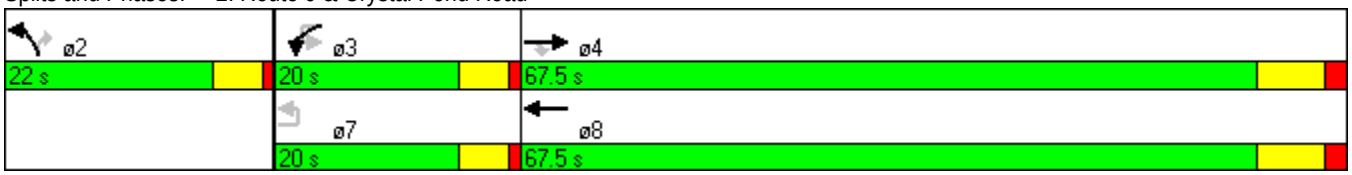
Intersection Summary			
HCM Average Control Delay	105.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.46		
Actuated Cycle Length (s)	126.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	105	2370	12	65	65	2115	17	4
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	15.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	20.0	20.0	50.0	13.0	13.0
Total Split (s)	20.0	67.5	67.5	20.0	20.0	67.5	22.0	22.0
Total Split (%)	18.3%	61.6%	61.6%	18.3%	18.3%	61.6%	20.1%	20.1%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	15.1	62.0	62.0		15.1	62.0	8.0	8.0
Actuated g/C Ratio	0.16	0.66	0.66		0.16	0.66	0.08	0.08
v/c Ratio	1.41	1.07	0.01		1.72	0.67	0.07	0.03
Control Delay	272.5	61.0	5.4		400.4	12.1	42.1	27.8
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	272.5	61.0	5.4		400.4	12.1	42.1	27.8
LOS	F	E	A		F	B	D	C
Approach Delay		69.7				34.5	39.6	
Approach LOS		E				C	D	

Intersection Summary	
Cycle Length: 109.5	
Actuated Cycle Length: 94.5	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.72	
Intersection Signal Delay: 52.9	Intersection LOS: D
Intersection Capacity Utilization 94.0%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Route 9 & Crystal Pond Road

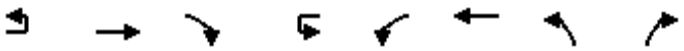


Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	111	2495	13	136	2226	19	4
v/c Ratio	1.41	1.07	0.01	1.72	0.67	0.07	0.03
Control Delay	272.5	61.0	5.4	400.4	12.1	42.1	27.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	272.5	61.0	5.4	400.4	12.1	42.1	27.8
Queue Length 50th (ft)	~79	~782	1	~109	217	5	0
Queue Length 95th (ft)	#210	#1151	9	#253	406	17	11
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	150		250	150			100
Base Capacity (vph)	79	2323	1041	79	3337	620	289
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.41	1.07	0.01	1.72	0.67	0.03	0.01

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	105	2370	12	65	65	2115	17	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1778	5085	3433	1583
Flt Permitted	0.26	1.00	1.00		0.26	1.00	0.95	1.00
Satd. Flow (perm)	498	3539	1583		496	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90
Adj. Flow (vph)	111	2495	13	68	68	2226	19	4
RTOR Reduction (vph)	0	0	3	0	0	0	0	4
Lane Group Flow (vph)	111	2495	10	0	136	2226	19	0
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	15.1	62.0	62.0		15.1	62.0	3.0	3.0
Effective Green, g (s)	15.1	62.0	62.0		15.1	62.0	3.0	3.0
Actuated g/C Ratio	0.15	0.64	0.64		0.15	0.64	0.03	0.03
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	77	2248	1006		77	3230	106	49
v/s Ratio Prot		c0.70				0.44	c0.01	
v/s Ratio Perm	0.22		0.01		c0.27			0.00
v/c Ratio	1.44	1.11	0.01		1.77	0.69	0.18	0.00
Uniform Delay, d1	41.2	17.8	6.5		41.2	11.5	46.1	45.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	257.6	56.5	0.0		392.2	0.6	0.8	0.0
Delay (s)	298.8	74.3	6.5		433.4	12.2	46.9	45.9
Level of Service	F	E	A		F	B	D	D
Approach Delay (s)		83.5				36.4	46.7	
Approach LOS		F				D	D	

Intersection Summary			
HCM Average Control Delay	61.1	HCM Level of Service	E
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	97.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	238	2046	58	60	38	2311	236	35
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	4.0	4.0	6.0	6.0	4.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	11.0	11.0	50.0	15.0	15.0
Total Split (s)	23.0	85.0	85.0	23.0	23.0	85.0	25.0	25.0
Total Split (%)	17.3%	63.9%	63.9%	17.3%	17.3%	63.9%	18.8%	18.8%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	18.0	77.6	77.6		18.0	77.6	14.8	14.8
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.12	0.12
v/c Ratio	4.39	1.04	0.06		1.80	0.81	0.65	0.18
Control Delay	1577.4	55.3	5.6		452.1	22.7	61.9	16.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1577.4	55.3	5.6		452.1	22.7	61.9	16.7
LOS	F	E	A		F	C	E	B
Approach Delay		208.9				40.1	56.1	
Approach LOS		F				D	E	

Intersection Summary	
Cycle Length: 133	
Actuated Cycle Length: 127.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.39	
Intersection Signal Delay: 119.7	Intersection LOS: F
Intersection Capacity Utilization 83.3%	ICU Level of Service E
Analysis Period (min) 15	

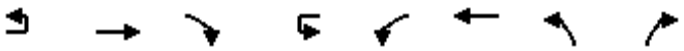
Splits and Phases: 2: Route 9 & Crystal Pond Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	259	2224	63	106	2512	257	38
v/c Ratio	4.39	1.04	0.06	1.80	0.81	0.65	0.18
Control Delay	1577.4	55.3	5.6	452.1	22.7	61.9	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1577.4	55.3	5.6	452.1	22.7	61.9	16.7
Queue Length 50th (ft)	~395	~1042	8	~132	560	106	0
Queue Length 95th (ft)	#585	#1243	28	#261	683	152	34
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	250		250	250			100
Base Capacity (vph)	59	2146	975	59	3084	537	280
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	4.39	1.04	0.06	1.80	0.81	0.48	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	238	2046	58	60	38	2311	236	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1780	5085	3433	1583
Flt Permitted	0.22	1.00	1.00		0.22	1.00	0.95	1.00
Satd. Flow (perm)	418	3539	1583		416	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	259	2224	63	65	41	2512	257	38
RTOR Reduction (vph)	0	0	15	0	0	0	0	34
Lane Group Flow (vph)	259	2224	48	0	106	2512	257	4
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	18.0	77.5	77.5		18.0	77.5	14.8	14.8
Effective Green, g (s)	18.0	77.5	77.5		18.0	77.5	14.8	14.8
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.12	0.12
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2146	960		59	3084	398	183
v/s Ratio Prot		c0.63				0.49	c0.07	
v/s Ratio Perm	c0.62		0.03		0.25			0.00
v/c Ratio	4.39	1.04	0.05		1.80	0.81	0.65	0.02
Uniform Delay, d1	54.9	25.1	10.2		54.9	19.6	54.0	50.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1564.0	29.6	0.0		417.5	1.7	3.6	0.1
Delay (s)	1618.9	54.7	10.2		472.4	21.3	57.6	50.1
Level of Service	F	D	B		F	C	E	D
Approach Delay (s)		212.7				39.6	56.6	
Approach LOS		F				D	E	

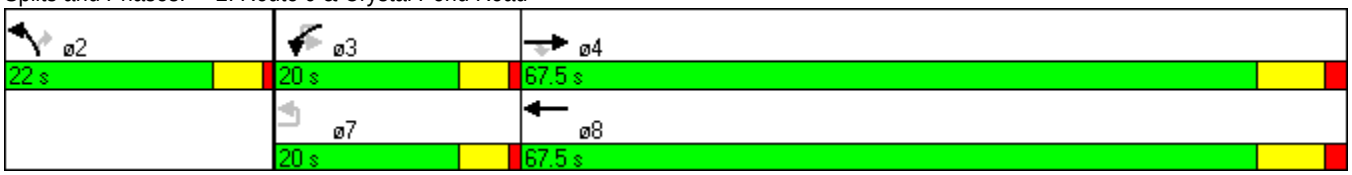
Intersection Summary			
HCM Average Control Delay	121.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	127.8	Sum of lost time (s)	17.5
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	110	2479	20	75	68	2212	47	33
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	15.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	20.0	20.0	50.0	13.0	13.0
Total Split (s)	20.0	67.5	67.5	20.0	20.0	67.5	22.0	22.0
Total Split (%)	18.3%	61.6%	61.6%	18.3%	18.3%	61.6%	20.1%	20.1%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	15.0	61.2	61.2		15.0	61.2	8.1	8.1
Actuated g/C Ratio	0.15	0.62	0.62		0.15	0.62	0.08	0.08
v/c Ratio	1.53	1.19	0.02		1.99	0.74	0.19	0.23
Control Delay	323.4	113.6	5.4		513.4	15.9	44.9	17.9
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	323.4	113.6	5.4		513.4	15.9	44.9	17.9
LOS	F	F	A		F	B	D	B
Approach Delay		121.7				46.2	33.7	
Approach LOS		F				D	C	

Intersection Summary	
Cycle Length: 109.5	
Actuated Cycle Length: 99	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.99	
Intersection Signal Delay: 85.0	Intersection LOS: F
Intersection Capacity Utilization 97.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Route 9 & Crystal Pond Road

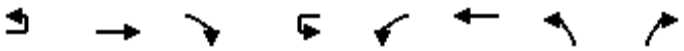


Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	116	2609	21	151	2328	52	37
v/c Ratio	1.53	1.19	0.02	1.99	0.74	0.19	0.23
Control Delay	323.4	113.6	5.4	513.4	15.9	44.9	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	323.4	113.6	5.4	513.4	15.9	44.9	17.9
Queue Length 50th (ft)	~105	~1095	2	~153	376	16	0
Queue Length 95th (ft)	#219	#1238	12	#280	444	35	31
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	150		250	150			100
Base Capacity (vph)	76	2186	982	76	3141	590	303
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.53	1.19	0.02	1.99	0.74	0.09	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	110	2479	20	75	68	2212	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1779	5085	3433	1583
Flt Permitted	0.27	1.00	1.00		0.27	1.00	0.95	1.00
Satd. Flow (perm)	502	3539	1583		499	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90
Adj. Flow (vph)	116	2609	21	79	72	2328	52	37
RTOR Reduction (vph)	0	0	5	0	0	0	0	35
Lane Group Flow (vph)	116	2609	16	0	151	2328	52	2
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	15.0	61.1	61.1		15.0	61.1	6.4	6.4
Effective Green, g (s)	15.0	61.1	61.1		15.0	61.1	6.4	6.4
Actuated g/C Ratio	0.15	0.61	0.61		0.15	0.61	0.06	0.06
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	75	2162	967		75	3107	220	101
v/s Ratio Prot		c0.74				0.46	c0.02	
v/s Ratio Perm	0.23		0.01		c0.30			0.00
v/c Ratio	1.55	1.21	0.02		2.01	0.75	0.24	0.02
Uniform Delay, d1	42.5	19.4	7.6		42.5	14.0	44.5	43.9
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	301.4	97.7	0.0		499.5	1.0	0.6	0.1
Delay (s)	343.9	117.1	7.7		542.0	15.0	45.0	44.0
Level of Service	F	F	A		F	B	D	D
Approach Delay (s)		125.9				47.1	44.6	
Approach LOS		F				D	D	

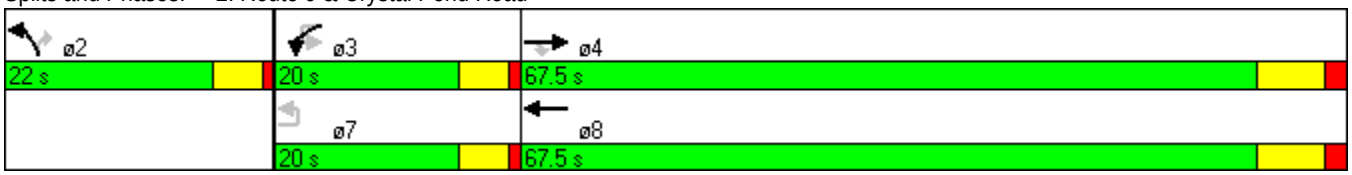
Intersection Summary			
HCM Average Control Delay	87.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	17.5
Intersection Capacity Utilization	97.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	117	2487	20	75	68	2217	47	33
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	15.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	20.0	20.0	50.0	13.0	13.0
Total Split (s)	20.0	67.5	67.5	20.0	20.0	67.5	22.0	22.0
Total Split (%)	18.3%	61.6%	61.6%	18.3%	18.3%	61.6%	20.1%	20.1%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	15.0	61.0	61.0		15.0	61.0	8.1	8.1
Actuated g/C Ratio	0.15	0.62	0.62		0.15	0.62	0.08	0.08
v/c Ratio	1.62	1.20	0.02		1.99	0.74	0.19	0.23
Control Delay	357.9	116.0	5.4		511.1	16.0	44.9	17.9
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	357.9	116.0	5.4		511.1	16.0	44.9	17.9
LOS	F	F	A		F	B	D	B
Approach Delay		125.9				46.1	33.7	
Approach LOS		F				D	C	

Intersection Summary	
Cycle Length: 109.5	
Actuated Cycle Length: 98.8	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.99	
Intersection Signal Delay: 87.2	Intersection LOS: F
Intersection Capacity Utilization 97.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Route 9 & Crystal Pond Road

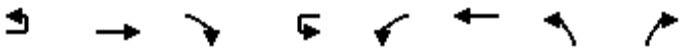


Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	123	2618	21	151	2334	52	37
v/c Ratio	1.62	1.20	0.02	1.99	0.74	0.19	0.23
Control Delay	357.9	116.0	5.4	511.1	16.0	44.9	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	357.9	116.0	5.4	511.1	16.0	44.9	17.9
Queue Length 50th (ft)	~115	~1102	2	~153	379	16	0
Queue Length 95th (ft)	#231	#1245	12	#280	446	35	31
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	150		250	150			100
Base Capacity (vph)	76	2184	981	76	3138	592	304
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.62	1.20	0.02	1.99	0.74	0.09	0.12

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	117	2487	20	75	68	2217	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1779	5085	3433	1583
Flt Permitted	0.27	1.00	1.00		0.27	1.00	0.95	1.00
Satd. Flow (perm)	502	3539	1583		499	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90
Adj. Flow (vph)	123	2618	21	79	72	2334	52	37
RTOR Reduction (vph)	0	0	5	0	0	0	0	35
Lane Group Flow (vph)	123	2618	16	0	151	2334	52	2
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	15.0	61.0	61.0		15.0	61.0	6.4	6.4
Effective Green, g (s)	15.0	61.0	61.0		15.0	61.0	6.4	6.4
Actuated g/C Ratio	0.15	0.61	0.61		0.15	0.61	0.06	0.06
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	75	2161	967		75	3105	220	101
v/s Ratio Prot		c0.74				0.46	c0.02	
v/s Ratio Perm	0.25		0.01		c0.30			0.00
v/c Ratio	1.64	1.21	0.02		2.01	0.75	0.24	0.02
Uniform Delay, d1	42.5	19.5	7.7		42.5	14.0	44.4	43.8
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	340.1	99.7	0.0		499.5	1.1	0.6	0.1
Delay (s)	382.5	119.2	7.7		542.0	15.1	45.0	43.9
Level of Service	F	F	A		F	B	D	D
Approach Delay (s)		130.0				47.1	44.5	
Approach LOS		F				D	D	

Intersection Summary			
HCM Average Control Delay	90.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.28		
Actuated Cycle Length (s)	99.9	Sum of lost time (s)	17.5
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	268	2052	58	60	38	2332	236	35
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	4.0	4.0	6.0	6.0	4.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	11.0	11.0	50.0	15.0	15.0
Total Split (s)	23.0	85.0	85.0	23.0	23.0	85.0	25.0	25.0
Total Split (%)	17.3%	63.9%	63.9%	17.3%	17.3%	63.9%	18.8%	18.8%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	18.0	77.6	77.6		18.0	77.6	14.8	14.8
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.12	0.12
v/c Ratio	4.93	1.04	0.06		1.80	0.82	0.65	0.18
Control Delay	1818.9	56.2	5.6		452.1	23.1	61.9	16.7
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1818.9	56.2	5.6		452.1	23.1	61.9	16.7
LOS	F	E	A		F	C	E	B
Approach Delay		253.5				40.3	56.1	
Approach LOS		F				D	E	

Intersection Summary	
Cycle Length: 133	
Actuated Cycle Length: 127.9	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.93	
Intersection Signal Delay: 140.9	Intersection LOS: F
Intersection Capacity Utilization 83.5%	ICU Level of Service E
Analysis Period (min) 15	

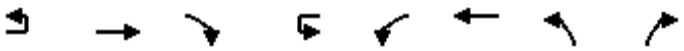
Splits and Phases: 2: Route 9 & Crystal Pond Road

Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	291	2230	63	106	2535	257	38
v/c Ratio	4.93	1.04	0.06	1.80	0.82	0.65	0.18
Control Delay	1818.9	56.2	5.6	452.1	23.1	61.9	16.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1818.9	56.2	5.6	452.1	23.1	61.9	16.7
Queue Length 50th (ft)	~450	~1047	8	~132	570	106	0
Queue Length 95th (ft)	#649	#1249	28	#261	695	152	34
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	250		250	250			100
Base Capacity (vph)	59	2146	975	59	3084	537	280
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	4.93	1.04	0.06	1.80	0.82	0.48	0.14

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.



Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	268	2052	58	60	38	2332	236	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1780	5085	3433	1583
Flt Permitted	0.22	1.00	1.00		0.22	1.00	0.95	1.00
Satd. Flow (perm)	418	3539	1583		416	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	2230	63	65	41	2535	257	38
RTOR Reduction (vph)	0	0	15	0	0	0	0	34
Lane Group Flow (vph)	291	2230	48	0	106	2535	257	4
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	18.0	77.5	77.5		18.0	77.5	14.8	14.8
Effective Green, g (s)	18.0	77.5	77.5		18.0	77.5	14.8	14.8
Actuated g/C Ratio	0.14	0.61	0.61		0.14	0.61	0.12	0.12
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	59	2146	960		59	3084	398	183
v/s Ratio Prot		c0.63				0.50	c0.07	
v/s Ratio Perm	c0.70		0.03		0.25			0.00
v/c Ratio	4.93	1.04	0.05		1.80	0.82	0.65	0.02
Uniform Delay, d1	54.9	25.1	10.2		54.9	19.7	54.0	50.1
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1807.0	30.5	0.0		417.5	1.9	3.6	0.1
Delay (s)	1861.9	55.6	10.2		472.4	21.6	57.6	50.1
Level of Service	F	E	B		F	C	E	D
Approach Delay (s)		257.9				39.7	56.6	
Approach LOS		F				D	E	

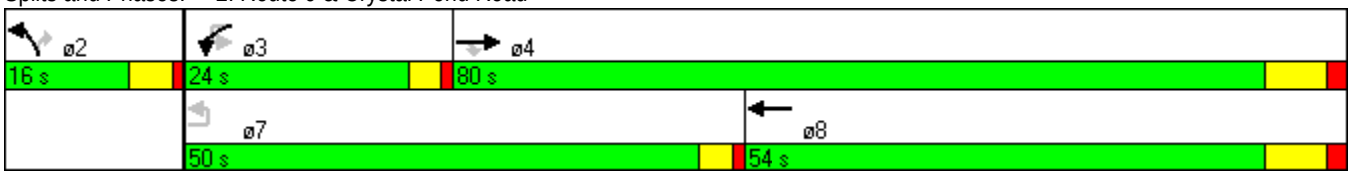
Intersection Summary			
HCM Average Control Delay	142.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.62		
Actuated Cycle Length (s)	127.8	Sum of lost time (s)	17.5
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	268	2052	58	60	38	2332	236	35
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	4.0	4.0	6.0	6.0	4.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	11.0	11.0	50.0	15.0	15.0
Total Split (s)	50.0	80.0	80.0	24.0	24.0	54.0	16.0	16.0
Total Split (%)	41.7%	66.7%	66.7%	20.0%	20.0%	45.0%	13.3%	13.3%
Yellow Time (s)	3.0	5.5	5.5	3.0	3.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.5	7.5	4.0	4.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	46.0	72.5	72.5		20.0	46.5	11.0	11.0
Actuated g/C Ratio	0.38	0.60	0.60		0.17	0.39	0.09	0.09
v/c Ratio	4.62	1.04	0.06		1.68	1.29	0.82	0.21
Control Delay	1676.2	56.1	4.2		398.5	165.5	74.4	18.5
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	1676.2	56.1	4.2		398.5	165.5	74.4	18.5
LOS	F	E	A		F	F	E	B
Approach Delay		237.3				174.8	67.2	
Approach LOS		F				F	E	

Intersection Summary	
Cycle Length: 120	
Actuated Cycle Length: 120	
Natural Cycle: 80	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 4.62	
Intersection Signal Delay: 198.3	Intersection LOS: F
Intersection Capacity Utilization 82.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 2: Route 9 & Crystal Pond Road



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	291	2230	63	106	2535	257	38
v/c Ratio	4.62	1.04	0.06	1.68	1.29	0.82	0.21
Control Delay	1676.2	56.1	4.2	398.5	165.5	74.4	18.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1676.2	56.1	4.2	398.5	165.5	74.4	18.5
Queue Length 50th (ft)	~377	~984	5	~120	~915	102	0
Queue Length 95th (ft)	#557	#1120	23	#238	#1006	#169	35
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	250		250	250			100
Base Capacity (vph)	63	2138	974	63	1970	315	180
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	4.62	1.04	0.06	1.68	1.29	0.82	0.21

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	268	2052	58	60	38	2332	236	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.5	7.5		4.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1780	5085	3433	1583
Flt Permitted	0.09	1.00	1.00		0.20	1.00	0.95	1.00
Satd. Flow (perm)	164	3539	1583		375	5085	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	291	2230	63	65	41	2535	257	38
RTOR Reduction (vph)	0	0	18	0	0	0	0	35
Lane Group Flow (vph)	291	2230	45	0	106	2535	257	3
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	46.0	72.5	72.5		20.0	46.5	11.0	11.0
Effective Green, g (s)	46.0	72.5	72.5		20.0	46.5	11.0	11.0
Actuated g/C Ratio	0.38	0.60	0.60		0.17	0.39	0.09	0.09
Clearance Time (s)	4.0	7.5	7.5		4.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	63	2138	956		63	1970	315	145
v/s Ratio Prot		0.63				c0.50	c0.07	
v/s Ratio Perm	c1.78		0.03		0.28			0.00
v/c Ratio	4.62	1.04	0.05		1.68	1.29	0.82	0.02
Uniform Delay, d1	37.0	23.8	9.7		50.0	36.8	53.5	49.6
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	1664.3	31.8	0.0		366.2	133.0	14.9	0.1
Delay (s)	1701.3	55.5	9.7		416.2	169.8	68.4	49.7
Level of Service	F	E	A		F	F	E	D
Approach Delay (s)		239.8				179.7	66.0	
Approach LOS		F				F	E	

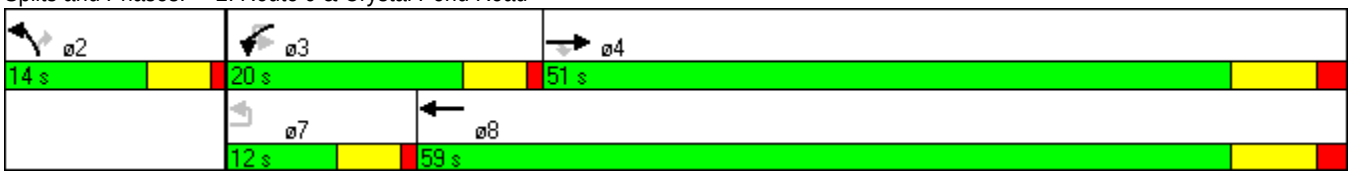
Intersection Summary			
HCM Average Control Delay	201.7	HCM Level of Service	F
HCM Volume to Capacity ratio	2.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	82.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	117	2487	20	75	68	2217	47	33
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Detector Phase	7	4	4	3	3	8	2	2
Switch Phase								
Minimum Initial (s)	6.0	15.0	15.0	6.0	6.0	15.0	8.0	8.0
Minimum Split (s)	11.0	50.0	50.0	20.0	20.0	50.0	13.0	13.0
Total Split (s)	12.0	51.0	51.0	20.0	20.0	59.0	14.0	14.0
Total Split (%)	14.1%	60.0%	60.0%	23.5%	23.5%	69.4%	16.5%	16.5%
Yellow Time (s)	4.0	5.5	5.5	4.0	4.0	5.5	4.0	4.0
All-Red Time (s)	1.0	2.0	2.0	1.0	1.0	2.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.5	7.5	5.0	5.0	7.5	5.0	5.0
Lead/Lag	Lead	Lag	Lag	Lead	Lead	Lag		
Lead-Lag Optimize?								
Recall Mode	None	Min	Min	None	None	Min	None	None
Act Effct Green (s)	7.0	45.3	45.3		15.0	53.3	8.0	8.0
Actuated g/C Ratio	0.08	0.55	0.55		0.18	0.64	0.10	0.10
v/c Ratio	1.35	1.36	0.02		1.68	0.72	0.16	0.20
Control Delay	249.9	186.3	6.0		375.8	12.2	36.2	15.2
Queue Delay	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Total Delay	249.9	186.3	6.0		375.8	12.2	36.2	15.2
LOS	F	F	A		F	B	D	B
Approach Delay		187.7				34.3	27.4	
Approach LOS		F				C	C	

Intersection Summary	
Cycle Length: 85	
Actuated Cycle Length: 83.1	
Natural Cycle: 85	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.68	
Intersection Signal Delay: 113.6	Intersection LOS: F
Intersection Capacity Utilization 97.9%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 2: Route 9 & Crystal Pond Road



Lane Group	EBU	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	123	2618	21	151	2334	52	37
v/c Ratio	1.35	1.36	0.02	1.68	0.72	0.16	0.20
Control Delay	249.9	186.3	6.0	375.8	12.2	36.2	15.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	249.9	186.3	6.0	375.8	12.2	36.2	15.2
Queue Length 50th (ft)	~87	~995	1	~118	291	13	0
Queue Length 95th (ft)	#193	#1134	12	#234	352	30	28
Internal Link Dist (ft)		740			805	273	
Turn Bay Length (ft)	150		250	150			100
Base Capacity (vph)	91	1929	869	90	3261	372	205
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.35	1.36	0.02	1.68	0.72	0.14	0.18

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBL	NBR
Lane Configurations								
Volume (vph)	117	2487	20	75	68	2217	47	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Lane Util. Factor	1.00	0.95	1.00		1.00	0.91	0.97	1.00
Frt	1.00	1.00	0.85		1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	1787	3539	1583		1779	5085	3433	1583
Flt Permitted	0.57	1.00	1.00		0.27	1.00	0.95	1.00
Satd. Flow (perm)	1075	3539	1583		499	5085	3433	1583
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90
Adj. Flow (vph)	123	2618	21	79	72	2334	52	37
RTOR Reduction (vph)	0	0	7	0	0	0	0	34
Lane Group Flow (vph)	123	2618	14	0	151	2334	52	3
Heavy Vehicles (%)	1%	2%	2%	1%	2%	2%	2%	2%
Turn Type	custom		Perm	custom	Prot			Perm
Protected Phases		4			3	8	2	
Permitted Phases	7		4	3				2
Actuated Green, G (s)	7.0	45.3	45.3		15.0	53.3	6.3	6.3
Effective Green, g (s)	7.0	45.3	45.3		15.0	53.3	6.3	6.3
Actuated g/C Ratio	0.08	0.54	0.54		0.18	0.63	0.07	0.07
Clearance Time (s)	5.0	7.5	7.5		5.0	7.5	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	89	1906	853		89	3223	257	119
v/s Ratio Prot		c0.74				0.46	c0.02	
v/s Ratio Perm	0.11		0.01		c0.30			0.00
v/c Ratio	1.38	1.37	0.02		1.70	0.72	0.20	0.02
Uniform Delay, d1	38.5	19.4	9.0		34.5	10.4	36.5	36.0
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	227.3	171.5	0.0		356.8	0.8	0.4	0.1
Delay (s)	265.8	190.9	9.0		391.3	11.3	36.9	36.1
Level of Service	F	F	A		F	B	D	D
Approach Delay (s)		192.9				34.3	36.6	
Approach LOS		F				C	D	

Intersection Summary			
HCM Average Control Delay	116.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.34		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	97.9%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/4/2013
Analysis Time Period	Weekday AM Peak Hour
Highway	Flagg Road, Southborough, MA
From/To	From Lovers Lane to Rt. 9
Jurisdiction	
Analysis Year	2013
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.82	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	9.5	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd	77	veh/h
Opposing direction volume, Vo	15	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.979		0.979	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	96	pc/h	19	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	33	mi/h
Observed total demand,(note-3) V	0	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	33.0	mi/h
Adjustment for no-passing zones, fnp	0.0*	mi/h
Average travel speed, ATSd	32.1	mi/h
Percent Free Flow Speed, PFFS	97.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.979		0.979	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	96	pc/h	19	pc/h
Base percent time-spent-following,(note-4) BPTSFd	11.2	%		
Adjustment for no-passing zones, fnp	46.3			
Percent time-spent-following, PTSFd	49.9	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.06	
Peak 15-min vehicle-miles of travel, VMT15	12	veh-mi
Peak-hour vehicle-miles of travel, VMT60	39	veh-mi
Peak 15-min total travel time, TT15	0.4	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	32.1	mi/h
Percent time-spent-following, PTSFd (from above)	49.9	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	93.9
Effective width of outside lane, We	15.34
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	2.87
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/4/2013
Analysis Time Period	Weekday AM Peak Hour
Highway	Deerfoot Rd, Southborough, MA
From/To	From Main St to Flagg Rd
Jurisdiction	
Analysis Year	2013
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.55	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd	155	veh/h
Opposing direction volume, Vo	115	veh/h

Average Travel Speed

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.7*	1.7*
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adj. factor,(note-5) fHV	0.979	0.979
Grade adj. factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	288 pc/h	214 pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	32	mi/h
Observed total demand,(note-3) V	0	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	32.0	mi/h
Adjustment for no-passing zones, fnp	3.5*	mi/h
Average travel speed, ATSd	24.6	mi/h
Percent Free Flow Speed, PFFS	76.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.7*	1.7*
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.979	0.979
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	288 pc/h	213 pc/h
Base percent time-spent-following,(note-4) BPTSFd	30.5 %	
Adjustment for no-passing zones, fnp	56.9	
Percent time-spent-following, PTSFd	63.2 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.17	
Peak 15-min vehicle-miles of travel, VMT15	42	veh-mi
Peak-hour vehicle-miles of travel, VMT60	93	veh-mi
Peak 15-min total travel time, TT15	1.7	veh-h
Capacity from ATS, CdATS	1675	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1675	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	24.6	mi/h
Percent time-spent-following, PTSFd (from above)	63.2	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	281.8
Effective width of outside lane, We	14.70
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	3.52
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/21/2013
Analysis Time Period	No Build Weekday AM Peak Hour
Highway	Flagg Road, Southborough, MA
From/To	From Lovers Lane to Rt. 9
Jurisdiction	
Analysis Year	2018
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.82	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	9.5	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd	69	veh/h
Opposing direction volume, Vo	29	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.979		0.979	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	86	pc/h	36	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	33	mi/h
Observed total demand,(note-3) V	0	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	33.0	mi/h
Adjustment for no-passing zones, fnp	0.0*	mi/h
Average travel speed, ATSd	32.1	mi/h
Percent Free Flow Speed, PFFS	97.1	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.979		0.979	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	86	pc/h	36	pc/h
Base percent time-spent-following,(note-4) BPTSFd	10.1	%		
Adjustment for no-passing zones, fnp	49.0			
Percent time-spent-following, PTSFd	44.6	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.05	
Peak 15-min vehicle-miles of travel, VMT15	11	veh-mi
Peak-hour vehicle-miles of travel, VMT60	35	veh-mi
Peak 15-min total travel time, TT15	0.3	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	32.1	mi/h
Percent time-spent-following, PTSFd (from above)	44.6	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	84.1
Effective width of outside lane, We	15.72
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	2.75
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/21/2013
Analysis Time Period	No Build Weekday AM Peak Hour
Highway	Deerfoot Rd, Southborough, MA
From/To	From Main St to Flagg Rd
Jurisdiction	
Analysis Year	2018
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.55	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd	151	veh/h
Opposing direction volume, Vo	113	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.979		0.979	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	280	pc/h	210	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	32	mi/h
Observed total demand,(note-3) V	0	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	32.0	mi/h
Adjustment for no-passing zones, fnp	3.5*	mi/h
Average travel speed, ATSd	24.7	mi/h
Percent Free Flow Speed, PFFS	77.2	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.7*	1.7*
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.979	0.979
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	280 pc/h	210 pc/h
Base percent time-spent-following,(note-4) BPTSFd	28.2 %	
Adjustment for no-passing zones, fnp	57.3	
Percent time-spent-following, PTSFd	60.9 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.16	
Peak 15-min vehicle-miles of travel, VMT15	41	veh-mi
Peak-hour vehicle-miles of travel, VMT60	91	veh-mi
Peak 15-min total travel time, TT15	1.7	veh-h
Capacity from ATS, CdATS	1675	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1675	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	24.7	mi/h
Percent time-spent-following, PTSFd (from above)	60.9	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	274.5
Effective width of outside lane, We	14.94
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	3.47
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

* These items have been entered or edited to override calculated value

Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/21/2013
Analysis Time Period	Build Weekday AM Peak Hour
Highway	Flagg Road, Southborough, MA
From/To	From Lovers Lane to Rt. 9
Jurisdiction	
Analysis Year	2018
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.82	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	9.5	ft	% Trucks crawling	0.0	%
Segment length	0.5	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd	74	veh/h
Opposing direction volume, Vo	51	veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.979		0.979	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	92	pc/h	64	pc/h

Free-Flow Speed from Field Measurement:		
Field measured speed,(note-3) S FM	33	mi/h
Observed total demand,(note-3) V	0	veh/h
Estimated Free-Flow Speed:		
Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	33.0	mi/h
Adjustment for no-passing zones, fnp	0.0*	mi/h
Average travel speed, ATSd	31.8	mi/h
Percent Free Flow Speed, PFFS	96.3	%

Percent Time-Spent-Following

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adjustment factor, fHV	0.979		0.979	
Grade adjustment factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	92	pc/h	64	pc/h
Base percent time-spent-following,(note-4) BPTSFd	10.8	%		
Adjustment for no-passing zones, fnp	53.4			
Percent time-spent-following, PTSFd	42.3	%		

Level of Service and Other Performance Measures

Level of service, LOS	A	
Volume to capacity ratio, v/c	0.05	
Peak 15-min vehicle-miles of travel, VMT15	11	veh-mi
Peak-hour vehicle-miles of travel, VMT60	37	veh-mi
Peak 15-min total travel time, TT15	0.3	veh-h
Capacity from ATS, CdATS	1656	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1656	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.5	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	31.8	mi/h
Percent time-spent-following, PTSFd (from above)	42.3	
Level of service, LOSd (from above)	A	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	90.2
Effective width of outside lane, We	15.48
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	2.82
Bicycle LOS	C

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
2. If vi (vd or vo) >= 1,700 pc/h, terminate analysis-the LOS is F.
3. For the analysis direction only and for v>200 veh/h.
4. For the analysis direction only.
5. Use alternative Exhibit 15-14 if some trucks operate at crawl speeds on a specific downgrade.

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Phone: Fax:
E-Mail:

Directional Two-Lane Highway Segment Analysis

Analyst	YC
Agency/Co.	Green Intl Affiliates, Inc.
Date Performed	3/21/2013
Analysis Time Period	Build Weekday AM Peak Hour
Highway	Deerfoot Rd, Southborough, MA
From/To	From Main St to Flagg Rd
Jurisdiction	
Analysis Year	2018
Description	Prop Park Central 40B

Input Data

Highway class	Class 3		Peak hour factor, PHF	0.55	
Shoulder width	0.0	ft	% Trucks and buses	3	%
Lane width	12.0	ft	% Trucks crawling	0.0	%
Segment length	0.6	mi	Truck crawl speed	0.0	mi/hr
Terrain type	Level		% Recreational vehicles	0	%
Grade: Length	-	mi	% No-passing zones	100	%
Up/down	-	%	Access point density	40	/mi

Analysis direction volume, Vd 156 veh/h
Opposing direction volume, Vo 135 veh/h

Average Travel Speed

Direction	Analysis(d)		Opposing (o)	
PCE for trucks, ET	1.7*		1.7*	
PCE for RVs, ER	1.0		1.0	
Heavy-vehicle adj. factor,(note-5) fHV	0.979		0.979	
Grade adj. factor,(note-1) fg	1.00		1.00	
Directional flow rate,(note-2) vi	290	pc/h	251	pc/h

Free-Flow Speed from Field Measurement:

Field measured speed,(note-3) S FM	32	mi/h
Observed total demand,(note-3) V	0	veh/h

Estimated Free-Flow Speed:

Base free-flow speed,(note-3) BFFS	-	mi/h
Adj. for lane and shoulder width,(note-3) fLS	-	mi/h
Adj. for access point density,(note-3) fA	-	mi/h
Free-flow speed, FFSd	32.0	mi/h
Adjustment for no-passing zones, fnp	3.5*	mi/h
Average travel speed, ATSd	24.3	mi/h
Percent Free Flow Speed, PFFS	75.9	%

Percent Time-Spent-Following

Direction	Analysis(d)	Opposing (o)
PCE for trucks, ET	1.7*	1.7*
PCE for RVs, ER	1.0	1.0
Heavy-vehicle adjustment factor, fHV	0.979	0.979
Grade adjustment factor,(note-1) fg	1.00	1.00
Directional flow rate,(note-2) vi	290 pc/h	251 pc/h
Base percent time-spent-following,(note-4) BPTSFd	30.9 %	
Adjustment for no-passing zones, fnp	57.9	
Percent time-spent-following, PTSFd	61.9 %	

Level of Service and Other Performance Measures

Level of service, LOS	C	
Volume to capacity ratio, v/c	0.17	
Peak 15-min vehicle-miles of travel, VMT15	43	veh-mi
Peak-hour vehicle-miles of travel, VMT60	94	veh-mi
Peak 15-min total travel time, TT15	1.8	veh-h
Capacity from ATS, CdATS	1680	veh/h
Capacity from PTSF, CdPTSF	1695	veh/h
Directional Capacity	1680	veh/h

Passing Lane Analysis

Total length of analysis segment, Lt	0.6	mi
Length of two-lane highway upstream of the passing lane, Lu	-	mi
Length of passing lane including tapers, Lpl	-	mi
Average travel speed, ATSd (from above)	24.3	mi/h
Percent time-spent-following, PTSFd (from above)	61.9	
Level of service, LOSd (from above)	C	

Average Travel Speed with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for average travel speed, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for average travel speed, Ld	-	mi
Adj. factor for the effect of passing lane on average speed, fpl	-	
Average travel speed including passing lane, ATSpl	-	
Percent free flow speed including passing lane, PFFSpl	0.0	%

Percent Time-Spent-Following with Passing Lane

Downstream length of two-lane highway within effective length of passing lane for percent time-spent-following, Lde	-	mi
Length of two-lane highway downstream of effective length of the passing lane for percent time-spent-following, Ld	-	mi
Adj. factor for the effect of passing lane on percent time-spent-following, fpl	-	
Percent time-spent-following including passing lane, PTSFpl	-	%

Level of Service and Other Performance Measures with Passing Lane

Level of service including passing lane, LOSpl	E	
Peak 15-min total travel time, TT15	-	veh-h

Bicycle Level of Service

Posted speed limit, Sp	25
Percent of segment with occupied on-highway parking	0
Pavement rating, P	3
Flow rate in outside lane, vOL	283.6
Effective width of outside lane, We	14.64
Effective speed factor, St	2.61
Bicycle LOS Score, BLOS	3.53
Bicycle LOS	D

Notes:
1. Note that the adjustment factor for level terrain is 1.00, as level terrain is one of the base conditions. For the purpose of grade adjustment, specific dewngrade segments are treated as level terrain.
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