Traffic Impact and Access Study

Proposed Residential Development
133 West Union Street

Ashland, Massachusetts

Prepared for

Capital Group Properties

June 2014

Prepared by

GREEN INTERNATIONAL AFFILIATES, INC.
Civil and Structural Engineers

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1.0 INTRODUCTION & EXECUTIVE SUMMARY

This transportation study provides an analysis of the traffic impacts, area circulation and access impacts associated with the proposed residential development located at 133 West Union Street (Route 135) in Ashland, MA. The site abuts State Route 135. The site location is shown on Figure 1 with respect to the study area on Route 135 and its intersections with Main Street, Chestnut Street/Homer Ave, Summer Street, MBTA Access/Voyagers Lane, Ashland Junior High School, Frankland Road and Olive Street.

This traffic analysis for the Residences at 133 West Union Street is focused on the current plan to construct apartments consisting of 140 units of housing; 74 units with one bedroom and 66 units with two bedrooms. Currently, the proposed site will consist of two four-story buildings composed of 40 units each, two three-story buildings composed of 29 units each, one separate building with 2 units and a total of 260 parking spaces. The study area chosen for the traffic analysis considered previous work in the area, the proposed site and general knowledge of the surrounding area.

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, the Institute of Transportation Engineers (ITE), and the input from the Town of Ashland. 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 focuses on the evaluation of the site drive intersection as well as nearby intersections on Route 135 including the following intersections:

- Union Street and Main Street
- Union Street and Chestnut Street/Homer Ave
- Union Street and Summer Street
- West Union Street and MBTA Access/Voyagers Lane
- West Union Street and Ashland Junior High School Drive
- West Union Street and Frankland Road and Olive Street

Route 135 is a two-way two-lane roadway classified as an urban principal arterial that is maintained by the Town of Ashland in the project area. In the vicinity of the project and in an overall sense, Route 135 is considered an east-west highway and will be referred to as the east-west approach in this report. In the project area, Route 135 provides connections to Hopkinton and I-495 to the west and Framingham to the east. Locally, Route 135 is known as West Union Street west of the intersection with Summer Street, and Union Street east of the intersection.

The MBTA Access Road is a local two lane roadway providing access to Ashland MBTA train station. Ashland Middle School is located at the end of a 500 foot driveway which intersects Route 135, and was included in this study. The other streets (Chestnut Street, Homer Ave, Summer Street, Voyagers Lane, Frankland Road and Olive Street) are all considered local roadways.

Recent daily traffic volume data collected on Route 135 in this area showed the roadway to be carrying approximately 14,300 vehicles per day (vpd). The evaluation of the signalized intersections at Summer Street and at Voyagers Lane indicate operations currently at LOS B or higher during the peak periods. The evaluation of the signalized intersections of Union Street and Main Street and Union Street and Chestnut Street indicate operations currently at LOS E or higher during peak hours.

FUTURE CONDITIONS

The analysis of the proposed residential development focused on the year 2021. It included estimating traffic conditions for the year 2021 with and without the specifically proposed project. 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 140 housing units with access to the residential development site on the north side of Route 135.

Based on the ITE models, the proposed development at full development in total is estimated to generate 972 vehicle trips on a typical weekday. These trips include 486 entering trips and 486 exiting trips over the 24-hour period. The weekday morning peak hour is expected to generate 72 new vehicle trips with 14 inbound and 58 outbound trips. The weekday afternoon peak hour is estimated to generate 95 new vehicle trips with 62 inbound and 33 outbound.

In addition to project site related traffic, a background growth rate was added along with traffic expected from specific development projects unrelated to this project.

The analysis examined the No-Build and Build conditions to determine the incremental impact of the proposed development. The analysis showed the proposed development resulting in relatively small changes in traffic operating conditions at the signalized study intersections. Route 135 was also shown to have the capacity to accommodate the new project related traffic, although motorists exiting the site during the peak hours and turning left will be delayed, but on site and not affecting Route 135 traffic. In addition to operating conditions, the evaluation of sight distances in relation to the proposed site drive location indicated that safety criteria would be satisfied under prevailing travel speeds.

RECOMMENDATIONS

While the analyses shows the proposed project can be accommodated on the study area, several recommendations have been made to enhance the transportation system and reduce the project's impact. The proposed actions are as follows:

Project Related

- Any landscaping and signing proposed at the site driveway intersection with Route 135 should be designed and maintained in such a manner so as to not impede sight distances at the driveway.
- Install STOP sign and marked STOP bar for the site driveway approach to Route 135.
- Consideration should be given to installing a sidewalk along the north side of West Union Street between the site and the end of sidewalk near the Middle School. This work assumes adequate right of way exists.

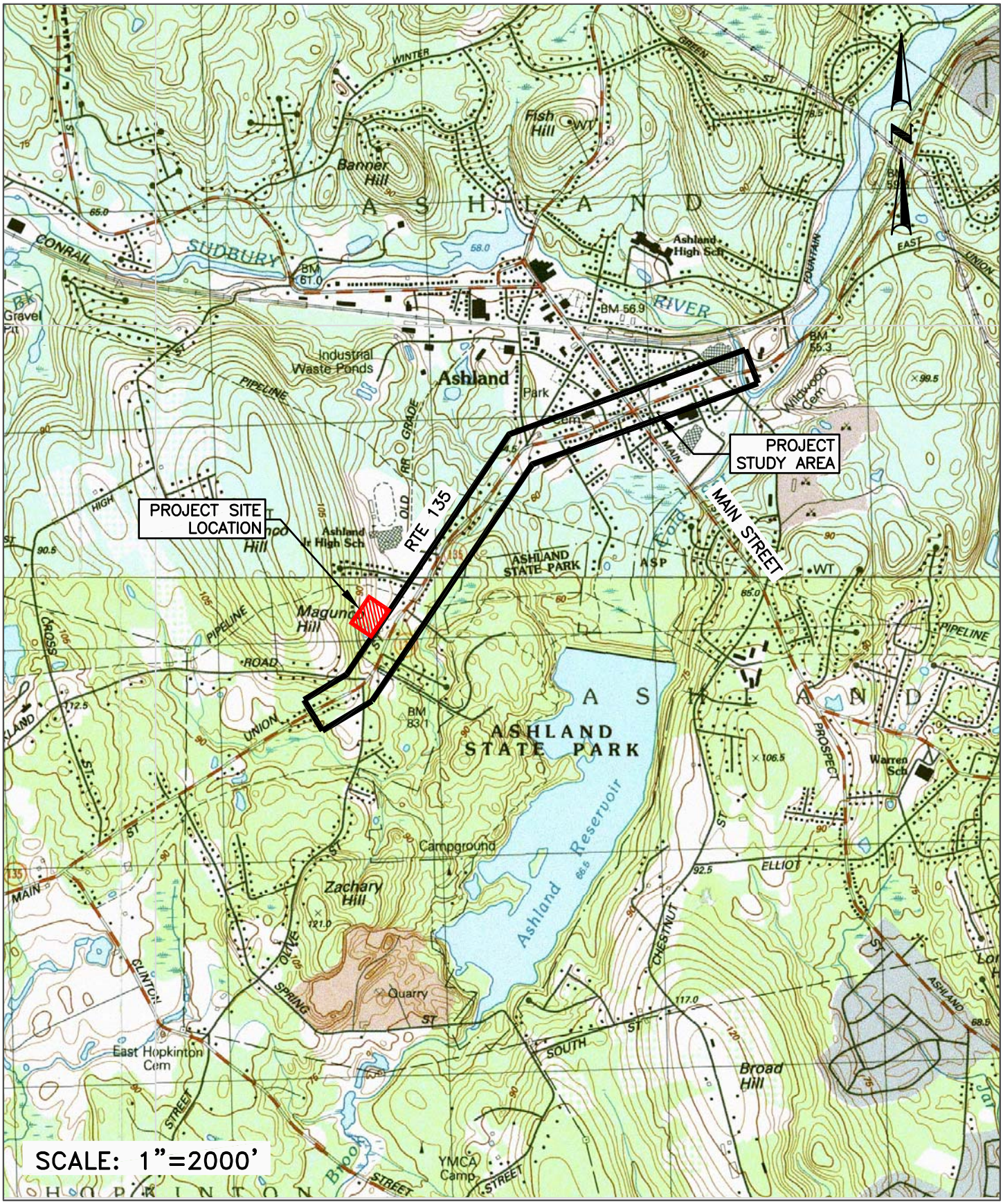

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Figure 1
Project Location
133 West Union Street Development
Ashland, Massachusetts

- Vegetation and brush on the northerly side of Route 135 within the public right of way along the site's frontage west of the site driveway should be trimmed or cleared further to enhance the sight distance. In addition, this area can also be regraded to approximately the existing road grade to further enhance sight distance.
- To enhance driver awareness along Route 135 of the proposed site driveway, an advanced intersection warning sign (W2-2) and distance plaque (W16-2a) should be installed on Route 135 approximately 400 feet west of the proposed driveway.

Non-Project Related

- The delays at Ashland Junior High School could be reduced with a traffic control person or police detail, although the duration of the delays are relatively short.
- The specific development projects included in this study cause a delay at the intersection of Summer Street and Union Street; mitigation including signal timing updates should be considered prior to construction of these projects.
- Advanced intersection warning signs (W2-2) and speed plaque (W13-1P) should be installed at the intersection of Route 135 and Frankland Road/ Olive Street. To increase corner or stopping sight distances, it may also be desirable to remove or trim back several trees and re-grade the side slopes within the public layout as they relate to the Frankland Avenue approach to Route 135.

Independent of the project, it would be beneficial if an increase in speed enforcement, particularly in the area of West Union Street and Olive Street, could be periodically implemented. Alternatively, it may be possible to install a speed check sign in the vicinity of Olive Street in relation to eastbound traffic to encourage lower speeds.

In conclusion, while the proposed project will increase traffic on the study area network, with the above recommendations, it can be safely provided, and its potential impact on traffic operations on roadways and intersections within the study area can be adequately alleviated.

2.0 EXISTING TRAFFIC CONDITIONS

In studying the impacts of the proposed 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.

2.1 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 135 at Chestnut Street/Homer Ave
- Route 135 at Union Street
- Route 135 (West Union Street/Union Street) at Summer Street
- Route 135 at MBTA Access/Voyagers Lane
- Route 135 at Ashland Middle School Drive
- Route 135 at Frankland Road
- Route 135 at Olive Street

Figure 2- Study Intersections

Figure 2 illustrates the study area roadways and intersections while subsequent photographs show the current conditions of the study network.

A general description of these roadways follows:

2.1.1 *West Union Street (Route 135)*

Route 135, which is an urban principal arterial roadway, comes under the jurisdiction of the Town of Ashland. It has a general northeast-southwest alignment within the area; as stated earlier in this report it will be referenced as east-west. It begins at U.S. Route 20 in Northborough and ends at the interchange with Interstate 95 (Route 128) in Dedham. Within the Ashland area, Route 135 is two-lane roadway. Starting from Town of Ashland border with Hopkinton, it is called West Union Street, provides connections to East Main Street in Hopkinton. West Union Street extends to the west, connects with Olive Street on the south side of Route 135 and Frankland Road on the north side to form two closely-spaced three-way unsignalized intersections. Route 135 continues to the east direction, passing Ashland Middle School on the north side, and connects with MBTA Access Road on the north side and Voyagers Lane on the south side to form a four-way signalized intersection. Continuing to the east, Route 135 connects with Summer Street on the north side to form a three-way signalized intersection. East of Summer Street, West Union Street becomes Union Street until a signalized intersection approximately 1 mile east of Summer Street where Union Street splits into two directions. The north leg of this fork becomes Waverly Street (Route 135) which extends to Framingham, while the south leg becomes East Main Street.

Within the Ashland area, the posted speed limit on Route 135 is 35 miles per hour (mph) for both directions, with the exception of posted speed limit of 20 mph for both directions in the vicinity of Ashland Middle School during school related periods. Pavement is in fairly good condition and within the project, area roadway width is approximately 28 feet. A sidewalk currently exists on the north side of Route 135 east of Indian Spring Road to the end of the east study area. There is also a sidewalk on the south side of Route 135 approximately 350 feet to the west of Summer Street to the east end of the study area. Sidewalks are in fairly good condition, however, several handicap ramps are in relatively poor condition. There are no sidewalks immediately near the project. Pavement markings along the roadway consist of double yellow center lines and single white edge lines; markings are in fairly good condition.

Route 135 is considered an east-west highway. For the purpose of this report, it will be referred to as eastbound-westbound approach while the intersecting roadways will be referred to as northbound-southbound approach.

2.1.2 *Route 135 at Chestnut Street/Homer Ave*

Route 135 intersects Chestnut Street and Homer Ave at a signalized intersection. Route 135 provides the eastbound and westbound approaches, Chestnut Street provides the northbound approach and Homer Ave provides the southbound approach. Route 135 contains a left turn lane on both approaches, and Chestnut Street contains a right turn lane. The intersection contains approximately 11 foot lanes with 2 foot shoulders. There are 10 foot crosswalks on each approach, and there are sidewalks along each side. The signal is fully actuated with an all pedestrian phase. At the southwest corner of the intersection, there is a parking lot for an office building that is located at the northeast corner of the intersection. The location of the parking lot results in a high pedestrian volume during peak hours. Chestnut Street provides access to mostly residential streets, while Homer Ave and Route 135 provide access to downtown Ashland.

Looking north from Chestnut Street

2.1.3 *Route 135 at Main Street*

Route 135 intersects Main Street at a signalized intersection. Route 135 provides the eastbound and westbound approaches, while Main Street provides the northbound and southbound approaches. Each approach provides a left turn lane. Lanes are approximately 11 feet wide on each approach with 2 foot shoulders and 10 foot crosswalks. There are sidewalks on all sides. The signal is fully actuated with an all pedestrian phase. Main Street provides access to downtown Ashland to the north.

Main Street at Route 135
Looking east toward Route 135

2.1.4 *Route 135 (West Union Street/Union Street) at Summer Street*

The Route 135 signalized intersection with Summer Street is a three-way intersection, with Summer Street providing the southbound approach and Route 135 providing the eastbound and westbound approaches. The Route 135 eastbound approach (West Union Street) contains a left turn lane and a through travel lane, and Route 135 westbound approach (Union Street) to this intersection contains a shared through/right travel lane. The southbound approach (Summer Street) contains a shared left/right turn lane. In the vicinity of the intersection, eastbound and westbound traffic is divided by 6 to 10-foot concrete or yellow painted median. Lanes are approximately 12 feet in width and with no shoulders. Each roadway contains granite

curbs and about 6-foot wide concrete sidewalks along both sides. There are two 8-foot wide crosswalks on each approach.

Looking east toward Summer Street on Route 135

Looking south towards Route 135 from the Summer Street/Cherry Street intersection

The traffic signal is a fully actuated signal with exclusive pedestrian phase. The pavement is in fair condition. However, the majority of pavement markings are faded.

In general, land uses currently around the intersection are primarily business. Northeast to the intersection locates Rite Aid, northwest to the intersection is K Plaza, and to the south of the intersection is Ashland Square Shopping Center.

2.1.5 *Route 135 at MBTA Access Road/Voyagers Lane*

Route 135 forms a signalized four way intersection with MBTA Access Road and Voyagers Lane. The Route 135 eastbound approach contains a left-turn lane and a through/right travel lane; the Route 135 westbound approach provides a short right-turn lane and a through/left travel lane. Lanes on MBTA Access Road and both approaches for West Union Street are approximately 12 feet in width. Voyagers Lane is approximately 20 feet wide approaching the intersection and approximately 13 feet leaving the intersection with a raised island dividing the two travel lanes. Five-foot wide bituminous concrete sidewalk with granite curb is provided on the north side of Route 135. At the southbound approach, MBTA Access Road has no pavement markings other than a STOP bar. A 10-foot wide crosswalk is provided on this approach.. The Voyagers Lane northbound approach includes a wide left/through/right travel lane. The MBTA Access Road and Voyagers Lane approaches are not in align with each other therefore the intersection is an offset intersection. An 8-foot wide crosswalk is provided across the westbound approach, connecting the east side of MBTA Access Road to the west side of Voyagers Lane.

The traffic signal is a fully actuated signal with exclusive pedestrian phase. The pavement is in fair condition. However, some pavement markings, especially those on MBTA Access Road are faded.

The majority of the area along Route 135 in the vicinity of the intersection is residential. Dunkin Donuts is located to the east on MBTA Access Road. MBTA Access Road extends northwest to provide access to the MBTA Ashland Train Station parking lot. Ashland Junior High School is located to the west of the MBTA Access Road. Voyagers Lane is the only entrance/exit roadway to Pine Lake Condos, an 88-unit condominium complex that is located to the southeast of the intersection.

Looking northeast toward MBTA Access Road/Voyagers Lane

2.1.6 *Route 135 at James Jackson Way*

Route 135 intersects James Jackson Way to form a three-way intersection. James Jackson way provides access to Ashland Junior High School. The entrance and exit to the Junior High School is separated by a tree line approximately 18 feet wide. The entrance is approximately 20 feet wide with no pavement markings. The exit has two lanes, each approximately 12 feet wide. The lanes have pavement markings indicating a left turn lane and a right turn lane. There is a 10 foot sidewalk on both the entrance and exit with an 8 foot wide crosswalk connecting them.

View of Route 135 intersection James Jackson Way (Ashland Junior High School)

Route 135 has a school zone speed limit of 20 miles per hour in the vicinity of the school. There are pavement markings and signs indicating a school zone. There are 12 inch wide bars across Route 135 approaching the school, but no signs indicating that motorists should stop. The line is set back approximately 40 feet on the eastbound approach and 30 feet on the westbound approach. There is an 8 foot wide sidewalk on the north side of the road.

2.1.7 *Route 135 at Frankland Road and Route 135 at Olive Street*

Frankland Road and Olive Street extend to the north and south, respectively. These two streets are at skewed angles to form two closely-spaced unsignalized three-way intersections. The distance between the centers of the two intersections is about 45 feet.

Frankland Road intersection is under stop control with each approach containing one travel lane approximately 12 feet in width. The southbound approach is fairly narrow until approximately 50 feet from the intersection where it widens to become approximately 110 feet at the intersection. Currently, there is a

41 foot long 12 inch wide STOP line on the approach. No other pavement marking is observed in this approach. The pavement is in good condition.

Looking southwest towards Frankland Road/ Olive Street

At the intersection of Route 135 and Olive Street, each approach contains one travel lane. The Olive Street northbound approach is under stop control with each approach containing one travel lane approximately 12 feet in width. Olive Street widens to approximately 110 feet at the intersection, and at the intersection is a small triangular shaped island which separates Olive Street into two functioning intersection. The east leg of the intersection is used by the westbound left movement, the northbound right movement and the southbound through movement from Frankland Road. The west leg of the intersection is used by the eastbound right movement and the northbound left movement. Currently, there is a 20 foot long 12 inch wide stop line for traffic exiting left onto Route 135, and a 28 foot long 12 inch wide stop line for traffic exiting to the right onto Route 135. No other pavement marking is observed in this approach. The pavement is in good condition.

Ashland Community Center and Ashland State Park are located to the east of the two intersections. The majority of the area land use in the vicinity of the intersections is residential, with the exceptions just noted.

2.2 Traffic Volumes

New data collected was used to provide traffic volume analysis for this study. The traffic data was collected along Route 135 during the month of February. Data collection consisted of two 48 hour automatic traffic recorder (ATR) counts and manual peak period turning movement counts (TMC) from 7-9 AM and 4-6 PM at the study intersections. Table 2.1 summarizes the volume data collected on Route 135. The TMC and ATR data collected as a part of the traffic study are included in the Appendix.

As indicated in Table 2.1, the average weekday traffic volume is approximately 14,300 vehicles per day (vpd) on Route 135 close to the proposed site, 12,420 vpd on Route 135 east of Summer Street, and 3,270 vpd on Summer Street, south of Linden Street. During the AM peak hour, Route 135 volume at the project location was approximately 1,130 vehicles with 70.1% in the eastbound direction and representing approximately 7.9% of the weekday total. There were approximately 1,240 vehicles in the PM peak with 63.3% in the westbound direction and representing approximately 8.1% of the weekday total. On Union Street east of Summer Street, there were 1,008 vehicles during the AM peak hour with 59.9% in the eastbound direction and representing 8.1% of the daily volume. There were approximately 930 vehicles during the PM peak hour with 52.8% in the westbound direction and representing 7.5% of the daily traffic. On Summer Street south of Linden Street, there were 329 vehicles during the AM peak hour with 73.8% in the northbound direction representing 10.1% of the daily traffic. There were 280 vehicles in the PM peak hour with 64.3% in the southbound direction and representing 8.6% of the daily traffic.

Table 2.1- ATR Data Summary, February 2014

		AM Peak Hour			PM Peak Hour		
Location	24 Hour Weekday	Volume	K-Factor	Direction Distribution	Volume	K-Factor	Direction Distribution
West Union Street, east of Edgewood Drive	14,296 vpd	1,132 vph	7.9%	70.1% EB	1,238 vph	8.7%	63.3% WB
Union Street, east of Summer Street	12,417 vpd	1,008 vph	8.1%	59.9% EB	929 vph	7.5%	52.8% WB
Summer Street, south of Linden Street	3,268 vpd	329 vph	10.1%	73.8% NB	280 vph	8.6%	64.3% SB

[1] vpd = vehicles per day; vph = vehicles per hour

[2] K-Factor = Percentage of daily traffic that occurs during the peak hour

Note: Data has been rounded. February 2014 (ATR) data.

In developing the estimated average or typical volume conditions for the study, a review of permanent traffic count station data maintained by the Massachusetts Department of Transportation (MassDOT) was completed. This review determined the seasonal variation of traffic flow on roadways similar to the function and/or in the general region and if the data collected in the field needed to be adjusted to reflect appropriate analysis conditions. The permanent count station (Sta. 0307) maintained by MassDOT was identified and reviewed to evaluate seasonal and year-to-year changes. Station 0307 (Westborough) is a town within close proximity of the site and on a route with relatively similar traffic patterns. The data for this station indicated that February volumes tend to be approximately 3%-4% below average monthly conditions. The data collected in February was also compared to the data that was originally collected in July as part of this project. The overall daily traffic was approximately 8% lower in February than July on Route 135 near the project site. A summary of the ATR data from July is provided in Table 2.2. Three of the study intersections were also observed in July. Comparison of turning movement counts at the study intersections showed a slightly higher peak hour volumes in February than July. Based on the findings, the traffic counts collected in February were increased by 3% in order to more accurately reflect average daily traffic.

Table 2.2- Summary of ATR Data, July 2013, West Union Street, east of Frankland Road

		AM Peak Hour			PM Peak Hour		
Date of Count	24 Hour Weekday	Volume	K-factor	Direction %	Volume	K-Factor	Direction %
7/9/2013	15,551 vpd	1,345 vph	8.6%	65.3% EB	1,248	8.0%	59.4% WB
7/10/2013	15,618 vpd	1,279 vph	8.2%	69.7% EB	1,354	8.7%	60.0% WB
Average	15,590* vpd	1,312 vph	8.4%	67.5% EB	1,301	8.3%	59.5% WB

Note: Data has been rounded. July 2013 (ATR) data.

Figure 3 and Figure 4 illustrate the estimated existing weekday morning and evening peak hour traffic volume networks for the study area, respectively, including the seasonal adjustment.

Table 2.3 summarizes the observed speed data collected in February 2014 as part of the ATR count on Route 135 and on Summer Street. As can be seen, the average speed on Route 135 near the project site is approximately 40 mph for the eastbound traffic and 30 mph for westbound traffic. The eastbound and westbound 85th percentile speed is approximately 45 and 35 mph, respectively.

Table 2.3- Summary of Speed Data

LOCATION	DIRECTION	AVERAGE SPEED (MPH)	85TH PERCENTILE SPEED (MPH)	POSTED SPEED (MPH) AT LOCATION	PACE SPEED (MPH)	% IN PACE
West Union Street, east of Edgewood Drive	Eastbound	40	47	35	37-46	57%
	Westbound	30	34	35	26-35	80%
Union Street, east of Summer Street	Eastbound	25	32	-	24-33	50%
	Westbound	19	28	-	20-29	36%
Summer Street, south of Linden Street	Northbound	30	35	-	27-36	69%
	Southbound	30	35	25	27-36	68%

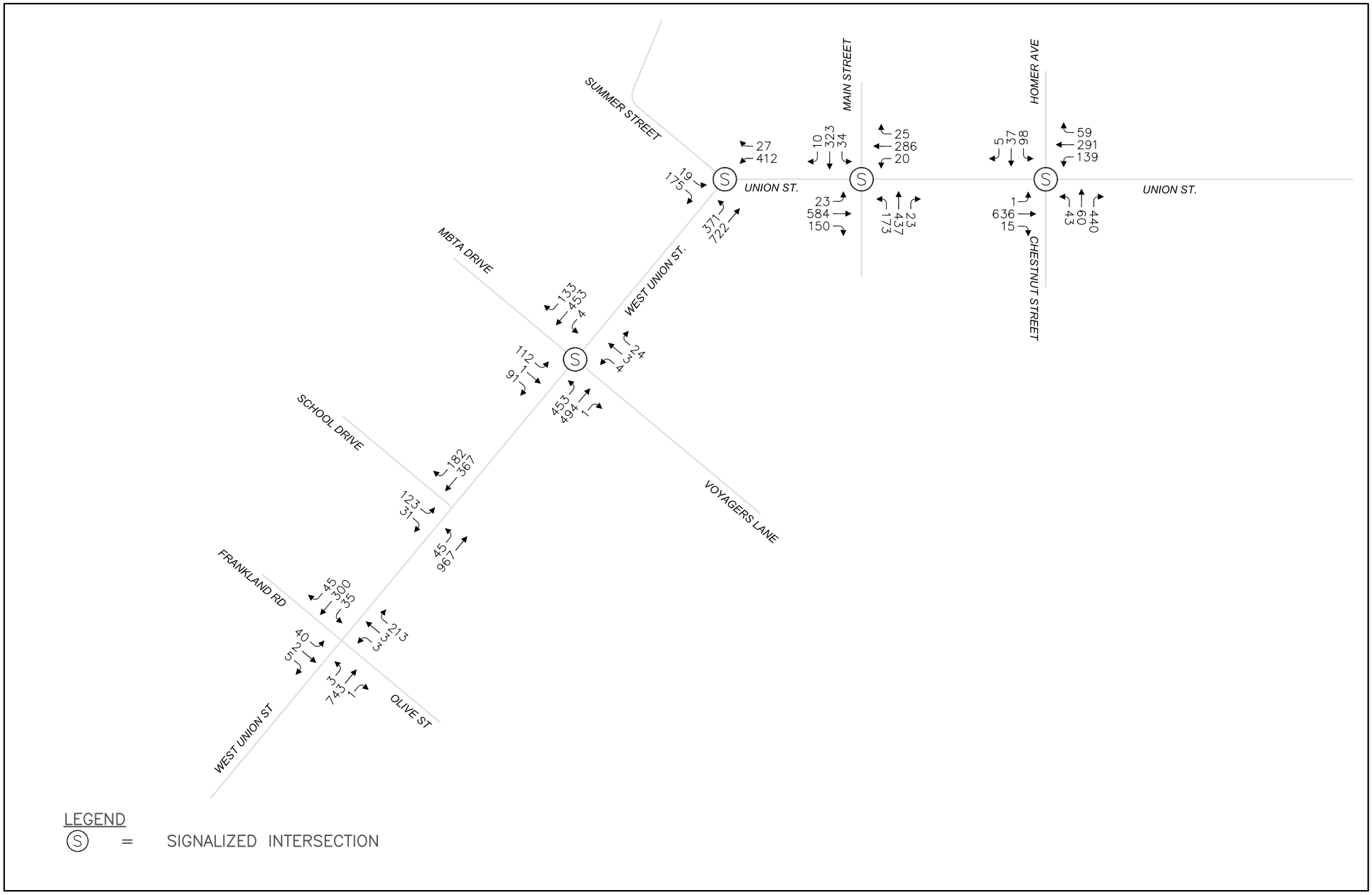

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Figure 3
2014 Existing AM Peak Hour Traffic Volumes
133 West Union Street Development
Ashland, Massachusetts

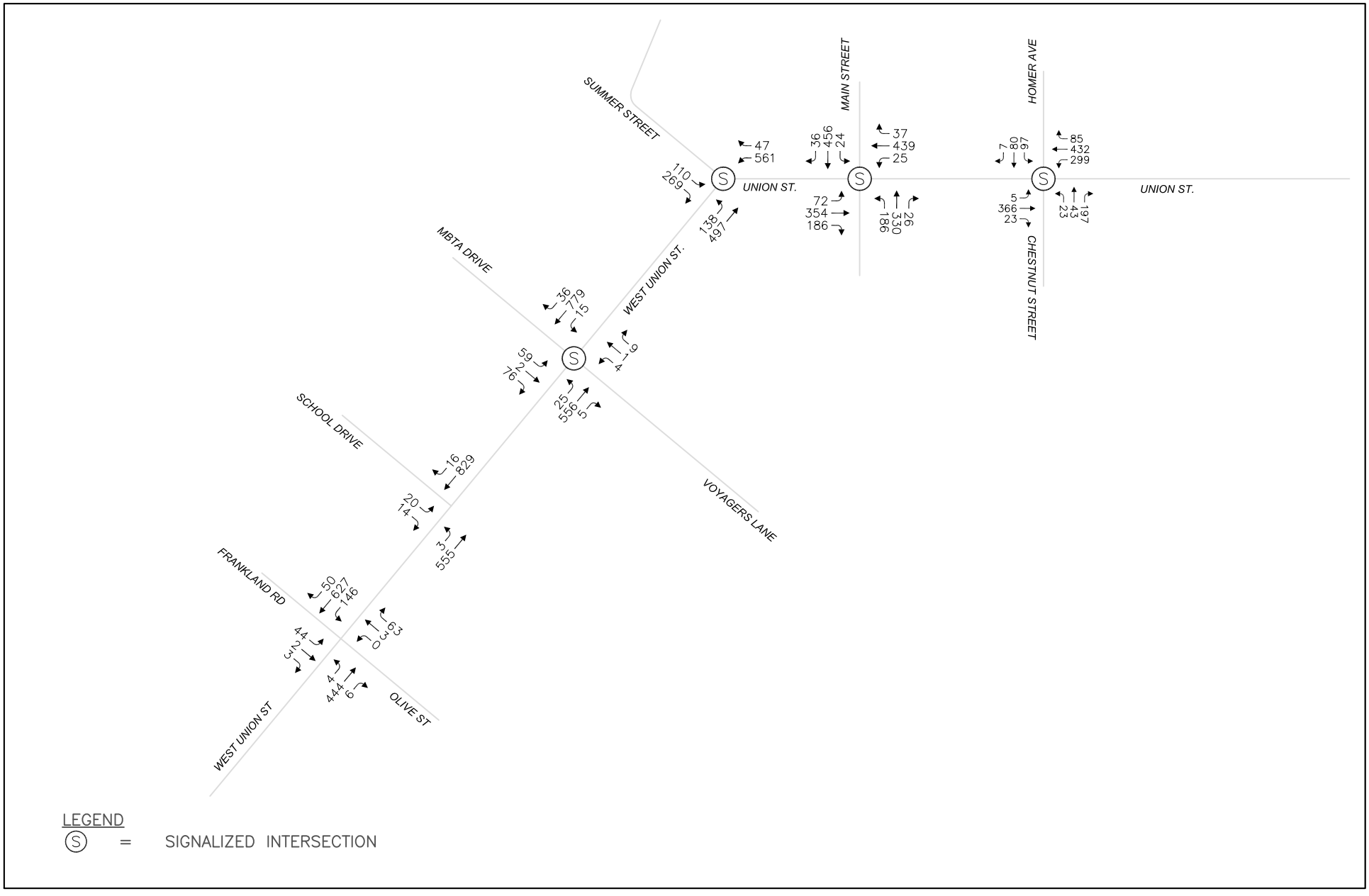

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Figure 4
2014 Existing PM Peak Hour Traffic Volumes
133 West Union Street Development
Ashland, Massachusetts

2.3 Crash Experience

Crash history was compiled and reviewed for the study locations using the most recent crash data available, from 2009 to 2011. The review was completed for Route 135 at Chestnut Street/Homer Ave, Route 135 at Main Street, Route 135 at Summer Street, Route 135 at MBTA Access/Voyagers Lane, Route 135 at Frankland Road and Route 135 at Olive Street. The data are summarized in Table 3. Crash data for the Town of Ashland 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 3 indicated that the intersection of Route 135 at Summer Street reported a total of eleven (11) crashes for an average of 3.7 crashes per year over the three year period. Most of the reported crashes were classified as angle or rear-end type. All of the eleven reported crashes were classified as property damage only crashes. There were a total of eight (8) reported crashes in three years at the intersection of Route 135 and Main Street for an average of 2.6 crashes per year over the three year period. Three of the eight crashes were sideswipe collisions. Two of the crashes resulted in injury. There were sixteen (16) reported crashes at the intersection of Route 135 and Chestnut Street/Homer Ave for an average of 5.3 crashes per year over the three year period. Most of the reported crashes were classified as angle or rear end type. Three of the sixteen reported crashes resulted in injuries. There were three reported crashes on Route 135 at MBTA Access/Voyagers Lane, five on Route 135 at Ashland Middle School, four on Route 135 at Frankland Road, and five on Route 135 at Olive Street.

Table 2.4 Summary of Reported Crashes 2009-2011

	Route 135 at Frankland Street			Route 135 at Olive Street			Route 135 at Middle School			Route 135 at Voyager Lane (Signalized)		
	2009	2010	2011	2009	2010	2011	2009	2010	2011	2009	2010	2011
Severity												
Property Damage	1	1	1		2			3	2	1	1	
Injury	1					2				1		
Fatality												
Unknown					1							
Collision Type												
Rear End	1	1			1	1		3		2	1	
Angle			1		1							
Side Swipe									1			
Head On						1						
Single Vehicle	1				1				1			
Collision with Ped												
Collision with Bike												
Other/Unknown												
Roadway Conditions												
Dry	1	1	1		2	2		2	2	2	1	
Wet												
Snow/Ice	1				1			1				
Other/Unknown												
Totals	2	1	1	0	3	2	1	3	2	2	1	0
Annual Average Crashes	1.33			1.66			2.0			1.0		
Intersection Crash Rate	0.24			0.38			0.30			0.17		
MassDOT District 3 Average Crash Rate	0.66			0.66			0.66			0.89		

Table 2.4 (continued) Summary of Reported Crashes 2009-2011

	Route 135 at Summer Street (Signalized)			Route 135 at Main Street (Signalized)			Route 135 at Chestnut St/Homer Ave (Signalized)		
	2009	2010	2011	2009	2010	2011	2009	2010	2011
Severity									
Property Damage	6	2	3	2	1	3	5	7	1
Injury						2	1	2	
Fatality									
Unknown									
Collision Type									
Rear End	2		1		1	1	5	4	
Angle	4	1				1	1	2	1
Side Swipe			2			3		1	
Head On				1				1	
Single Vehicle				1					
Collision with Ped									
Collision with Bike								1	
Other/Unknown									
Roadway Conditions									
Dry	6	2	2	2	1	4	5	7	1
Wet			1			1	1	1	
Snow/Ice								1	
Other/Unknown									
Totals	6	2	3	2	1	5	6	9	1
Annual Average Crashes	3.66			2.66			5.33		
Intersection Crash Rate	0.59			0.32			0.84		
MassDOT District 3 Average Crash Rate	0.89			0.89			0.89		

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 0.89 crashes per MEV for signalized intersections. From Table 3, it can be seen that all the signalized and unsignalized intersections had lower crash rates than the current MassDOT District 3 averages. Based on the review of crash frequency and crash rates, it was concluded that none of the study intersections are deficient in terms of crash experience. Detailed intersection crash rate worksheets for the study intersections are included in the Appendix.

2.4 Existing Public Transit Network

Ashland is part of the community served by the MetroWest Regional Transit Authority. The Route 5 bus provides access from Hopkinton to downtown Framingham via Route 135. The bus currently stops at the corner of Homer Ave and Main Street, at Ashland House on Main Street, and at Ashland Junior High School; the bus will stop on call at the Ashland Community Center. Each of these stops is within the study area of this project. The bus leaves approximately every 1 hour and 10 minutes between 5:30AM and 7:00PM from Framingham and from Hopkinton. The bus provides access to and from the Framingham MBTA station, which provides access to Boston and Worcester. The bus trip to the Framingham MBTA station is scheduled to take twelve (12) minutes from Ashland Junior High School and seven (7) minutes from the corner of Homer Ave and Main Street.

In addition, the town is served by the MBTA commuter rail line with a station located on High Street. Parking is available near the station and accessible via High Street, Pleasant Street, and MBTA Access Road. The train provides access to Boston and to Worcester.

3.0 PROBABLE IMPACTS OF THE PROJECT

The impact of the proposed development project on the roadway network within the study area was evaluated and the results are described in this section. For study purposes, this study used the year 2021 for the analysis year that represents a 2 year permitting-construction period and a 5 year build out timeframe.

3.1 No-Build Traffic Volumes

A year 2021 No-Build traffic volume network was developed by taking into account existing traffic volumes, and identifying potential area wide background traffic volume growth as well as known site specific condition (background) developments that could contribute to traffic flow on the 2021 study network.

3.1.1 *Background Traffic Growth*

To establish a traffic growth rate for the study area, historical traffic count data from the Massachusetts Department of Transportation (MassDOT) Traffic Count Reports were researched. As indicated previously, the historical traffic data from the MassDOT permanent count station 307 was reviewed to determine an appropriate background growth rate. Data from 2010 through 2013 showed an increase in traffic between -0.3% and 1.6% annually. A traffic growth rate of 0.5% per year was selected and applied to the existing peak hour traffic volumes. These rates would presumably account for some of the more remote growth in the region as well as general nearby residential/small business growth that could potentially result in added traffic through the study area, including the following projects:

- Robert Hill Way Development
- 21 Main Street Development
- Downtown Revitalization Project

3.1.2 *Site Specific Developments*

In addition to general background growth, research on site specific developments or uses that are likely to occur within the study time frame in the vicinity of the proposed project and that could impact the traffic flow at the analysis intersections was completed. Discussions were conducted with the Ashland Planning Department and combined with field observations, several site specific developments not yet fully occupied or built out were identified and incorporated into the analysis. The following projects were included as specific development projects:

- 250 West Union Street[1]
- Rail District[2]
- Ashland Woods Development[3]
- Village of Americas Development[4]

[1] Proposed #250 West Union Street Development, MS Transportation Systems, Inc, Januaray 2007

[2] Proposed Residential Development, Vanasse & Associates, Inc, December 12, 2007

[3] Ashland Woods, Gillon Associates, February 2013

[4] See appendix for trip generation and trip distribution

3.1.3 *No-Build Traffic Volumes*

Consequently, the year 2021 No-Build traffic volumes were determined by adding the seven (7) years background traffic growth of half a percent annually as well as projected traffic from the site specific development noted above to the existing traffic volumes. The estimated year 2021 No-Build traffic volumes projected for the weekday morning and evening peak hours at the study intersections are shown in Figure 5 and Figure 6, respectively.

3.2 Proposed Project Description

The project is proposed under the Commonwealth's 40B program. The proposed development program is to construct 140 apartment units within two four-story buildings and two three-story buildings. The two four-story buildings are composed of 40 units and the two three-story buildings are composed of 29 units. In addition, there is a clubhouse with a maintenance facility attached. As described previously, the site is located east of the intersection of Route 135/Frankland Road and west of the intersection of Route 135/Voyagers Lane/MBTA Access Road. Access for the project will be via a single driveway on the north side of Route 135. As planned, the site drive consists of one entering and one exiting lane.

3.3 Site Generated Traffic Volumes

In this section an estimate of traffic to be generated by the proposed residential development was completed and assigned to roadways/intersections within the study area and added to the No-Build traffic volume network to develop the Build traffic condition.

3.3.1 *Site Trip Generation*

In order to estimate the number of trips that could be generated by the proposed residential development, statistics published by the Institute of Transportation Engineers (ITE) in Trip Generation for similar land uses were examined. The ITE trip generation statistics represent compilations of data from studies/projects throughout the United States collected over the past 30+ years on trip generation characteristics for different types of land uses. The data has been compiled to provide transportation analysts with guidelines in forecasting 24 hour and peak hour volumes for the specified use.

Based on a review of the ITE database and the various residential models, Land Use Code (LUC) 220 Apartment was selected as the most similar to the project type of unit. This was determined to best reflect the project's travel characteristics and was selected for estimating purposes. The estimated trips generated by the project are presented in Table 3.1. Detailed trip generation calculations for the proposed use are included in the Appendix.

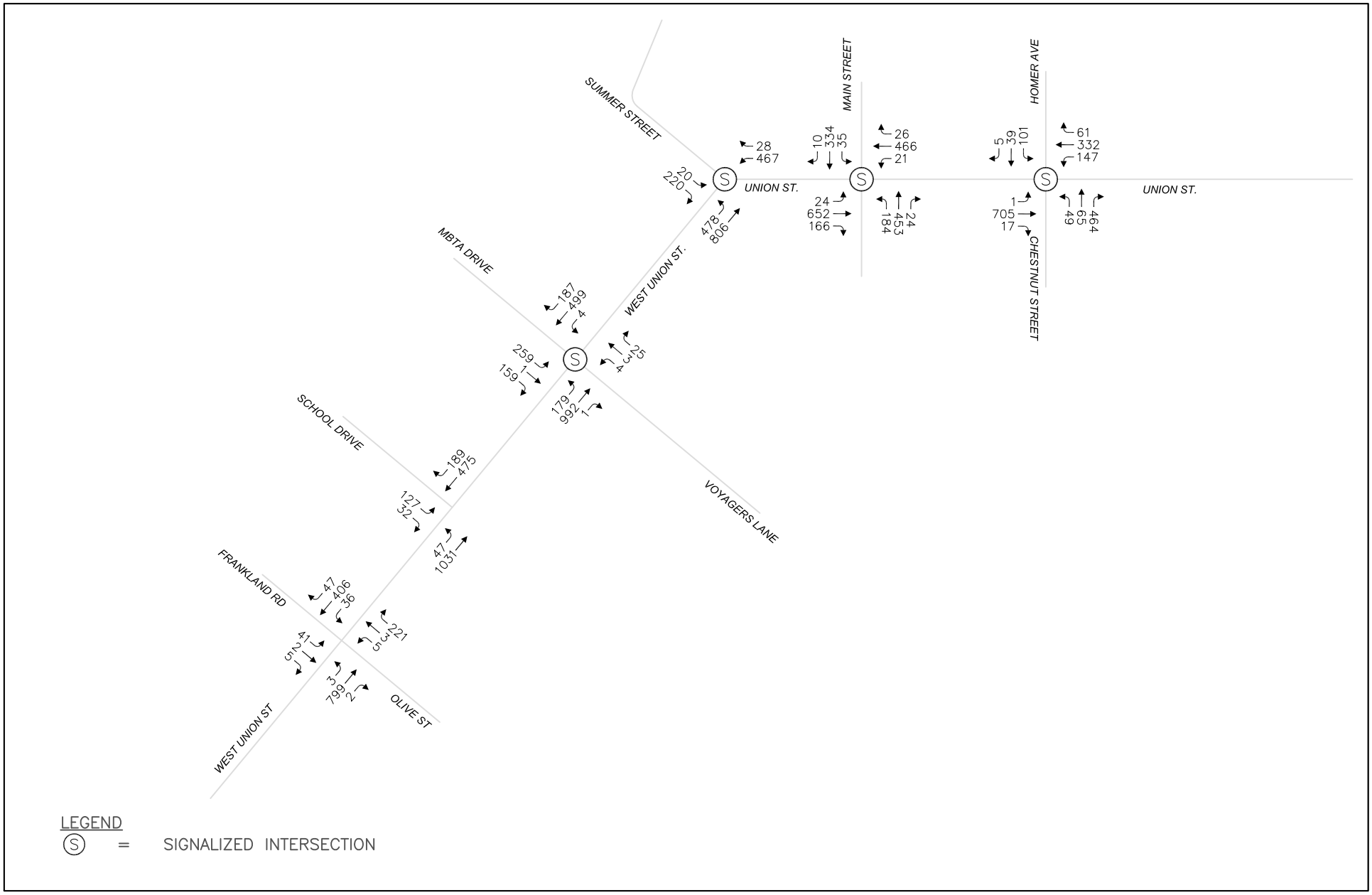

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Figure 5
2021 No-Build AM Peak Hour Traffic Volumes
133 West Union Street Development
Ashland, Massachusetts

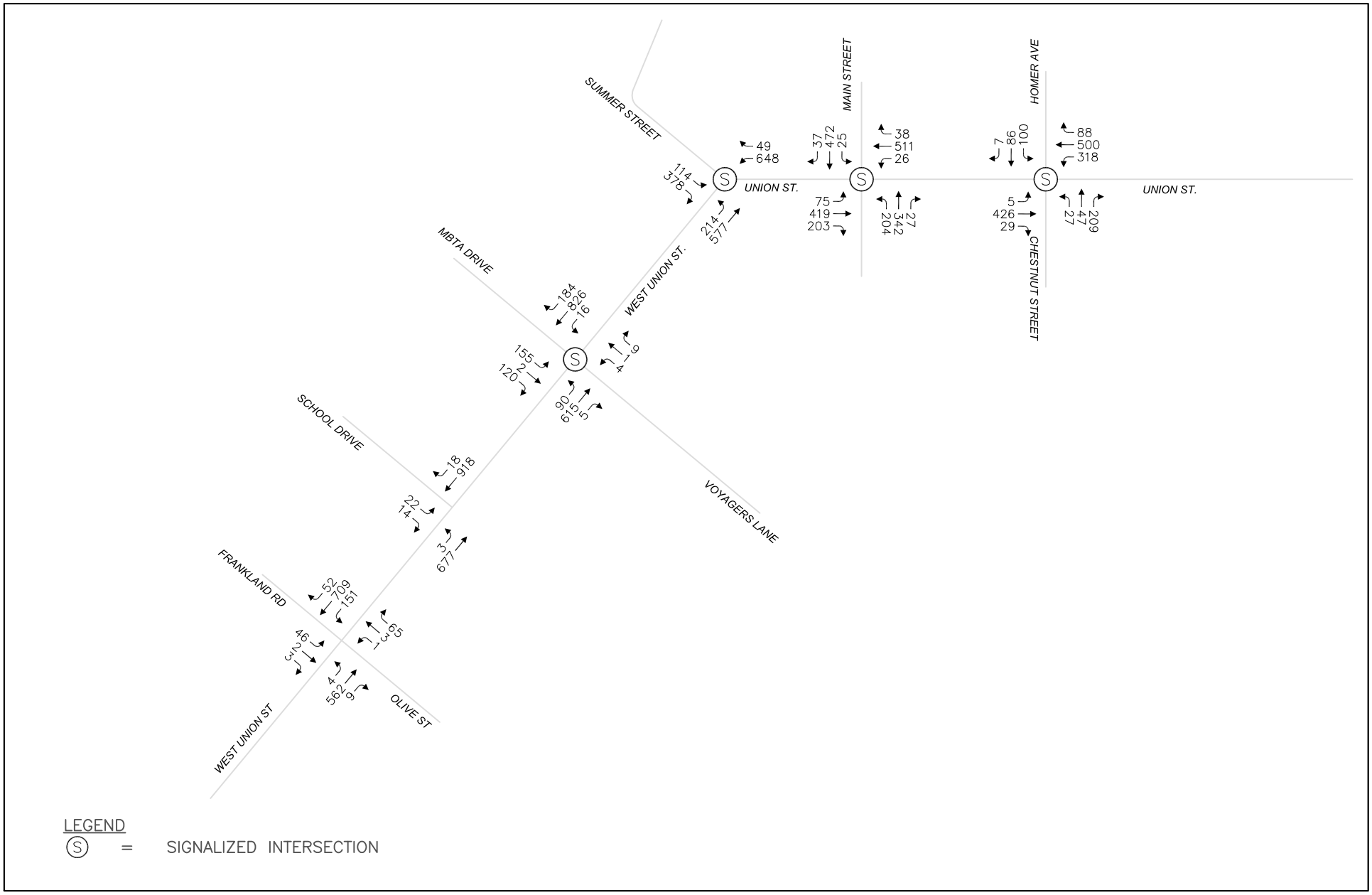

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Figure 6
2021 No-Build PM Peak Hour Traffic Volumes
133 West Union Street Development
Ashland, Massachusetts

Table3.1- Summary of Estimated Site Generated Vehicle Trips

	ENTERING	EXITING	TOTAL
Weekday	486	486	972
AM Peak Hour	14	58	72
PM Peak Hour	62	33	95

Source: ITE Trip Generation, 9th Edition, 2012, LUC 220

As shown in Table 3.1, the proposed development is expected to generate a total of approximately 972 vehicle trips over the course of an average weekday that will include 486 entering and 486 exiting trips over the 24 hour period. The weekday morning peak hour is expected to generate 72 total trips with 14 inbound and 58 outbound trips. The weekday evening peak hour is expected to generate 95 total trips with 62 inbound and 33 outbound trips.

3.3.2 *Trip Distribution/Assignment*

Once the number of trips projected to be generated by the development has been determined, trips are assigned to the site driveway and study area roadways based on trip distribution patterns determined for the project. For this project, 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. As a result of the analysis, the assigned percentages by direction are presented in Figure 7. The estimated project trips distributed about the study are presented in Figure 8 for the AM peak hour, and Figure 9 for the PM peak hour.

3.3.3 *Build Traffic Volumes*

Trips estimated for the proposed development were assigned to the site driveway and study area roadway using the trip distribution percentages shown in Figure 5. Peak hour site traffic volumes were then added to the No-Build traffic volumes to establish the 2021 Build condition traffic networks. Figures 10 and 11 present the Build traffic volumes for the weekday morning and evening peak hours, respectively.

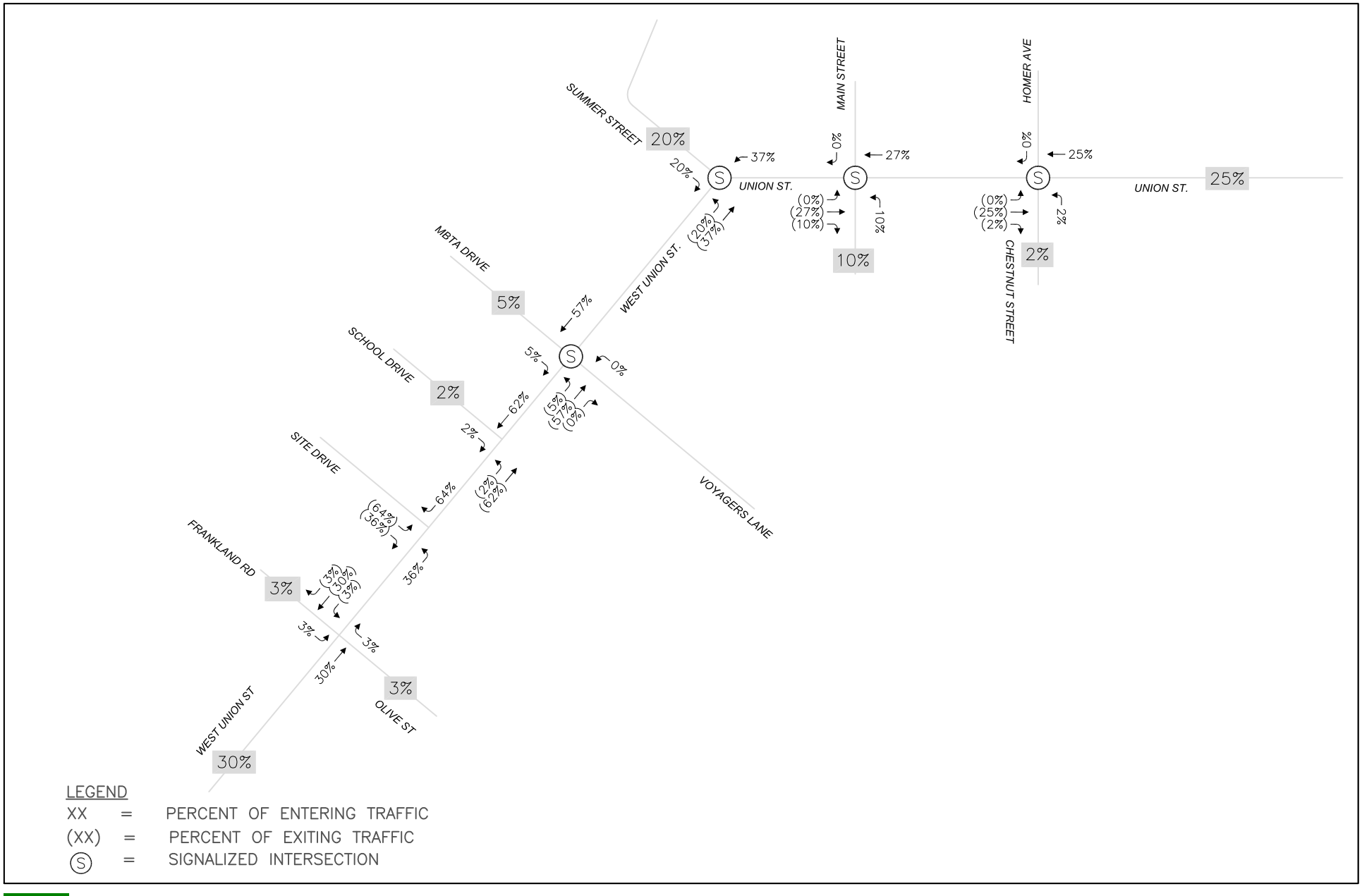

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Figure 7
Trip Distrubtion
133 West Union Street Development
Ashland, Massachusetts

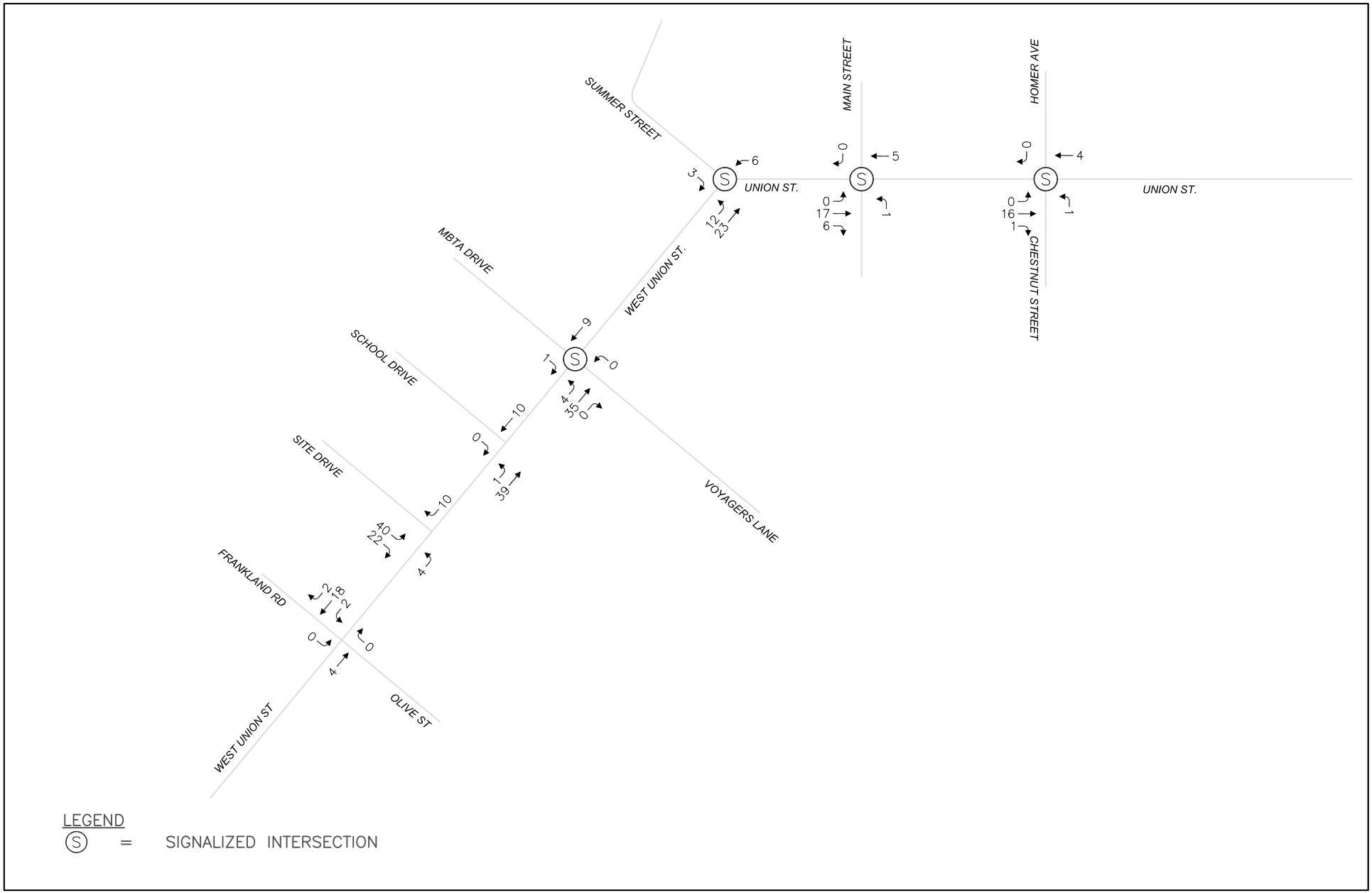

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Figure 8
AM Peak Hour Site Generated Trips
133 West Union Street Development
Ashland, Massachusetts

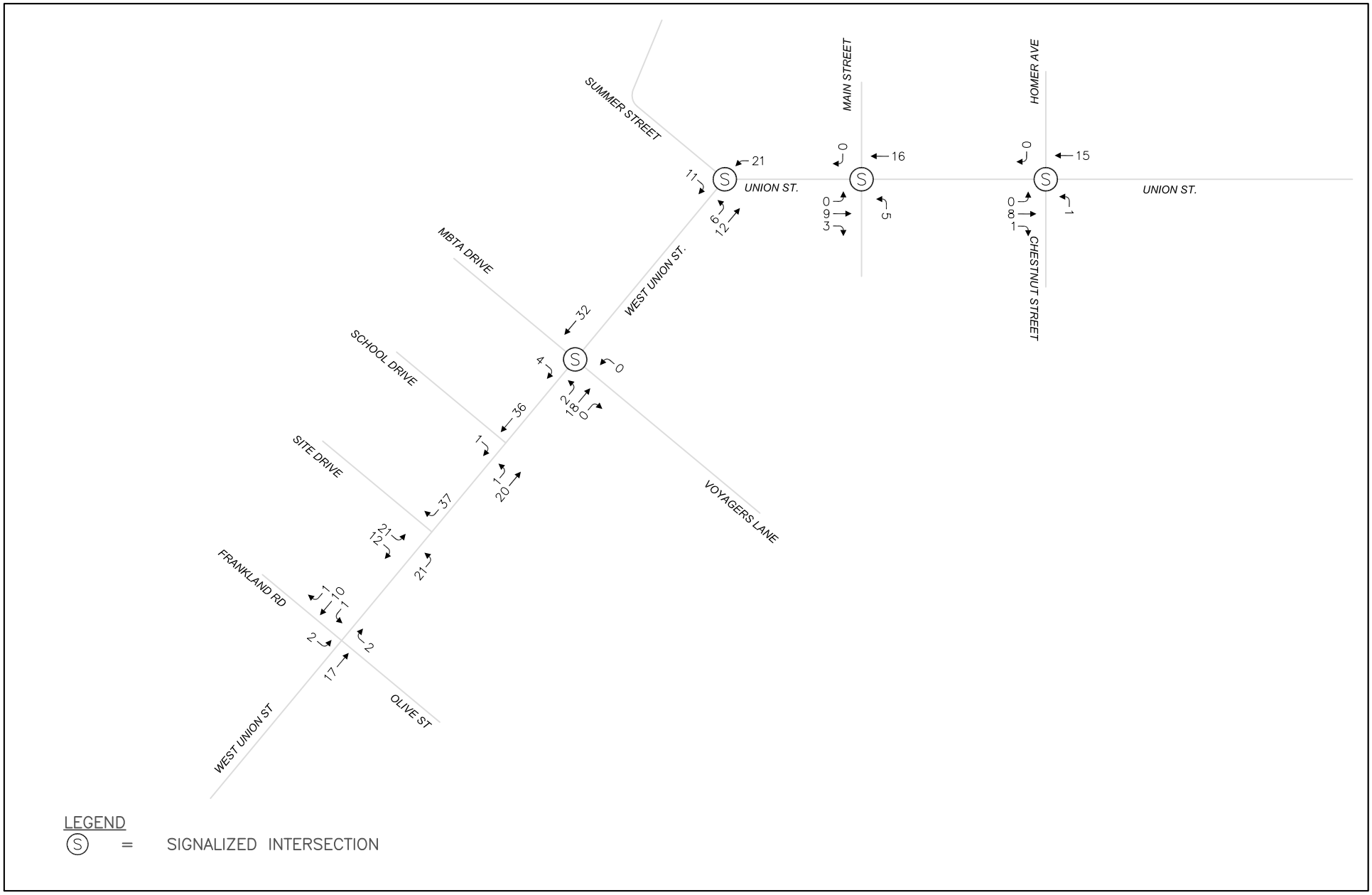

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Figure 9
PM Peak Hour Site Generated Trips
133 West Union Street Development
Ashland, Massachusetts

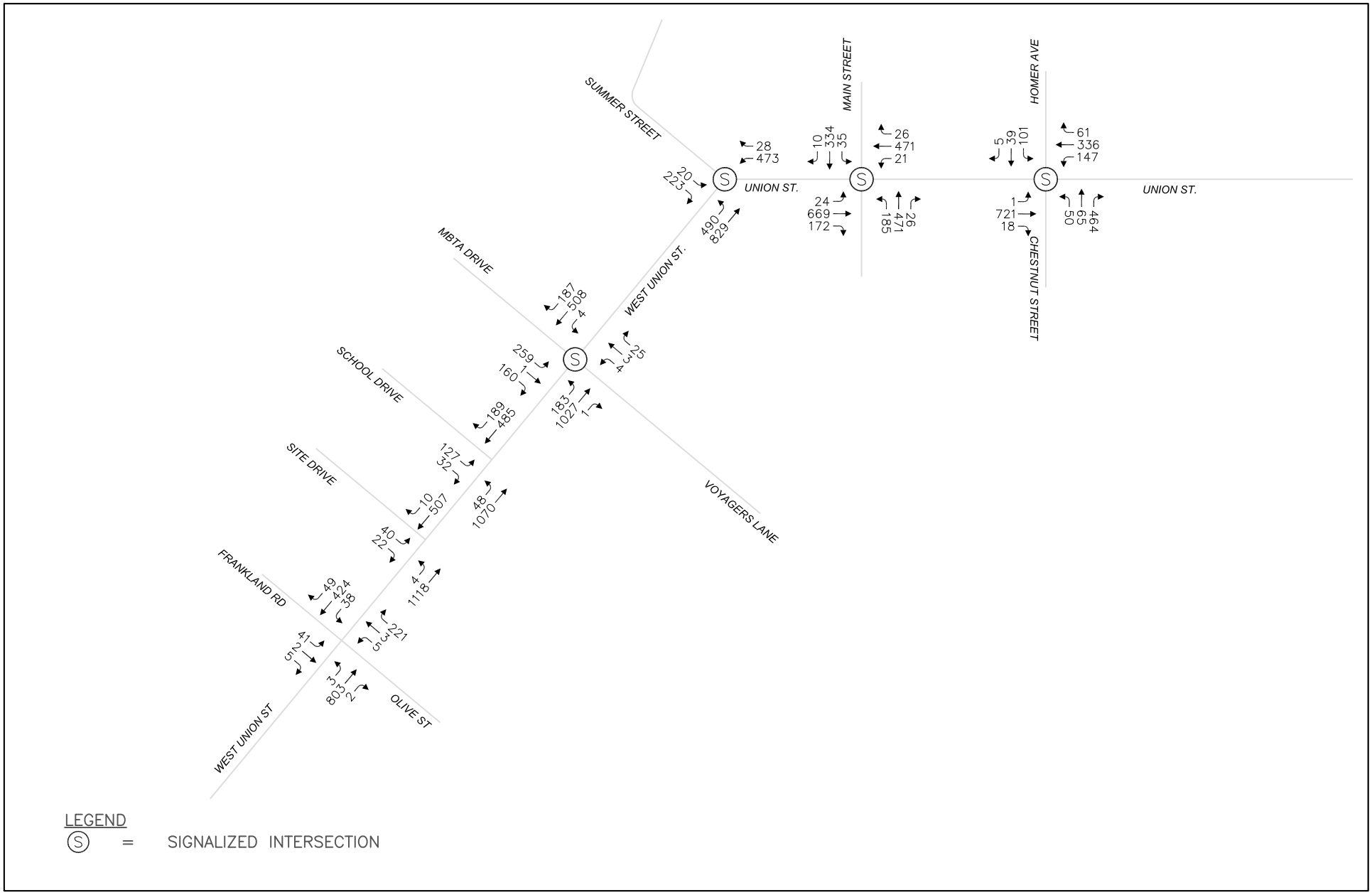

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Figure 10
2021 Full-Build AM Peak Hour Traffic Volumes
133 West Union Street
Ashland, Massachusetts

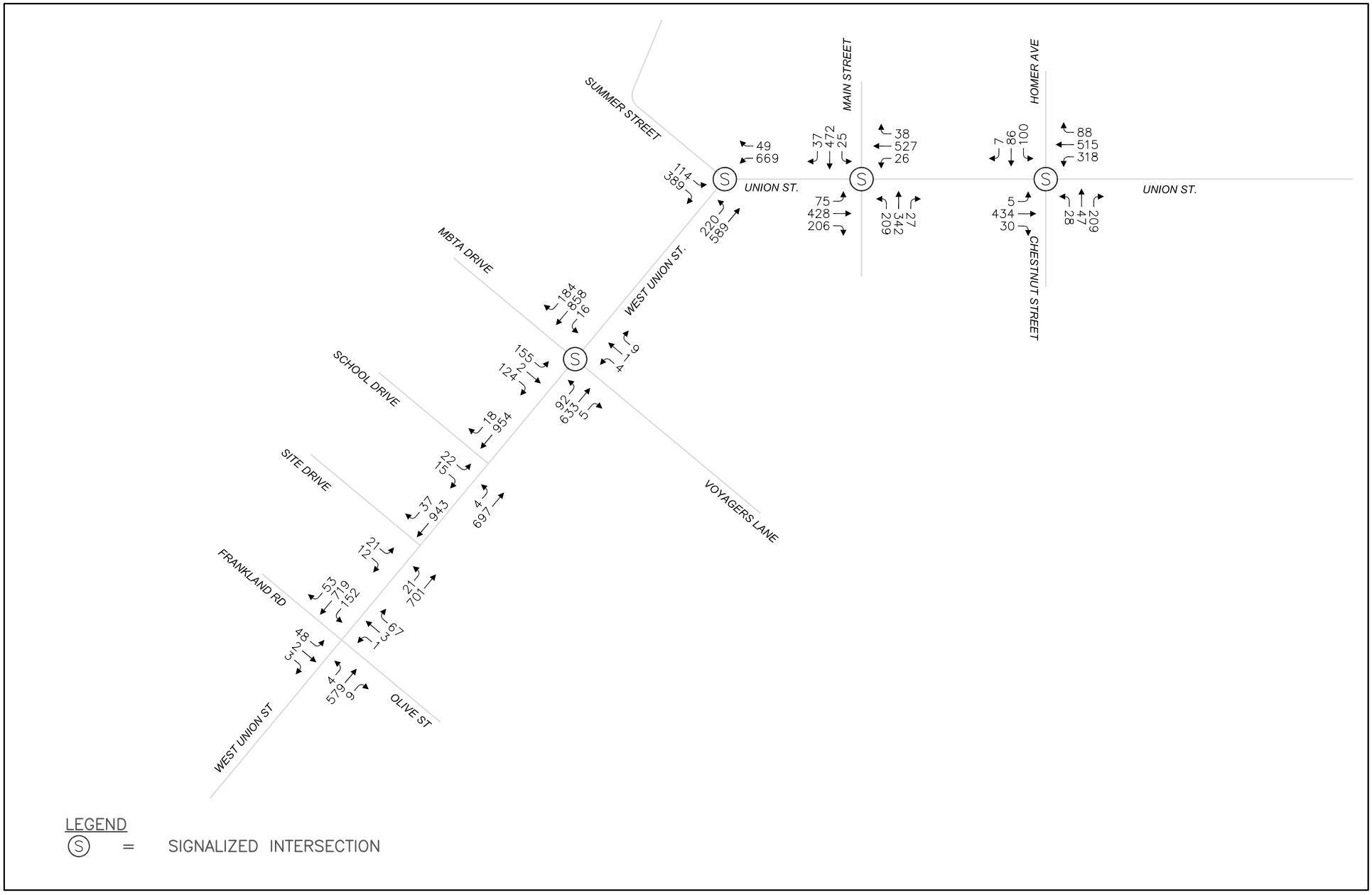

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Figure 11
2021 Full-Build PM Peak Hour Traffic Volumes
133 West Union Street Development
Ashland, Massachusetts

4.0 ANALYSIS

Previous sections of this report described the current conditions of nearby intersections, the development of the 2021 No-Build and 2021 Build traffic volume networks including the site generated trip forecasts. Included in this section is an examination of the volume changes, capacity/Level of Service (LOS) analysis for the study intersection under each condition and sight distances relative to the site access drive were reviewed.

4.1 Traffic Volume Increases

Initially, a comparison of No-Build and Build volumes on the surrounding roadway system was completed. Table 4.1 summarizes the increases in traffic volumes for the study area roadways.

Table 4.1- Summary of Estimated Roadway Traffic Increases

	Weekday AM Peak Hour				Weekday PM Peak Hour			
Location	No-Build	Build	Δ in Volume	% Δ in Volume	No-Build	Build	Δ in Volume	% Δ in Volume
Route 135								
West of Olive St	1220	1242	22	1.8%	1288	1315	27	2.1%
East of MBTA Rd	1966	2010	44	2.2%	1805	1855	50	2.7%
East of Summer St	1321	1350	29	2.2%	1388	1421	33	2.4%
West of Chestnut St	1109	1131	22	2.0%	994	1019	25	2.5%
Summer Street								
North of Route 135	746	761	15	2.0%	755	772	17	2.3%
Olive Street								
South of Route 135	269	271	2	0.7%	231	234	3	1.3%

The key findings include the following:

- In general, Route 135 will experience traffic increase due to the proposed project, ranging between 1.8% and 2.7% depending on the location and time period.
- Increases on the streets off Route 135 will be around 2%, equivalent to only one vehicle every four minutes on Summer Street and one vehicle every thirty minutes on Olive Street.

In general, the increased levels of roadway volume will be within the capacity of the affected roadways. Route 135 generally carries moderately high traffic volumes while Frankland Road, Olive Street, MBTA Access Road and Voyager's Lane carry moderately low traffic volumes. It is anticipated that the roadway networks will accommodate the increase in traffic generated by the proposed project.

4.2 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.

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, traffic composition, peak hour factors, travel delay, freedom to maneuver and driver expectation. When all of these measures are assessed and a Level of Service is assigned to a roadway or intersection, it is equivalent to presenting an "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 4.2 for both unsignalized and signalized intersections.

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

Table 4.2- Level of Service Criteria for Signalized and Unsignalized Intersections

LOS	UNSIGNALIZED INTERSECTION (SEC)	SIGNALIZED INTERSECTION (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

The study intersections were evaluated using the SYNCHRO 8 computer models that follows the procedures established in the HCM. Using existing roadway features and the intersection controls, traffic operations at the study intersections were evaluated for existing as well as future conditions. Analysis results for the study intersections are presented in Table 4.3 and Table 4.4 for morning and evening peak period, respectively. Detailed analysis results can be found in the Appendix.

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

Table 4.3-AM Peak Hour Analysis

	Existing Conditions				Future No-Build				Future Build Conditions			
	v/c	95th % Q (ft)	Delay	LOS	v/c	95th % Q (ft)	Delay	LOS	v/c	95th % Q (ft)	Delay	LOS
Union Street and Main Street (Signalized)												
Union Street EB L	0.06	37	21.0	C	0.45	37	21.6	C	0.10	37	21.6	C
Union St EB TR	0.99	1321	62.2	E	0.42	1499	117.9	F	1.19	1553	>120	F
Union St WB L	0.14	34	22.6	C	0.45	35	22.8	C	0.14	35	22.8	C
Union St WB TR	0.44	395	29.8	C	0.42	741	36.1	D	0.69	751	36.3	D
Main Street NB L	0.73	267	45.8	D	0.37	298	50.1	D	0.79	300	50.5	D
Main St NB TR	0.84	827	52.7	D	0.32	858	54.1	E	0.9	905	58.3	E
Main St SB L	0.21	54	29.6	C	0.31	55	29.4	C	0.22	55	29.4	C
Main St SB TR	0.80	521	55.4	E	0.25	541	55.5	E	0.81	541	55.5	E
overall	-	-	*51.5*	*D*	-	-	*71.1*	*E*	-	-	*76.8*	*E*
Union Street and Chestnut Street/Homer Ave (Signalized)												
Union St EB L	0.00	4	22.0	C	0.00	4	22.0	C	0.00	4	22.0	C
Union St EB TR	1.28	736	>120	F	0.32	835	>120	F	1.34	862	>120	F
Union St WB L	0.61	103	27.0	C	0.49	119	26.5	C	0.60	119	26.5	C
Union St WB TR	0.47	219	18.9	B	0.49	253	18.8	B	0.48	256	18.9	B
Chestnut St NB LT	0.51	111	43.1	D	0.52	121	42.9	D	0.52	122	43.0	D
Chestnut St NB R	0.60	70	5.9	A	0.6	72	5.7	A	0.60	76	5.7	A
Homer Ave SB LTR	0.75	166	60.3	E	0.77	184	60.4	E	0.76	182	60.3	E
overall	-	-	*74.9*	*E*	-	-	*78.5*	*E*	-	-	*84.6*	*F*
Union Street and Summer Street (Signalized)												
Union Street EB L	0.64	108	9.2	A	0.86	275	21.8	C	0.89	292	25.0	C
Union Street EB T	0.64	229	6.2	A	0.70	302	8.4	A	0.72	321	8.9	A
Union St WB TR	0.65	236	13.6	B	0.74	284	19.3	B	0.75	291	20.1	C
Summer St SB LR	0.70	59	26.3	C	0.84	65	31.7	C	0.85	65	32.3	C
overall	-	-	*11.0*	*B*	-	-	*17.1*	*B*	-	-	*18.2*	*B*

Table 4.3 (Continued) - AM Peak Hour Analysis

	Existing Conditions				Future No-Build				Future Build Conditions			
	v/c	95TH % Q (ft)	Delay	LOS	v/c	95TH % Q (ft)	Delay	LOS	v/c	95TH % Q (ft)	Delay	LOS
West Union Street and MBTA Access/Voyaers Lane (Signalized)												
West Union St EB L	0.27	131	5.8	A	0.38	200	8.9	A	0.39	211	9.1	A
W Union St EB TR	0.80	922	7.6	A	0.85	978	12.2	B	0.88	1025	14.2	B
W Union St WB LT	0.39	414	3.4	A	0.42	479	4.5	A	0.43	491	4.5	A
W Union St WB R	0.13	49	2.6	A	0.19	72	3.5	A	0.19	73	3.5	A
Voyager Ln NB LTR	0.19	20	20.8	C	0.11	20	21.6	C	0.11	20	22.1	C
MBTA SB LT	0.00	252	20.2	C	0.00	484	21.0	C	0.00	484	21.5	C
MBTA SB R	0.56	28	24.7	C	0.72	37	27.5	C	0.72	37	28.2	C
overall	-	-	*7.1*	*A*	-	-	*10.6*	*B*	-	-	*11.6*	*B*
West Union Street and Ashland Junior High School Drive												
Middle School L	1.39	254	>120	F	1.97	315	>120	F	2.19	333	>120	F
Middle School R	0.06	5	11.7	B	0.07	5.00	12.9	B	0.07	13	13	B
W Union St EB L	0.05	5	8.9	A	0.06	5	9.2	A	0.06	5	9.4	A
West Union Street and Frankland Road												
Frankland SB LT	0.26	25	31.6	D	0.348	35	43.3	E	0.54	38	62.4	F
W Union St EB L	0.01	0	8.1	A	0.01	0	8.5	A	0.01	0	8.5	A
West Union Street and Olive Street												
Olive Street NB L	0.01	0	23.0	C	0.032	2.5	28.4	D	0.03	3	29.5	D
Olive Street NB R	0.56	82	24.8	C	0.626	103	29.7	D	0.63	103	29.9	D
W Union St EB L	0.05	3	9.6	A	0.05	5	9.8	A	0.05	5	9.9	A
West Union Street at Site Drive												
Site Drive ST LR	-	-	-	-	-	-	-	-	0.54	65	62.4	F
W Union St EB L	-	-	-	-	-	-	-	-	0.00	0	8.6	A

Table 4.4 - PM Peak Hour Analysis

	Existing Conditions				Future No-Build				Future Build Conditions			
	v/c	95th Q (ft)	Delay	LOS	v/c	95th Q (ft)	Delay	LOS	v/c	95th Q (ft)	Delay	LOS
Union Street and Main Street (Signalized)												
Union St EB L	0.33	87	24.8	C	0.46	91	30.1	C	0.5	96	32.2	C
Union St EB TR	0.78	857	41.2	D	0.90	1048	51.1	D	0.92	1077	53.4	D
Union St WB L	0.13	38	22.6	C	0.19	40	24.0	C	0.19	40	24.0	C
Union St WB TR	0.74	703	42.4	D	0.86	875	49.7	D	0.88	915	52.5	D
Main St NB L	1.01	375	98.9	F	1.11	422	>120	F	1.10	420	>120	F
Main St NB TR	0.61	557	41.9	D	0.64	589	42.5	D	0.64	589	42.5	D
Main St SB L	0.10	41	27.5	C	0.10	42	27.6	C	0.10	42	27.6	C
Main St SB TR	1.04	896	94.5	F	1.08	937	104.6	F	1.08	937	104.6	F
overall	-	-	*57.7*	*E*	-	-	*66.2*	*E*	-	-	*67.2*	*E*
Union Street and Chestnut Street/Homer Ave(Signalized)												
Union St EB L	0.02	10	23.0	C	0.03	10	23.2	C	0.03	2	23.2	C
Union St EB TR	0.71	357	35.3	D	0.84	455	43.6	D	0.32	273	45.2	D
Union St WB L	0.96	306	63.7	E	1.24	371	>120	F	0.48	208	>120	F
Union St WB TR	0.64	364	22.5	C	0.73	450	25.8	C	0.48	307	26.7	C
Chestnut St NB LT	0.29	77	36.7	D	0.32	84	37.4	D	0.17	41	37.6	D
Chestnut St NB R	0.33	49	5.1	A	0.34	51	5.0	A	0.32	0	5.0	A
Homer Ave SB LTR	0.83	233	65.4	E	0.86	249	68.7	E	0.17	116	68.7	E
overall	-	-	*36.2*	*D*	-	-	*55.7*	*E*	-	-	*58.3*	*E*
Union Street and Summer Street (Signalized)												
Union St EB L	0.44	41	9.8	A	0.85	112	36.7	D	0.93	119	53.2	D
Union St EB T	0.51	165	9.3	A	0.57	205	9.1	A	0.59	211	9.3	A
Union St WB TR	0.82	367	24.9	C	0.95	451	39.8	D	0.98	471	45.5	D
Summer St SB LR	0.75	57	19.9	B	1.23	238	>120	F	1.26	252	>120	F
overall	-	-	*17.7*	*B*	-	-	*56.7*	*E*	-	-	*63.6*	*E*

Table 4.4 (Continued) - PM Peak Hour Analysis

	Existing Conditions				Future No-Build				Future Build Conditions			
	v/c	95th Q (ft)	Delay	LOS	v/c	95th Q (ft)	Delay	LOS	v/c	95th Q (ft)	Delay	LOS
West Union Street and MBTA Access/Voyaers Lane (Signalized)												
W Union St EB L	0.06	30	8.5	A	0.29	121	13.2	B	0.31	124	14.5	B
W Union St EB TR	0.48	374	3.6	A	0.52	436	4.0	A	0.53	456	4.4	A
W Union St WB LT	0.17	733	4.8	A	0.69	812	6.4	A	0.72	869	7.0	A
W Union St WB R	0.03	2	2.3	A	0.19	75	3.0	A	0.19	75	3.0	A
Voyager Ln NB LTR	0.04	13	18.0	B	0.05	13	21.5	C	0.05	13	22.1	C
MBTA SB LT	0.01	160	17.8	B	0.01	324	21.2	C	0.01	324	21.8	C
MBTA SB R	0.57	26	22.5	C	0.66	45	27.0	C	0.68	51	27.8	C
overall	-	-	*5.4*	*A*	-	-	*7.1*	*A*	-	-	*7.6*	*A*
West Union Street and Ashland Junior High School Drive												
Middle School L	0.08	15	19.0	C	0.26	23	56.6	F	0.28	25	63.2	F
Middle School R	0.05	3	16.3	C	0.05	5	18	C	0.06	5	18.8	C
W Union St EB L	0.00	0	9.9	A	0.01	0	10.3	B	0.01	0	10.5	B
West Union Street and Frankland Road												
Frankland SB LT	0.30	30	35.4	E	0.41	45	51.5	F	0.44	50	55.8	F
W Union St EB L	0.01	0	9.7	A	0.01	0	10.1	B	0.01	0	10.1	B
West Union Street and Olive Street												
Olive St NB L	0.04	3	36.9	E	0.01	0	50.6	F	0.01	0	53.0	F
Olive St NB R	0.11	10	11.0	B	0.14	13	13.2	B	0.15	13	13.5	B
W Union St WB L	0.14	13	8.9	A	0.16	15	9.5	A	0.16	15	9.5	A
West Union Street at Site Drive												
Site Drive SB LR	-	-	-	-	-	-	-	-	0.35	35	57.6	F
W Union St EB L									0.04	3	10.7	B

The Level of Service analysis is summarized below:

Existing:

- There are long peak hour delays at the signalized intersections of Union Street with Main Street and with Homer Ave/Chestnut Street under current conditions.
- At the unsignalized intersections, the minor street exiting left turns experience long delay during the peak hours.

- The left turn out of Ashland Junior High School is expected to experience significant delays during the morning peak hour. The delays are expected to last only several minutes when drop off is most common.

Future No-Build

- The future No-Build analysis assumed no mitigation at the intersections.
- The specific development projects are expected to cause an increase in delay at the intersection of Union Street and Summer Street during the evening peak hour.
- The minor street exiting left turns at the unsignalized intersections experience an increase in delay as the volumes increase.

Future Build

- Motorists are expected to be able to enter the site with minimal delays and no substantive impact to Route 135.
- The analysis also has shown that the intersections will continue to operate with similar conditions and motorists are expected to see smaller changes from No-Build to Full-Build conditions.
- The intersections with estimated significant delays also experience the delays in the No-Build condition.
- Exiting the site drive is estimated that motorists will experience a delay of more than 50 seconds that indicates an LOS 'F' during peak hours. Vehicle queuing is expected to be minimal and delays are on-site with no impact to Route 135 flow.

In conclusion, the analysis has shown that traffic will be able to enter and exit the site and the nearby intersections can adequately accommodate the additional traffic generated by the proposed project.

4.3 Sight Distance Analysis

Adequate sight distance is an important safety consideration at intersections. Route 135 has the available resource capacity to accept the new traffic. The focus of this sight distance analysis was the intersection of Route 135 at the proposed site drive. The study examined stopping sight distance (SSD) and intersection sight distance (ISD).

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. CSD, also known as intersection sight distance, 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.

CID 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 ISD 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 Route 135 in the vicinity of the two intersections is 35 mph. The measured 85th percentile speed for eastbound and westbound are 34 mph and 46 mph, respectively. The 85th percentile speeds were used for analysis of sight distance. Table 4.5 presents the AASHTO criteria and a summary of the sight distance analysis for these two intersections.

In addition to the site drive, it was noted during the field inventories that the visibility in relation to Frankland Road to and from the west may be affected by the roadway curve and some of the vegetation along the north side of the roadway. Advance warning signs and/or trimming vegetation would address this matter.

TABLE 4.5- SUMMARY OF SIGHT DISTANCE ANALYSIS

	Measured Distance	Criteria (ft)	Criteria (ft)	Criteria Met for	Criteria Met for
	(ft)	34 mph	46 mph	35 mph	40 mph
Route 135 at Site Drive					
Stopping Sight Distance					
Approaching from East	600+	236	372	Yes	Yes
Approaching from West	600+	236	372	Yes	Yes
Corner Sight Distance – Exit Left Turn					
Looking East	600+	375	507	Yes	Yes
Looking West	600+	375	507	Yes	Yes

Source: Based on AASHTO 2011.
Measured Distances were based on field measurements under existing conditions and a preliminary site plan. Distances assume clearing and grading within the site drive area.

There is adequate stopping sight distance and intersection sight distance at the site drive.

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

5.0 CONCLUSION AND RECOMMENDATIONS

The previous sections of this traffic report described the analysis procedures, assumptions and results of this traffic study. The roadways and intersections within the study area were seen to have the ability to accommodate the proposed 40B residential development related traffic. The following summarizes the traffic analysis:

- The project is estimated to generate 972 additional daily vehicle trips with entering and exiting trips split evenly and spread over the course of the day. The weekday morning and weekday evening peak hours are expected to generate 72 and 95 additional vehicle trips, respectively. The study area roadways are expected to be able to accommodate additional traffic volumes.
- Site traffic is expected to be able to enter and exit the site and abutting network safely. Traffic volume increases are expected on the study area roadways as a result of the project; however, the effect of the project traffic to the network is expected to be relatively minimal during the study periods.
- Field review of sight distances at the site driveway indicated that the most critical safety criteria (stopping sight distances) would exceed the minimum distances in both directions for speeds well above the posted speed limit. In addition, corner sight distances will exceed the minimum safety SSD criteria for the 85th percentile speeds of 34 mph eastbound and 46 mph westbound.

While the analyses shows the proposed project can be accommodated on the study area, several recommendations have been made to enhance the transportation system and reduce the project's impact. The proposed actions are as follows:

Project Related

- Any landscaping and signing proposed at the site driveway intersection with Route 135 should be designed and maintained in such a manner so as to not impede sight distances at the driveway.
- Install STOP sign and marked STOP bar for the site driveway approach to Route 135.
- Consideration should be given to installing a sidewalk along the north side of West Union Street between the site and the end of sidewalk near the Middle School. This work assumes adequate right of way exists.
- Vegetation and brush on the northerly side of Route 135 within the public right of way along the site's frontage west of the site driveway should be trimmed or cleared further to enhance the sight distance. In addition, this area can also be regraded to approximately the existing road grade to further enhance sight distance.
- To enhance driver awareness along Route 135 of the proposed site driveway, an advanced intersection warning sign (W2-2) and distance plaque (W16-2a) should be installed on Route 135 approximately 400 feet west of the proposed driveway.

Non-Project Related

- The delays at Ashland Junior High School could be reduced with a traffic control person or police detail, although the duration of the delays are relatively short.
- The specific development projects included in this study cause a delay at the intersection of Summer Street and Union Street; mitigation including signal timing updates should be considered prior to construction of these projects.

- Advanced intersection warning signs (W2-2) and speed plaque (W13-1P) should be installed at the intersection of Route 135 and Frankland Road/ Olive Street. To increase corner or stopping sight distances, it may also be desirable to remove or trim back several trees and re-grade the side slopes within the public layout as they relate to the Frankland Avenue approach to Route 135.

Independent of the project, it would be beneficial if an increase in speed enforcement, particularly in the area of West Union Street and Olive Street, could be periodically implemented. Alternatively, it may be possible to install a speed check sign in the vicinity of Olive Street in relation to eastbound traffic to encourage lower speeds.

In conclusion, while the proposed project will increase traffic on the study area network, with the above recommendations, it can be safely provided, and its potential impact on traffic operations on roadways and intersections within the study area can be adequately alleviated.

APPENDIX A- TRAFFIC VOLUMES

PRECISION DATA INDUSTRIES, LLC
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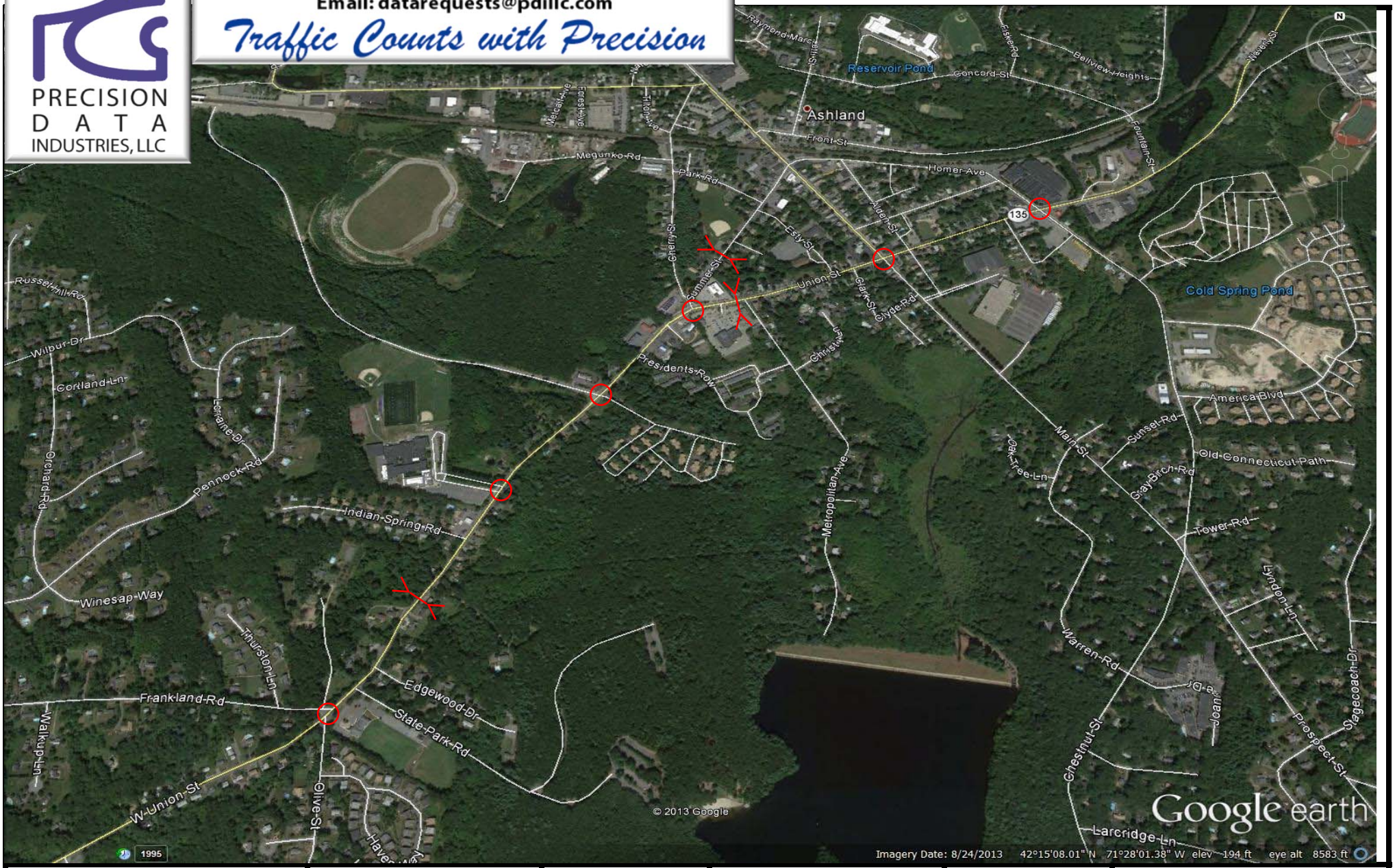
Traffic Counts with Precision



Client:	Engineer:	Site Code:	Date:	PDI Job Number:	City, State:
Green Internatinoal	S. Keenan	TBA	Wed 2/26 thru Thurs 2/27/14	143741	Ashland, MA

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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INDUSTRIES, LLC
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Email: datarequests@pdillc.com

143741 A Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	0	28	0	0	0	0	0	0	0	0	0	0	0	28
01:00	0	10	0	0	0	0	0	0	0	0	0	0	0	10
02:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	3	0	0	1	0	0	0	0	0	0	0	0	4
04:00	0	12	1	0	0	0	0	0	0	0	0	0	0	13
05:00	0	44	4	0	3	0	0	2	0	0	0	0	0	53
06:00	0	154	3	0	21	0	0	0	0	0	0	0	0	178
07:00	2	263	7	0	6	1	0	3	0	0	0	0	0	282
08:00	0	343	15	0	9	1	0	3	0	1	0	0	0	372
09:00	0	303	13	0	4	1	0	3	0	1	0	0	0	325
10:00	0	268	15	0	14	0	0	2	0	0	0	0	0	299
11:00	0	287	12	0	17	1	0	3	0	0	0	0	0	320
12 PM	0	333	20	0	8	1	0	2	0	0	0	0	0	364
13:00	0	357	13	0	25	0	0	9	0	0	0	0	0	404
14:00	0	439	17	1	10	0	0	4	0	0	0	0	0	471
15:00	1	552	23	0	8	0	0	2	0	0	0	0	0	586
16:00	0	636	19	0	4	0	0	4	0	1	0	1	0	665
17:00	1	782	27	0	0	0	0	2	0	0	0	0	0	812
18:00	1	552	13	0	1	0	0	2	0	0	0	0	0	569
19:00	0	386	8	0	2	0	0	0	0	0	0	0	0	396
20:00	0	316	11	2	1	0	0	0	0	0	0	0	0	330
21:00	0	200	5	0	0	0	0	0	0	0	0	0	0	205
22:00	0	122	3	0	0	0	0	0	0	0	0	0	0	125
23:00	0	84	1	0	0	0	0	0	0	0	0	0	0	85
Total	5	6476	230	3	134	5	0	41	0	3	0	1	0	6898
Percent	0.1%	93.9%	3.3%	0.0%	1.9%	0.1%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	08:00		06:00	07:00		07:00		08:00				08:00
Vol.	2	343	15		21	1		3		1				372
PM Peak	15:00	17:00	17:00	20:00	13:00	12:00		13:00		16:00		16:00		17:00
Vol.	1	782	27	2	25	1		9		1		1		812

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 A Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	0	28	0	0	0	0	0	0	0	0	0	0	0	28
01:00	0	9	0	0	0	0	0	0	0	0	0	0	0	9
02:00	0	9	1	0	0	0	0	0	0	0	0	0	0	10
03:00	0	5	0	0	0	0	0	0	0	0	0	0	0	5
04:00	0	11	1	0	0	0	0	0	0	0	0	0	0	12
05:00	0	41	4	0	3	0	0	0	0	0	0	0	0	48
06:00	0	147	4	0	22	0	0	4	0	0	0	0	0	177
07:00	1	268	9	0	7	0	0	3	0	0	0	0	0	288
08:00	0	320	11	0	7	0	0	3	0	0	0	0	0	341
09:00	0	261	18	0	3	0	0	0	0	0	0	0	0	282
10:00	0	250	15	0	7	0	0	1	0	0	0	0	0	273
11:00	0	283	13	0	16	0	0	5	0	0	0	0	0	317
12 PM	0	338	12	1	15	0	0	1	0	0	0	0	0	367
13:00	0	343	15	0	25	1	0	2	0	0	0	0	0	386
14:00	0	497	20	0	15	0	0	3	0	0	0	0	0	535
15:00	0	579	27	0	11	0	0	2	0	0	0	0	0	619
16:00	0	724	14	1	1	0	0	1	0	0	0	0	0	741
17:00	0	736	11	0	3	0	0	4	0	0	0	0	0	754
18:00	1	657	23	0	0	0	0	4	0	0	0	0	0	685
19:00	0	489	16	0	1	0	0	0	0	0	0	0	0	506
20:00	0	392	17	0	2	0	0	0	0	0	0	0	0	411
21:00	0	247	13	0	0	0	0	1	0	0	0	0	0	261
22:00	0	111	6	0	0	0	0	0	1	0	0	0	0	118
23:00	0	109	0	0	0	0	0	0	0	0	0	0	0	109
Total	2	6854	250	2	138	1	0	34	1	0	0	0	0	7282
Percent	0.0%	94.1%	3.4%	0.0%	1.9%	0.0%	0.0%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	08:00	09:00		06:00			11:00						08:00
Vol.	1	320	18		22			5						341
PM Peak	18:00	17:00	15:00	12:00	13:00	13:00		17:00	22:00					17:00
Vol.	1	736	27	1	25	1		4	1					754
Total		13330	480	5	272	6	0	75	1	3	0	1	0	14180

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 A Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	0	10	5	0	1	0	0	0	0	0	0	0	0	16
01:00	0	4	2	0	2	0	0	0	0	0	0	0	0	8
02:00	0	2	2	0	1	0	0	0	0	0	0	0	0	5
03:00	0	3	3	0	3	0	0	0	0	0	0	0	0	9
04:00	0	40	9	2	4	0	0	1	0	0	0	0	0	56
05:00	0	135	44	0	26	0	0	1	0	0	0	0	0	206
06:00	0	469	135	3	69	0	0	1	0	0	0	0	0	677
07:00	6	657	138	5	42	2	0	1	0	0	0	0	0	851
08:00	0	474	231	24	46	0	0	2	0	0	0	0	0	777
09:00	0	261	164	13	44	0	0	4	0	0	0	0	0	486
10:00	0	185	108	3	59	0	0	1	0	0	0	0	0	356
11:00	0	184	143	3	47	0	0	2	0	0	0	0	0	379
12 PM	0	152	156	4	52	0	0	4	0	0	0	0	0	368
13:00	0	136	133	3	34	0	0	1	0	0	0	0	0	307
14:00	0	196	123	14	39	0	0	1	0	0	0	0	0	373
15:00	0	164	178	21	45	0	0	1	0	0	0	0	0	409
16:00	0	190	134	7	38	0	0	0	0	0	0	0	0	369
17:00	0	228	152	1	26	0	0	1	0	0	0	0	0	408
18:00	0	213	102	1	28	0	0	0	0	0	0	0	0	344
19:00	0	158	72	0	15	0	0	2	0	0	0	0	0	247
20:00	0	92	37	1	4	0	0	0	0	0	0	0	0	134
21:00	0	63	28	1	6	0	0	0	0	0	0	0	0	98
22:00	0	46	18	1	5	0	0	0	0	0	0	0	0	70
23:00	0	9	7	1	2	0	0	0	0	0	0	0	0	19
Total	6	4071	2124	108	638	2	0	23	0	0	0	0	0	6972
Percent	0.1%	58.4%	30.5%	1.5%	9.2%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	08:00	06:00	07:00		09:00						07:00
Vol.	6	657	231	24	69	2		4						851
PM Peak		17:00	15:00	15:00	12:00			12:00						15:00
Vol.		228	178	21	52			4						409

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 A Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	0	3	2	0	0	0	0	0	0	0	0	0	0	5
01:00	0	3	3	0	1	0	0	0	0	0	0	0	0	7
02:00	0	2	1	0	2	0	0	0	0	0	0	0	0	5
03:00	0	6	5	1	5	0	0	0	0	0	0	0	0	17
04:00	0	38	4	0	0	0	0	1	0	0	0	0	0	43
05:00	0	161	40	1	18	0	0	1	0	0	0	0	0	221
06:00	0	464	142	2	74	0	0	1	0	0	0	0	0	683
07:00	7	675	105	6	27	5	1	5	1	0	0	0	1	833
08:00	0	501	189	24	47	0	0	1	0	0	0	0	0	762
09:00	0	278	136	10	48	0	0	4	0	0	0	0	0	476
10:00	0	195	120	5	41	0	0	0	0	0	0	0	0	361
11:00	0	168	144	9	46	0	0	2	0	0	0	0	0	369
12 PM	0	158	128	2	64	0	0	2	0	0	0	0	0	354
13:00	0	159	160	5	42	0	0	0	0	0	0	0	0	366
14:00	0	196	121	8	48	0	0	3	0	0	0	0	0	376
15:00	0	218	166	21	44	0	0	0	0	0	0	0	0	449
16:00	0	265	169	7	45	1	0	1	0	0	0	0	0	488
17:00	0	293	165	1	41	0	0	1	0	0	0	0	0	501
18:00	1	259	134	0	28	0	0	0	0	0	0	0	0	422
19:00	0	171	88	0	22	0	0	0	0	0	0	0	0	281
20:00	0	113	34	0	12	0	0	0	0	0	0	0	0	159
21:00	0	101	29	0	14	0	0	0	0	0	0	0	0	144
22:00	0	55	19	0	8	0	0	0	0	0	0	0	0	82
23:00	0	21	9	0	3	0	0	0	0	0	0	0	0	33
Total	8	4503	2113	102	680	6	1	22	1	0	0	0	1	7437
Percent	0.1%	60.5%	28.4%	1.4%	9.1%	0.1%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	08:00	06:00	07:00	07:00	07:00	07:00				07:00	07:00
Vol.	7	675	189	24	74	5	1	5	1				1	833
PM Peak	18:00	17:00	16:00	15:00	12:00	16:00		14:00						17:00
Vol.	1	293	169	21	64	1		3						501
Total		8574	4237	210	1318	8	1	45	1	0	0	0	1	14409

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 A SPEED
Site Code: TBA
Date Start: 26-Feb-14

WB

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
02/26/ 14	0	0	0	4	22	2	0	0	0	0	0	0	0	28	34	32
01:00	0	0	0	2	1	5	2	0	0	0	0	0	0	10	40	36
02:00	0	0	0	0	2	0	0	0	0	0	0	0	0	2	33	32
03:00	0	0	0	1	2	1	0	0	0	0	0	0	0	4	36	32
04:00	0	0	0	3	5	5	0	0	0	0	0	0	0	13	37	33
05:00	0	1	0	13	28	10	1	0	0	0	0	0	0	53	35	31
06:00	0	0	6	41	104	15	8	**4**	0	0	0	0	0	178	35	32
07:00	1	1	**33**	66	153	16	9	3	0	0	0	0	0	282	34	30
08:00	**2**	**7**	3	**104**	**190**	**44**	**15**	4	**2**	0	**1**	0	0	**372**	35	31
09:00	0	0	4	99	185	25	9	3	0	0	0	0	0	325	34	31
10:00	0	0	7	75	178	29	9	1	0	0	0	0	0	299	34	31
11:00	0	1	**7**	74	199	31	7	**1**	0	0	0	0	0	320	34	31
12 PM	0	**3**	5	97	219	34	6	0	0	0	0	0	0	364	34	31
13:00	0	0	3	97	256	39	**9**	0	0	0	0	0	0	404	34	31
14:00	0	0	6	**113**	**294**	**54**	4	0	0	0	0	0	0	**471**	34	31
15:00	**2**	**5**	12	158	354	51	4	0	0	0	0	0	0	586	34	31
16:00	2	4	11	127	437	**68**	**16**	0	0	0	0	0	0	665	34	31
17:00	1	1	9	**218**	**518**	57	6	**2**	0	0	0	0	0	**812**	33	31
18:00	1	0	**15**	163	363	25	2	0	0	0	0	0	0	569	33	30
19:00	0	1	10	109	243	32	1	0	0	0	0	0	0	396	33	31
20:00	0	0	1	92	212	24	0	1	0	0	0	0	0	330	33	31
21:00	0	0	3	53	141	8	0	0	0	0	0	0	0	205	33	31
22:00	0	0	2	16	90	16	1	0	0	0	0	0	0	125	34	32
23:00	0	0	1	7	49	28	0	0	0	0	0	0	0	85	36	33
%	0.1%	0.3%	2.0%	25.1%	61.5%	9.0%	1.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	07:00	08:00	08:00	08:00	08:00	06:00	08:00		08:00			08:00		
Vol.	2	7	33	104	190	44	15	4	2		1			372		
Midday Peak		12:00	11:00	14:00	14:00	14:00	13:00	11:00						14:00		
Vol.		3	7	113	294	54	9	1						471		
PM Peak	15:00	15:00	18:00	17:00	17:00	16:00	16:00	17:00						17:00		
Vol.	2	5	15	218	518	68	16	2						812		

% iles

15th Percentile : 26 MPH
50th Percentile : 30 MPH
85th Percentile : 34 MPH
95th Percentile : 37 MPH

Stats

10 MPH Pace Speed : 26-35 MPH
Number in Pace : 5531
Percent in Pace : 80.2%
Number of Vehicles > 35 MPH : 709
Percent of Vehicles > 35 MPH : 10.3%
Mean Speed(Average) : 31 MPH

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

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

143741 A SPEED
Site Code: TBA
Date Start: 26-Feb-14

WB

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
02/27/ 14	0	0	0	7	15	6	0	0	0	0	0	0	0	28	35	32
01:00	0	0	0	2	5	2	0	0	0	0	0	0	0	9	35	32
02:00	0	0	0	1	6	3	0	0	0	0	0	0	0	10	36	33
03:00	0	0	0	1	2	2	0	0	0	0	0	0	0	5	37	33
04:00	0	0	1	2	8	1	0	0	0	0	0	0	0	12	34	31
05:00	0	0	0	6	36	4	2	0	0	0	0	0	0	48	34	32
06:00	0	0	0	36	108	25	8	0	0	0	0	0	0	177	35	32
07:00	**1**	0	**57**	62	145	15	6	2	0	0	0	0	0	288	33	29
08:00	0	0	4	**71**	**194**	**40**	**28**	**4**	0	0	0	0	0	**341**	36	32
09:00	0	**3**	10	51	183	22	8	4	**1**	0	0	0	0	282	34	31
10:00	0	0	1	59	168	38	6	1	0	0	0	0	0	273	35	32
11:00	0	0	4	79	196	33	4	1	0	0	0	0	0	317	34	31
12 PM	**8**	**3**	**13**	72	236	28	4	**3**	0	0	0	0	0	367	34	30
13:00	0	0	2	98	251	30	2	3	0	0	0	0	0	386	34	31
14:00	0	2	10	**173**	**290**	**53**	**6**	1	0	0	0	0	0	**535**	34	31
15:00	3	5	**24**	167	368	38	13	**1**	0	0	0	0	0	619	33	30
16:00	0	3	9	159	**493**	61	**15**	1	0	0	0	0	0	741	34	31
17:00	3	**6**	18	186	462	**63**	13	1	0	0	0	0	**2**	**754**	34	31
18:00	**6**	6	20	**273**	347	31	2	0	0	0	0	0	0	685	33	29
19:00	0	3	8	153	309	28	5	0	0	0	0	0	0	506	33	31
20:00	0	0	24	192	185	10	0	0	0	0	0	0	0	411	32	29
21:00	0	1	18	163	75	4	0	0	0	0	0	0	0	261	31	28
22:00	0	2	2	50	57	7	0	0	0	0	0	0	0	118	33	30
23:00	0	0	5	38	60	6	0	0	0	0	0	0	0	109	33	30
%	0.3%	0.5%	3.2%	28.9%	57.7%	7.6%	1.7%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	09:00	07:00	08:00	08:00	08:00	08:00	08:00	09:00					08:00		
Vol.	1	3	57	71	194	40	28	4	1					341		
Midday Peak	12:00	12:00	12:00	14:00	14:00	14:00	14:00	12:00						14:00		
Vol.	8	3	13	173	290	53	6	3						535		
PM Peak	18:00	17:00	15:00	18:00	16:00	17:00	16:00	15:00					17:00	17:00		
Vol.	6	6	24	273	493	63	15	1					2	754		

% iles

15th Percentile :	25 MPH
50th Percentile :	30 MPH
85th Percentile :	34 MPH
95th Percentile :	36 MPH

Stats

10 MPH Pace Speed :	26-35 MPH
Number in Pace :	5744
Percent in Pace :	78.9%
Number of Vehicles > 35 MPH :	679
Percent of Vehicles > 35 MPH :	9.3%
Mean Speed(Average) :	31 MPH

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

PRECISION
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Email: datarequests@pdillc.com

143741 A SPEED
Site Code: TBA
Date Start: 26-Feb-14

EB

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
02/26/ 14	0	0	0	0	0	3	7	4	1	1	0	0	0	16	48	44
01:00	0	0	0	0	1	2	2	2	1	0	0	0	0	8	48	42
02:00	0	0	0	0	0	0	3	1	0	0	**1**	0	0	5	60	47
03:00	0	0	0	0	0	2	1	4	2	0	0	0	0	9	50	45
04:00	0	0	0	1	6	14	20	10	5	0	0	0	0	56	47	41
05:00	0	0	1	0	19	71	69	37	7	2	0	0	0	206	46	41
06:00	0	0	1	4	34	**181**	328	111	18	0	0	0	0	677	45	41
07:00	**157**	**29**	**84**	**18**	46	146	251	102	17	1	0	**1**	0	**852**	43	29
08:00	0	0	3	7	**55**	164	**351**	**158**	33	**6**	0	0	0	777	46	42
09:00	0	0	2	4	23	121	176	113	**40**	6	1	0	0	486	47	42
10:00	0	0	2	6	20	62	113	99	48	6	0	0	0	356	49	43
11:00	0	0	**1**	4	25	67	**129**	103	**44**	5	1	0	0	**379**	49	43
12 PM	0	0	0	**6**	**31**	68	125	84	40	**12**	**2**	0	0	368	49	43
13:00	0	**1**	0	5	11	63	99	**107**	18	3	0	0	0	307	47	43
14:00	0	0	0	5	25	**77**	129	102	27	6	1	0	**1**	373	48	42
15:00	0	0	**4**	7	26	55	**159**	118	**31**	6	**2**	**1**	0	**409**	48	43
16:00	0	0	3	6	20	70	111	**127**	23	**9**	0	0	0	369	48	43
17:00	0	0	2	8	24	**100**	146	101	25	2	0	0	0	408	47	42
18:00	0	0	0	**10**	34	86	147	54	12	0	1	0	0	344	45	41
19:00	0	0	1	8	**37**	82	77	28	13	1	0	0	0	247	45	39
20:00	0	0	0	2	7	31	57	31	4	1	1	0	0	134	46	42
21:00	0	0	0	0	4	27	42	21	4	0	0	0	0	98	46	42
22:00	0	0	0	1	7	13	28	17	4	0	0	0	0	70	47	42
23:00	0	0	0	0	0	3	9	2	2	2	1	0	0	19	54	45
%	2.3%	0.4%	1.5%	1.5%	6.5%	21.6%	37.0%	22.0%	6.0%	1.0%	0.2%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	08:00	06:00	08:00	08:00	09:00	08:00	02:00	07:00		07:00		
Vol.	157	29	84	18	55	181	351	158	40	6	1	1		852		
Midday Peak		13:00	11:00	12:00	12:00	14:00	11:00	13:00	11:00	12:00	12:00		14:00	11:00		
Vol.		1	1	6	31	77	129	107	44	12	2		1	379		
PM Peak			15:00	18:00	19:00	17:00	15:00	16:00	15:00	16:00	15:00	15:00		15:00		
Vol.			4	10	37	100	159	127	31	9	2	1		409		

% iles		
	15th Percentile :	33 MPH
	50th Percentile :	41 MPH
	85th Percentile :	47 MPH
	95th Percentile :	50 MPH

Stats		
	10 MPH Pace Speed :	38-47 MPH
	Number in Pace :	4032
	Percent in Pace :	57.8%
	Number of Vehicles > 35 MPH :	5887
	Percent of Vehicles > 35 MPH :	84.4%
	Mean Speed(Average) :	40 MPH

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

PRECISION
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Email: datarequests@pdillc.com

143741 A SPEED
Site Code: TBA
Date Start: 26-Feb-14

EB

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
02/27/ 14	0	0	0	0	0	1	2	2	0	0	0	0	0	5	47	43
01:00	0	0	0	0	1	1	2	1	1	1	0	0	0	7	53	44
02:00	0	0	0	0	0	2	2	1	0	0	0	0	0	5	45	41
03:00	0	0	0	0	2	4	8	2	1	0	0	0	0	17	45	41
04:00	0	0	0	0	4	20	14	5	0	0	0	0	0	43	43	39
05:00	0	0	1	1	13	79	91	32	3	0	**1**	0	0	221	44	40
06:00	0	0	1	3	17	156	329	**160**	16	1	0	0	0	683	46	42
07:00	**233**	**15**	**131**	**21**	**45**	128	187	63	9	0	1	0	0	**833**	41	24
08:00	0	0	1	5	41	**205**	**330**	145	**31**	3	1	0	0	762	46	41
09:00	0	0	2	4	31	101	183	117	30	**7**	1	0	0	476	47	42
10:00	0	0	0	7	14	62	115	108	53	2	0	0	0	361	49	44
11:00	0	0	0	0	16	56	**142**	108	**42**	5	0	0	0	369	48	44
12 PM	0	0	**3**	2	17	59	124	112	30	5	**2**	0	0	354	48	43
13:00	0	**1**	0	2	17	56	109	**134**	36	**9**	1	**1**	0	366	49	44
14:00	0	1	2	**13**	**36**	**88**	122	84	28	2	0	0	0	**376**	47	41
15:00	0	0	8	7	34	89	154	112	**40**	**5**	0	0	0	449	48	42
16:00	0	0	1	10	17	87	186	**149**	33	5	0	0	0	488	47	43
17:00	0	**1**	**10**	12	38	93	**198**	117	26	4	**2**	0	0	**501**	47	41
18:00	**2**	0	3	9	**57**	**107**	182	58	5	0	0	0	0	423	44	39
19:00	0	0	1	2	12	73	116	65	9	1	2	0	0	281	46	42
20:00	0	0	6	**22**	33	44	37	13	3	1	0	0	0	159	43	36
21:00	0	1	1	10	42	52	36	2	0	0	0	0	0	144	41	36
22:00	0	0	0	1	22	36	17	6	0	0	0	0	0	82	42	37
23:00	0	0	0	2	5	9	11	4	1	1	0	0	0	33	45	40
%	3.2%	0.3%	2.3%	1.8%	6.9%	21.6%	36.3%	21.5%	5.3%	0.7%	0.1%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	07:00	08:00	08:00	06:00	08:00	09:00	05:00			07:00		
Vol.	233	15	131	21	45	205	330	160	31	7	1			833		
Midday Peak		13:00	12:00	14:00	14:00	14:00	11:00	13:00	11:00	13:00	12:00	13:00		14:00		
Vol.		1	3	13	36	88	142	134	42	9	2	1		376		
PM Peak	18:00	17:00	17:00	20:00	18:00	18:00	17:00	16:00	15:00	15:00	17:00			17:00		
Vol.	2	1	10	22	57	107	198	149	40	5	2			501		

% iles		
	15th Percentile :	32 MPH
	50th Percentile :	40 MPH
	85th Percentile :	46 MPH
	95th Percentile :	50 MPH

Stats		
	10 MPH Pace Speed :	37-46 MPH
	Number in Pace :	4204
	Percent in Pace :	56.5%
	Number of Vehicles > 35 MPH :	6100
	Percent of Vehicles > 35 MPH :	82.0%
	Mean Speed(Average) :	39 MPH

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
Client: Green International/S. Keenan

PRECISION
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INDUSTRIES, LLC
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Office: 508.481.3999 Fax: 508.545.1234
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143741 A VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	WB				EB				Combined				26-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	14		100		6		104		20		204		
12:15	7		78		3		92		10		170		
12:30	3		83		3		101		6		184		
12:45	4	28	103	364	4	16	71	368	8	44	174	732	
01:00	5		93		0		70		5		163		
01:15	3		107		2		83		5		190		
01:30	2		112		5		76		7		188		
01:45	0	10	92	404	1	8	78	307	1	18	170	711	
02:00	0		101		1		92		1		193		
02:15	0		123		2		96		2		219		
02:30	2		119		2		90		4		209		
02:45	0	2	128	471	0	5	95	373	0	7	223	844	
03:00	2		136		1		82		3		218		
03:15	0		153		1		99		1		252		
03:30	1		153		3		114		4		267		
03:45	1	4	144	586	4	9	114	409	5	13	258	995	
04:00	0		165		2		89		2		254		
04:15	1		144		11		91		12		235		
04:30	4		183		19		95		23		278		
04:45	8	13	173	665	24	56	94	369	32	69	267	1034	
05:00	7		191		19		95		26		286		
05:15	9		223		41		101		50		324		
05:30	18		190		71		106		89		296		
05:45	19	53	208	812	75	206	106	408	94	259	314	1220	
06:00	33		162		106		91		139		253		
06:15	41		135		165		108		206		243		
06:30	49		173		201		74		250		247		
06:45	55	178	99	569	205	677	71	344	260	855	170	913	
07:00	72		118		217		90		289		208		
07:15	63		115		240		67		303		182		
07:30	61		81		185		45		246		126		
07:45	86	282	82	396	210	852	45	247	296	1134	127	643	
08:00	87		82		213		48		300		130		
08:15	83		88		200		30		283		118		
08:30	93		71		193		33		286		104		
08:45	109	372	89	330	171	777	23	134	280	1149	112	464	
09:00	95		58		146		25		241		83		
09:15	80		42		106		30		186		72		
09:30	79		60		115		24		194		84		
09:45	71	325	45	205	119	486	19	98	190	811	64	303	
10:00	77		30		108		22		185		52		
10:15	63		38		85		19		148		57		
10:30	76		29		79		20		155		49		
10:45	83	299	28	125	84	356	9	70	167	655	37	195	
11:00	70		37		105		8		175		45		
11:15	74		17		97		3		171		20		
11:30	104		17		94		5		198		22		
11:45	72	320	14	85	83	379	3	19	155	699	17	104	
Total	1886		5012		3827		3146		5713		8158		
Percent	33.0%		61.4%		67.0%		38.6%						
Day Total		6898				6973				13871			
Peak	08:15	-	05:00	-	06:30	-	03:15	-	07:45	-	05:00	-	- -
Vol.	380	-	812	-	863	-	416	-	1165	-	1220	-	- -
P.H.F.	0.872		0.910		0.899		0.912		0.971		0.941		

W. Union Street (Route 135)
east of Edgewood Drive
City, State: Ashland, MA
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143741 A VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	WB				EB				Combined				27-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	9		84		2		93		11		177		
12:15	9		77		2		84		11		161		
12:30	4		96		1		89		5		185		
12:45	6	28	110	367	0	5	88	354	6	33	198	721	
01:00	5		82		3		111		8		193		
01:15	3		99		1		70		4		169		
01:30	1		101		2		85		3		186		
01:45	0	9	104	386	1	7	100	366	1	16	204	752	
02:00	4		110		3		90		7		200		
02:15	1		142		0		87		1		229		
02:30	4		155		2		110		6		265		
02:45	1	10	128	535	0	5	89	376	1	15	217	911	
03:00	1		136		5		81		6		217		
03:15	3		154		1		90		4		244		
03:30	1		162		4		137		5		299		
03:45	0	5	167	619	7	17	141	449	7	22	308	1068	
04:00	1		185		1		134		2		319		
04:15	1		161		9		131		10		292		
04:30	3		196		16		109		19		305		
04:45	7	12	199	741	17	43	114	488	24	55	313	1229	
05:00	7		186		26		105		33		291		
05:15	5		201		41		150		46		351		
05:30	22		173		69		124		91		297		
05:45	14	48	194	754	85	221	122	501	99	269	316	1255	
06:00	34		190		87		109		121		299		
06:15	39		155		192		112		231		267		
06:30	58		199		190		110		248		309		
06:45	46	177	141	685	214	683	92	423	260	860	233	1108	
07:00	70		132		205		85		275		217		
07:15	70		139		254		84		324		223		
07:30	74		124		184		49		258		173		
07:45	74	288	111	506	190	833	63	281	264	1121	174	787	
08:00	81		107		187		44		268		151		
08:15	72		105		193		37		265		142		
08:30	100		75		201		48		301		123		
08:45	88	341	124	411	181	762	30	159	269	1103	154	570	
09:00	71		71		133		36		204		107		
09:15	83		67		121		40		204		107		
09:30	66		68		111		38		177		106		
09:45	62	282	55	261	111	476	30	144	173	758	85	405	
10:00	55		35		88		27		143		62		
10:15	78		26		86		23		164		49		
10:30	76		27		94		17		170		44		
10:45	64	273	30	118	93	361	15	82	157	634	45	200	
11:00	62		44		88		11		150		55		
11:15	83		23		87		5		170		28		
11:30	101		27		100		9		201		36		
11:45	71	317	15	109	94	369	8	33	165	686	23	142	
Total	1790		5492		3782		3656		5572		9148		
Percent	32.1%		60.0%		67.9%		40.0%						
Day Total		7282				7438				14720			
Peak	08:30	-	04:30	-	06:30	-	03:30	-	07:00	-	05:15	-	-	-
Vol.	342	-	782	-	863	-	543	-	1121	-	1263	-	-	-
P.H.F.	0.855		0.973		0.849		0.963		0.865		0.900			

Union Street (Route 135)
west of Metropolitan Avenue
City, State: Ashland, MA
Client: Green International/S. Keenan

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

143741 B Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	0	22	3	0	0	0	0	0	0	0	0	0	0	25
01:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
02:00	0	2	0	0	1	0	0	0	0	0	0	0	0	3
03:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
04:00	0	13	5	0	0	0	0	0	0	0	0	0	0	18
05:00	0	57	7	2	2	1	0	0	0	1	0	0	0	70
06:00	0	160	23	18	4	1	0	0	0	0	0	0	0	206
07:00	1	330	46	5	6	1	0	2	0	0	0	0	0	391
08:00	0	326	36	1	5	5	0	2	1	0	0	0	0	376
09:00	0	261	50	0	7	3	0	1	0	0	0	0	0	322
10:00	0	232	41	3	10	3	0	3	0	1	0	0	0	293
11:00	0	251	42	9	8	1	0	3	1	0	0	0	0	315
12 PM	1	277	38	4	8	3	0	0	1	0	0	0	0	332
13:00	1	301	50	23	5	3	0	3	3	0	0	0	0	389
14:00	0	367	51	7	5	1	0	0	0	0	0	0	0	431
15:00	0	407	59	4	7	3	0	1	0	0	0	0	0	481
16:00	0	440	46	2	6	0	0	1	1	0	0	0	0	496
17:00	1	463	46	1	5	0	0	1	0	0	0	0	0	517
18:00	0	364	31	0	6	0	0	2	0	0	1	0	0	404
19:00	0	288	29	0	0	0	0	0	0	0	0	0	0	317
20:00	0	243	17	1	1	0	0	0	0	0	0	0	0	262
21:00	0	157	10	0	0	0	0	0	0	0	0	0	0	167
22:00	0	110	7	0	1	0	0	0	0	0	0	0	0	118
23:00	0	62	3	0	0	0	0	0	0	0	0	0	0	65
Total	4	5145	640	80	87	25	0	19	7	2	1	0	0	6010
Percent	0.1%	85.6%	10.6%	1.3%	1.4%	0.4%	0.0%	0.3%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	09:00	06:00	10:00	08:00		10:00	08:00	05:00				07:00
Vol.	1	330	50	18	10	5		3	1	1				391
PM Peak	12:00	17:00	15:00	13:00	12:00	12:00		13:00	13:00		18:00			17:00
Vol.	1	463	59	23	8	3		3	3		1			517

Union Street (Route 135)
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143741 B Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	0	26	2	0	0	0	0	0	0	0	0	0	0	28
01:00	0	8	0	0	0	0	0	0	0	0	0	0	0	8
02:00	0	8	2	0	1	0	0	0	0	0	0	0	0	11
03:00	0	7	0	0	1	0	0	0	0	0	0	0	0	8
04:00	0	13	5	0	0	0	0	0	0	0	0	0	0	18
05:00	0	45	9	3	0	0	0	0	0	0	0	0	0	57
06:00	0	141	26	19	8	0	0	2	0	0	0	0	0	196
07:00	0	325	35	6	9	0	0	0	0	0	0	0	0	375
08:00	1	301	31	0	5	4	0	1	0	0	0	0	0	343
09:00	0	238	36	1	9	1	0	1	1	0	0	0	0	287
10:00	0	213	46	3	8	0	0	1	0	0	0	0	0	271
11:00	0	224	44	7	15	1	0	4	0	0	0	0	0	295
12 PM	0	263	48	5	8	2	0	0	0	0	0	0	0	326
13:00	0	271	46	17	6	2	0	1	0	0	0	1	0	344
14:00	0	342	60	5	16	2	0	2	1	0	0	0	0	428
15:00	1	414	56	4	11	2	0	1	0	0	0	0	0	489
16:00	2	430	53	0	5	0	0	1	0	0	0	0	0	491
17:00	0	433	32	0	1	0	0	1	0	0	0	0	0	467
18:00	0	441	41	0	1	0	0	0	0	0	0	0	0	483
19:00	0	369	31	0	1	0	0	0	1	0	0	0	0	402
20:00	0	303	30	0	2	0	0	0	0	0	0	0	0	335
21:00	0	198	16	0	3	0	0	1	0	0	0	0	0	218
22:00	0	102	7	0	1	0	0	0	0	0	0	0	0	110
23:00	0	57	5	0	0	0	0	0	0	0	0	0	0	62
Total	4	5172	661	70	111	14	0	16	3	0	0	1	0	6052
Percent	0.1%	85.5%	10.9%	1.2%	1.8%	0.2%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	08:00	07:00	10:00	06:00	11:00	08:00		11:00	09:00					07:00
Vol.	1	325	46	19	15	4		4	1					375
PM Peak	16:00	18:00	14:00	13:00	14:00	12:00		14:00	14:00			13:00		16:00
Vol.	2	441	60	17	16	2		2	1			1		491
Total		10317	1301	150	198	39	0	35	10	2	1	1	0	12062

Union Street (Route 135)
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143741 B Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	0	19	1	0	0	0	0	0	0	0	0	0	0	20
01:00	0	4	2	0	0	0	0	0	0	0	0	0	0	6
02:00	0	5	1	0	1	0	0	0	0	0	0	0	0	7
03:00	0	9	4	0	1	0	0	0	0	0	0	0	0	14
04:00	0	46	4	0	1	1	0	2	0	0	0	0	0	54
05:00	0	122	23	0	3	0	0	1	0	0	0	0	0	149
06:00	1	410	74	2	8	1	0	4	0	0	0	0	0	500
07:00	1	528	53	6	6	3	0	2	0	0	0	0	0	599
08:00	0	522	46	11	11	1	0	2	0	0	0	0	0	593
09:00	0	374	51	10	7	2	1	4	0	0	0	0	0	449
10:00	0	263	47	1	13	0	0	2	1	0	0	0	0	327
11:00	0	295	40	0	5	1	0	0	0	0	0	0	0	341
12 PM	0	320	51	4	3	3	0	5	0	0	0	0	0	386
13:00	1	266	50	2	5	1	0	1	0	0	0	0	0	326
14:00	1	324	36	4	13	1	1	2	0	0	0	0	0	382
15:00	0	325	35	10	7	0	0	2	1	0	0	0	0	380
16:00	0	334	33	4	9	0	0	0	0	0	0	0	0	380
17:00	0	347	33	0	2	0	0	0	0	0	0	0	0	382
18:00	0	331	30	1	3	0	0	0	0	0	0	0	0	365
19:00	0	227	20	0	0	0	0	1	0	0	0	0	0	248
20:00	0	138	7	0	0	0	0	0	0	0	0	0	0	145
21:00	0	77	6	0	1	0	0	0	0	0	0	0	0	84
22:00	0	69	5	0	1	0	0	0	0	0	0	0	0	75
23:00	0	20	2	0	1	0	0	0	0	0	0	0	0	23
Total	4	5375	654	55	101	14	2	28	2	0	0	0	0	6235
Percent	0.1%	86.2%	10.5%	0.9%	1.6%	0.2%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak	06:00	07:00	06:00	08:00	10:00	07:00	09:00	06:00	10:00					07:00
Vol.	1	528	74	11	13	3	1	4	1					599
PM Peak	13:00	17:00	12:00	15:00	14:00	12:00	14:00	12:00	15:00					12:00
Vol.	1	347	51	10	13	3	1	5	1					386

Union Street (Route 135)
west of Metropolitan Avenue
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143741 B Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	0	10	0	0	0	0	0	0	0	0	0	0	0	10
01:00	0	4	0	0	0	0	0	1	0	0	0	0	0	5
02:00	0	6	0	0	1	0	0	0	0	0	0	0	0	7
03:00	0	7	10	1	0	0	0	2	0	0	0	0	0	20
04:00	0	35	2	0	0	0	0	1	0	0	0	0	0	38
05:00	0	138	21	0	3	0	0	0	0	0	0	0	0	162
06:00	0	395	83	2	5	0	0	0	1	0	0	0	0	486
07:00	0	524	76	8	4	2	0	0	0	1	0	0	1	616
08:00	0	506	45	15	12	0	0	2	0	0	0	0	0	580
09:00	0	319	55	6	15	3	0	3	0	0	0	0	0	401
10:00	0	290	46	3	4	1	0	1	0	0	0	0	0	345
11:00	0	270	38	3	14	3	0	0	0	0	0	0	0	328
12 PM	1	285	62	1	8	1	0	4	0	0	0	0	0	362
13:00	0	296	50	0	5	2	0	5	0	0	0	0	0	358
14:00	0	305	43	6	8	1	0	2	1	0	0	0	0	366
15:00	0	334	38	17	8	1	0	0	0	0	0	0	0	398
16:00	0	386	46	5	5	1	0	0	0	0	0	0	0	443
17:00	0	446	32	1	1	0	0	2	0	0	0	0	0	482
18:00	1	394	33	1	2	0	0	0	0	0	0	0	0	431
19:00	0	254	17	0	1	0	0	0	0	0	0	0	0	272
20:00	0	167	16	0	1	0	0	0	0	0	0	0	0	184
21:00	0	123	14	0	0	0	0	0	0	0	0	0	0	137
22:00	0	71	12	0	1	0	0	0	0	0	0	0	0	84
23:00	0	18	3	0	0	0	0	0	0	0	0	0	0	21
Total	2	5583	742	69	98	15	0	23	2	1	0	0	1	6536
Percent	0.0%	85.4%	11.4%	1.1%	1.5%	0.2%	0.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		07:00	06:00	08:00	09:00	09:00		09:00	06:00	07:00			07:00	07:00
Vol.		524	83	15	15	3		3	1	1			1	616
PM Peak	12:00	17:00	12:00	15:00	12:00	13:00		13:00	14:00					17:00
Vol.	1	446	62	17	8	2		5	1					482
Total		10958	1396	124	199	29	2	51	4	1	0	0	1	12771

Union Street (Route 135)
west of Metropolitan Avenue
City, State: Ashland, MA
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PRECISION
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143741 B Speed
Site Code: TBA
Date Start: 26-Feb-14

WB

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
02/26/ 14	1	0	0	5	14	5	0	0	0	0	0	0	0	25	35	30
01:00	0	0	0	1	1	4	0	0	0	0	0	0	0	6	38	35
02:00	0	0	0	1	1	1	0	0	0	0	0	0	0	3	36	32
03:00	0	0	0	1	3	2	0	0	0	0	0	0	0	6	36	33
04:00	0	1	0	3	10	3	**1**	0	0	0	0	0	0	18	36	31
05:00	2	4	10	27	21	5	1	0	0	0	0	0	0	70	32	27
06:00	29	13	37	65	52	**10**	0	0	0	0	0	0	0	206	31	23
07:00	**98**	**57**	**118**	86	30	2	0	0	0	0	0	0	0	**391**	26	18
08:00	70	55	74	**134**	34	8	1	0	0	0	0	0	0	376	28	20
09:00	47	33	70	95	**68**	8	1	0	0	0	0	0	0	322	30	22
10:00	38	46	59	93	52	5	0	0	0	0	0	0	0	293	29	21
11:00	52	52	55	81	**65**	10	0	0	0	0	0	0	0	315	30	21
12 PM	63	41	70	97	47	**13**	**1**	0	0	0	0	0	0	332	29	20
13:00	63	77	**106**	89	47	7	0	0	0	0	0	0	0	389	28	19
14:00	**113**	**78**	95	**104**	31	10	0	0	0	0	0	0	0	**431**	27	17
15:00	144	74	107	95	50	**11**	0	0	0	0	0	0	0	481	27	17
16:00	134	104	**110**	**118**	29	1	0	0	0	0	0	0	0	496	26	17
17:00	**196**	**129**	110	66	15	1	0	0	0	0	0	0	0	**517**	22	14
18:00	92	60	96	105	45	6	0	0	0	0	0	0	0	404	27	19
19:00	51	41	77	93	47	8	0	0	0	0	0	0	0	317	29	20
20:00	25	24	56	102	**54**	1	0	0	0	0	0	0	0	262	30	23
21:00	9	11	22	83	39	3	0	0	0	0	0	0	0	167	30	25
22:00	7	2	3	49	48	9	0	0	0	0	0	0	0	118	33	27
23:00	0	0	0	19	35	11	0	0	0	0	0	0	0	65	35	31
%	20.5%	15.0%	21.2%	26.8%	13.9%	2.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	08:00	09:00	06:00	04:00							07:00		
Vol.	98	57	118	134	68	10	1							391		
Midday Peak	14:00	14:00	13:00	14:00	11:00	12:00	12:00							14:00		
Vol.	113	78	106	104	65	13	1							431		
PM Peak	17:00	17:00	16:00	16:00	20:00	15:00								17:00		
Vol.	196	129	110	118	54	11								517		

% iles		
	15th Percentile :	7 MPH
	50th Percentile :	19 MPH
	85th Percentile :	28 MPH
	95th Percentile :	32 MPH

Stats		
	10 MPH Pace Speed :	21-30 MPH
	Number in Pace :	2259
	Percent in Pace :	37.6%
	Number of Vehicles > 25 MPH :	1958
	Percent of Vehicles > 25 MPH :	32.6%
	Mean Speed(Average) :	19 MPH

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143741 B Speed
Site Code: TBA
Date Start: 26-Feb-14

WB

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
02/27/ 14	2	0	5	6	11	4	0	0	0	0	0	0	0	28	34	27
01:00	0	0	0	2	5	0	1	0	0	0	0	0	0	8	34	32
02:00	0	0	0	5	5	0	1	0	0	0	0	0	0	11	33	31
03:00	0	0	1	1	2	2	2	0	0	0	0	0	0	8	41	34
04:00	0	0	0	4	11	3	0	0	0	0	0	0	0	18	35	32
05:00	4	2	2	19	24	6	0	0	0	0	0	0	0	57	33	27
06:00	14	6	29	73	**70**	4	0	0	0	0	0	0	0	196	32	26
07:00	**85**	**59**	**76**	96	51	8	0	0	0	0	0	0	0	**375**	28	19
08:00	60	30	66	**112**	61	**14**	0	0	0	0	0	0	0	343	30	21
09:00	29	33	46	99	63	14	**3**	0	0	0	0	0	0	287	31	23
10:00	20	45	41	96	55	14	0	0	0	0	0	0	0	271	31	23
11:00	45	41	51	84	**57**	**16**	**1**	0	0	0	0	0	0	295	30	21
12 PM	59	52	**77**	77	49	11	1	0	0	0	0	0	0	326	29	20
13:00	72	56	69	**93**	43	10	1	0	0	0	0	0	0	344	28	19
14:00	**132**	**99**	76	79	36	6	0	0	0	0	0	0	0	**428**	26	16
15:00	149	98	97	90	45	10	0	0	0	0	0	0	0	489	26	17
16:00	**190**	104	104	65	22	6	0	0	0	0	0	0	0	**491**	23	15
17:00	168	**108**	111	66	14	0	0	0	0	0	0	0	0	467	23	15
18:00	132	93	**122**	99	36	1	0	0	0	0	0	0	0	483	26	17
19:00	60	54	112	**117**	**56**	3	0	0	0	0	0	0	0	402	28	20
20:00	36	61	91	109	33	5	0	0	0	0	0	0	0	335	28	21
21:00	24	25	58	79	30	2	0	0	0	0	0	0	0	218	29	22
22:00	5	5	7	34	46	**12**	**1**	0	0	0	0	0	0	110	33	28
23:00	3	0	2	21	29	7	0	0	0	0	0	0	0	62	34	29
%	21.3%	16.0%	20.5%	25.2%	14.1%	2.6%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	08:00	06:00	08:00	09:00							07:00		
Vol.	85	59	76	112	70	14	3							375		
Midday Peak	14:00	14:00	12:00	13:00	11:00	11:00	11:00							14:00		
Vol.	132	99	77	93	57	16	1							428		
PM Peak	16:00	17:00	18:00	19:00	19:00	22:00	22:00							16:00		
Vol.	190	108	122	117	56	12	1							491		

% iles

15th Percentile : 7 MPH
50th Percentile : 19 MPH
85th Percentile : 28 MPH
95th Percentile : 32 MPH

Stats

10 MPH Pace Speed : 20-29 MPH
Number in Pace : 2160
Percent in Pace : 35.7%
Number of Vehicles > 25 MPH : 1941
Percent of Vehicles > 25 MPH : 32.1%
Mean Speed(Average) : 19 MPH

Union Street (Route 135)
west of Metropolitan Avenue
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Client: Green International/S. Keenan

PRECISION
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Email: datarequests@pdillc.com

143741 B Speed
Site Code: TBA
Date Start: 26-Feb-14

EB

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
02/26/ 14	1	0	0	3	13	3	0	0	0	0	0	0	0	20	34	30
01:00	0	0	0	2	3	1	0	0	0	0	0	0	0	6	34	31
02:00	0	0	0	2	3	1	1	0	0	0	0	0	0	7	38	33
03:00	0	0	0	5	3	4	2	0	0	0	0	0	0	14	39	33
04:00	0	0	3	15	28	7	1	0	0	0	0	0	0	54	34	31
05:00	2	0	9	43	71	20	**4**	0	0	0	0	0	0	149	34	30
06:00	20	9	37	198	**201**	**33**	1	0	0	0	0	0	**1**	500	33	28
07:00	34	11	**89**	**282**	162	20	1	0	0	0	0	0	0	**599**	31	26
08:00	50	**14**	60	282	174	13	0	0	0	0	0	0	0	593	31	25
09:00	**73**	13	35	160	148	19	1	0	0	0	0	0	0	449	32	23
10:00	59	9	29	110	103	17	0	0	0	0	0	0	0	327	32	23
11:00	71	14	20	101	104	**29**	**2**	0	0	0	0	0	0	341	32	22
12 PM	70	14	24	**147**	**107**	22	2	0	0	0	0	0	0	**386**	32	23
13:00	71	**15**	29	94	95	20	2	0	0	0	0	0	0	326	32	22
14:00	**94**	12	**47**	132	88	9	0	0	0	0	0	0	0	382	30	20
15:00	83	**32**	43	117	**94**	10	1	0	0	0	0	0	0	380	30	21
16:00	**102**	17	42	116	89	14	0	0	0	0	0	0	0	380	30	20
17:00	68	16	45	**153**	91	9	0	0	0	0	0	0	0	**382**	30	22
18:00	63	21	**52**	125	84	**19**	1	0	0	0	0	0	0	365	31	22
19:00	44	8	30	78	76	11	1	0	0	0	0	0	0	248	31	23
20:00	15	5	9	48	57	11	0	0	0	0	0	0	0	145	33	26
21:00	13	2	6	24	32	6	1	0	0	0	0	0	0	84	33	24
22:00	6	1	7	18	34	9	0	0	0	0	0	0	0	75	34	27
23:00	0	1	3	7	7	3	**2**	0	0	0	0	0	0	23	36	30
%	15.1%	3.4%	9.9%	36.3%	29.9%	5.0%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	08:00	07:00	07:00	06:00	06:00	05:00						06:00	07:00		
Vol.	73	14	89	282	201	33	4						1	599		
Midday Peak	14:00	13:00	14:00	12:00	12:00	11:00	11:00							12:00		
Vol.	94	15	47	147	107	29	2							386		
PM Peak	16:00	15:00	18:00	17:00	15:00	18:00	23:00							17:00		
Vol.	102	32	52	153	94	19	2							382		

% iles

15th Percentile : 8 MPH
50th Percentile : 26 MPH
85th Percentile : 32 MPH
95th Percentile : 34 MPH

Stats

10 MPH Pace Speed : 24-33 MPH
Number in Pace : 3342
Percent in Pace : 53.6%
Number of Vehicles > 25 MPH : 3712
Percent of Vehicles > 25 MPH : 59.5%
Mean Speed(Average) : 24 MPH

Union Street (Route 135)
west of Metropolitan Avenue
City, State: Ashland, MA
Client: Green International/S. Keenan

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

143741 B Speed
Site Code: TBA
Date Start: 26-Feb-14

EB

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
02/27/ 14	0	0	0	4	6	0	0	0	0	0	0	0	0	10	32	30
01:00	0	0	0	0	3	2	0	0	0	0	0	0	0	5	37	34
02:00	0	0	0	5	1	1	0	0	0	0	0	0	0	7	33	29
03:00	1	0	0	3	11	1	2	**1**	**1**	0	0	0	0	20	41	32
04:00	0	0	0	7	19	12	0	0	0	0	0	0	0	38	36	33
05:00	2	0	1	26	103	28	2	0	0	0	0	0	0	162	35	32
06:00	17	6	26	129	**235**	**69**	**4**	0	0	0	0	0	0	486	34	29
07:00	59	**42**	**97**	**237**	160	19	2	0	0	0	0	0	0	**616**	31	24
08:00	64	13	52	228	196	27	0	0	0	0	0	0	0	580	32	25
09:00	**67**	9	23	123	146	32	1	0	0	0	0	0	0	401	32	24
10:00	57	10	14	106	126	30	2	0	0	0	0	0	0	345	33	24
11:00	71	12	23	100	**111**	11	0	0	0	0	0	0	0	328	31	22
12 PM	77	**25**	32	113	87	**28**	0	0	0	0	0	0	0	362	31	21
13:00	77	19	**42**	115	90	15	0	0	0	0	0	0	0	358	31	21
14:00	**89**	23	39	**117**	79	17	**2**	0	0	0	0	0	0	**366**	31	20
15:00	80	18	52	127	**94**	**27**	0	0	0	0	0	0	0	398	31	22
16:00	**123**	20	70	147	77	6	0	0	0	0	0	0	0	443	29	19
17:00	116	**21**	**102**	161	74	7	1	0	0	0	0	0	0	**482**	29	20
18:00	97	11	88	**162**	67	5	1	0	0	0	0	0	0	431	29	20
19:00	47	6	25	98	85	9	**2**	0	0	0	0	0	0	272	31	23
20:00	41	3	29	66	39	5	1	0	0	0	0	0	0	184	30	21
21:00	19	4	24	56	30	3	1	0	0	0	0	0	0	137	30	23
22:00	7	1	6	24	37	8	1	0	0	0	0	0	0	84	33	27
23:00	0	1	0	7	9	4	0	0	0	0	0	0	0	21	35	30
%	17.0%	3.7%	11.4%	33.1%	28.8%	5.6%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	07:00	07:00	07:00	06:00	06:00	06:00	03:00	03:00					07:00		
Vol.	67	42	97	237	235	69	4	1	1					616		
Midday Peak	14:00	12:00	13:00	14:00	11:00	12:00	14:00							14:00		
Vol.	89	25	42	117	111	28	2							366		
PM Peak	16:00	17:00	17:00	18:00	15:00	15:00	19:00							17:00		
Vol.	123	21	102	162	94	27	2							482		

% iles	
15th Percentile :	8 MPH
50th Percentile :	25 MPH
85th Percentile :	32 MPH
95th Percentile :	35 MPH

Stats	
10 MPH Pace Speed :	24-33 MPH
Number in Pace :	3253
Percent in Pace :	49.8%
Number of Vehicles > 25 MPH :	3716
Percent of Vehicles > 25 MPH :	56.9%
Mean Speed(Average) :	23 MPH

Union Street (Route 135)
west of Metropolitan Avenue
City, State: Ashland, MA
Client: Green International/S. Keenan

PRECISION
D A T A
INDUSTRIES, LLC
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143741 B VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	WB				EB				Combined				26-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	15		88		9		102		24		190		
12:15	5		81		4		110		9		191		
12:30	1		82		3		95		4		177		
12:45	4	25	81	332	4	20	79	386	8	45	160	718	
01:00	3		99		0		63		3		162		
01:15	1		87		1		83		2		170		
01:30	2		98		4		83		6		181		
01:45	0	6	105	389	1	6	97	326	1	12	202	715	
02:00	0		105		1		78		1		183		
02:15	0		105		2		116		2		221		
02:30	2		111		4		80		6		191		
02:45	1	3	110	431	0	7	108	382	1	10	218	813	
03:00	1		112		5		81		6		193		
03:15	1		128		1		84		2		212		
03:30	1		126		4		107		5		233		
03:45	3	6	115	481	4	14	108	380	7	20	223	861	
04:00	1		129		2		93		3		222		
04:15	2		125		9		101		11		226		
04:30	5		132		18		77		23		209		
04:45	10	18	110	496	25	54	109	380	35	72	219	876	
05:00	13		123		12		89		25		212		
05:15	9		144		33		98		42		242		
05:30	25		134		44		100		69		234		
05:45	23	70	116	517	60	149	95	382	83	219	211	899	
06:00	35		104		78		104		113		208		
06:15	49		114		108		102		157		216		
06:30	58		101		164		92		222		193		
06:45	64	206	85	404	150	500	67	365	214	706	152	769	
07:00	68		85		150		75		218		160		
07:15	113		80		139		75		252		155		
07:30	115		73		149		50		264		123		
07:45	95	391	79	317	161	599	48	248	256	990	127	565	
08:00	87		79		154		54		241		133		
08:15	79		63		157		31		236		94		
08:30	104		57		150		31		254		88		
08:45	106	376	63	262	132	593	29	145	238	969	92	407	
09:00	99		41		133		19		232		60		
09:15	76		40		103		29		179		69		
09:30	70		62		98		20		168		82		
09:45	77	322	24	167	115	449	16	84	192	771	40	251	
10:00	71		30		92		23		163		53		
10:15	79		29		92		20		171		49		
10:30	69		32		77		23		146		55		
10:45	74	293	27	118	66	327	9	75	140	620	36	193	
11:00	65		31		85		9		150		40		
11:15	73		14		101		4		174		18		
11:30	97		10		74		7		171		17		
11:45	80	315	10	65	81	341	3	23	161	656	13	88	
Total	2031		3979		3059		3176		5090		7155		
Percent	39.9%		55.6%		60.1%		44.4%						
Day Total		6010				6235				12245			
Peak	07:15	-	05:00	-	07:45	-	03:30	-	07:15	-	04:45	-	- -
Vol.	410	-	517	-	622	-	409	-	1013	-	907	-	- -
P.H.F.	0.891		0.898		0.966		0.947		0.959		0.937		

Union Street (Route 135)
west of Metropolitan Avenue
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143741 B VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	WB				EB				Combined				27-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	9		82		5		90		14		172		
12:15	10		80		1		87		11		167		
12:30	3		74		2		99		5		173		
12:45	6	28	90	326	2	10	86	362	8	38	176	688	
01:00	4		77		1		106		5		183		
01:15	3		94		1		83		4		177		
01:30	1		80		2		88		3		168		
01:45	0	8	93	344	1	5	81	358	1	13	174	702	
02:00	4		106		2		83		6		189		
02:15	1		116		2		89		3		205		
02:30	6		118		2		105		8		223		
02:45	0	11	88	428	1	7	89	366	1	18	177	794	
03:00	1		131		6		90		7		221		
03:15	4		126		2		92		6		218		
03:30	1		111		6		101		7		212		
03:45	2	8	121	489	6	20	115	398	8	28	236	887	
04:00	1		129		2		123		3		252		
04:15	0		134		6		115		6		249		
04:30	4		110		16		96		20		206		
04:45	13	18	118	491	14	38	109	443	27	56	227	934	
05:00	10		117		17		109		27		226		
05:15	2		111		33		110		35		221		
05:30	26		117		37		130		63		247		
05:45	19	57	122	467	75	162	133	482	94	219	255	949	
06:00	42		132		68		108		110		240		
06:15	40		120		115		108		155		228		
06:30	56		136		153		114		209		250		
06:45	58	196	95	483	150	486	101	431	208	682	196	914	
07:00	62		108		154		81		216		189		
07:15	116		105		136		84		252		189		
07:30	102		98		156		50		258		148		
07:45	95	375	91	402	170	616	57	272	265	991	148	674	
08:00	84		98		143		61		227		159		
08:15	87		73		137		36		224		109		
08:30	87		80		153		49		240		129		
08:45	85	343	84	335	147	580	38	184	232	923	122	519	
09:00	98		63		98		26		196		89		
09:15	69		54		110		35		179		89		
09:30	53		63		105		41		158		104		
09:45	67	287	38	218	88	401	35	137	155	688	73	355	
10:00	59		35		76		30		135		65		
10:15	80		32		93		22		173		54		
10:30	75		21		84		21		159		42		
10:45	57	271	22	110	92	345	11	84	149	616	33	194	
11:00	69		26		72		5		141		31		
11:15	77		15		80		7		157		22		
11:30	86		17		91		5		177		22		
11:45	63	295	4	62	85	328	4	21	148	623	8	83	
Total	1897		4155		2998		3538		4895		7693		
Percent	38.8%		54.0%		61.2%		46.0%						
Day Total		6052				6536				12588			
Peak	07:15	-	05:45	-	07:00	-	05:00	-	07:15	-	05:45	-	-	-
Vol.	397	-	510	-	616	-	482	-	1002	-	973	-	-	-
P.H.F.	0.856		0.938		0.906		0.906		0.945		0.954			

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Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

143741 C Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	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	1	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	5	2	0	1	0	0	0	1	0	0	0	0	9
06:00	0	26	5	1	1	1	0	0	0	0	0	0	0	34
07:00	1	79	9	1	0	0	0	0	0	0	0	0	0	90
08:00	0	76	2	0	4	0	0	0	0	0	0	0	0	82
09:00	0	77	12	0	2	0	0	1	0	0	0	0	0	92
10:00	0	67	12	1	4	0	0	0	0	0	0	0	0	84
11:00	0	74	10	0	4	0	0	0	0	0	0	0	0	88
12 PM	0	64	14	1	3	0	0	0	0	0	0	0	0	82
13:00	0	104	13	2	4	0	0	0	1	0	0	0	0	124
14:00	0	105	13	3	5	1	0	0	1	0	0	0	0	128
15:00	0	131	12	1	0	0	0	1	0	0	0	0	0	145
16:00	0	166	18	0	4	0	0	0	0	0	0	0	0	188
17:00	0	161	14	0	1	0	0	1	0	0	0	0	0	177
18:00	1	127	14	0	1	0	0	0	0	0	0	0	0	143
19:00	0	87	6	0	2	0	0	0	0	0	0	0	0	95
20:00	0	73	7	0	0	0	0	0	0	0	0	0	0	80
21:00	0	40	8	0	0	0	0	0	0	0	0	0	0	48
22:00	0	29	1	0	0	0	0	0	0	0	0	0	0	30
23:00	0	11	0	0	0	0	0	0	0	0	0	0	0	11
Total	2	1505	172	10	37	2	0	3	3	0	0	0	0	1734
Percent	0.1%	86.8%	9.9%	0.6%	2.1%	0.1%	0.0%	0.2%	0.2%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	09:00	06:00	08:00	06:00		09:00	05:00					09:00
Vol.	1	79	12	1	4	1		1	1					92
PM Peak	18:00	16:00	16:00	14:00	14:00	14:00		15:00	13:00					16:00
Vol.	1	166	18	3	5	1		1	1					188

Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 C Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	0	5	2	0	0	0	0	0	0	0	0	0	0	7
01:00	0	3	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
03:00	0	1	1	0	0	0	0	0	0	0	0	0	0	2
04:00	0	1	2	0	0	0	0	0	0	0	0	0	0	3
05:00	0	7	2	0	2	0	0	0	0	0	0	0	0	11
06:00	0	31	4	1	1	0	0	0	0	0	0	0	0	37
07:00	0	66	9	1	1	1	0	0	0	0	0	0	0	78
08:00	0	62	11	1	3	1	0	0	0	0	0	0	0	78
09:00	0	70	15	0	4	0	0	0	0	0	0	0	0	89
10:00	0	47	10	0	3	1	0	0	0	0	0	0	0	61
11:00	0	62	19	0	4	1	0	0	0	0	0	0	0	86
12 PM	1	97	16	1	3	2	0	1	0	0	0	0	0	121
13:00	0	122	18	1	4	0	0	0	0	0	0	0	0	145
14:00	0	134	13	2	4	1	0	0	0	0	0	0	0	154
15:00	0	147	13	2	3	0	0	0	0	0	0	0	0	165
16:00	1	173	21	0	3	1	0	0	0	0	0	0	0	199
17:00	0	178	21	0	2	1	0	1	0	0	0	0	0	203
18:00	1	142	14	0	2	0	0	0	0	0	0	0	0	159
19:00	0	103	5	0	3	0	0	0	0	0	0	0	0	111
20:00	0	71	8	0	1	0	0	0	0	0	0	0	0	80
21:00	0	51	3	0	0	0	0	0	0	0	0	0	0	54
22:00	0	16	3	0	2	0	0	0	0	0	0	0	0	21
23:00	0	21	2	0	0	0	0	0	0	0	0	0	0	23
Total	3	1610	212	9	45	9	0	2	0	0	0	0	0	1890
Percent	0.2%	85.2%	11.2%	0.5%	2.4%	0.5%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	
AM Peak		09:00	11:00	06:00	09:00	07:00								09:00
Vol.		70	19	1	4	1								89
PM Peak	12:00	17:00	16:00	14:00	13:00	12:00		12:00						17:00
Vol.	1	178	21	2	4	2		1						203
Total		3115	384	19	82	11	0	5	3	0	0	0	0	3624

Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

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

143741 C Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/1														
4	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	2	0	0	0	0	0	0	0	0	0	0	0	2
05:00	0	13	1	0	0	0	0	0	0	0	0	0	0	14
06:00	0	64	8	0	2	0	0	0	0	0	0	0	0	74
07:00	0	188	22	1	3	0	0	1	0	0	0	0	0	215
08:00	0	179	24	0	2	0	0	0	0	0	0	0	0	205
09:00	0	84	12	0	2	0	0	0	0	0	0	0	0	98
10:00	1	69	15	0	3	0	0	1	0	0	0	0	0	89
11:00	0	68	8	1	4	0	0	0	0	0	0	0	0	81
12 PM	0	51	15	0	2	1	0	0	0	0	0	0	0	69
13:00	0	62	8	0	0	0	0	0	0	0	0	0	0	70
14:00	0	76	11	4	2	0	0	0	0	0	0	0	0	93
15:00	0	66	11	1	2	0	0	0	1	0	0	0	0	81
16:00	0	55	4	0	1	0	0	0	0	0	0	0	0	60
17:00	0	73	11	0	1	0	0	0	0	0	0	0	0	85
18:00	0	54	6	1	2	0	0	0	0	0	0	0	0	63
19:00	0	40	7	0	0	0	0	0	0	0	0	0	0	47
20:00	0	28	2	0	1	0	0	0	0	0	0	0	0	31
21:00	0	18	3	0	1	0	0	0	0	0	0	0	0	22
22:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
23:00	0	4	0	0	0	0	0	0	0	0	0	0	0	4
Total	1	1201	168	8	28	1	0	2	1	0	0	0	0	1410
Percent	0.1%	85.2%	11.9%	0.6%	2.0%	0.1%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	10:00	07:00	08:00	07:00	11:00			07:00						07:00
Vol.	1	188	24	1	4			1						215
PM Peak		14:00	12:00	14:00	12:00	12:00			15:00					14:00
Vol.		76	15	4	2	1			1					93

Summer Street
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143741 C Class
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/1														
4	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	1	0	0	0	0	0	0	0	0	0	0	1
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	0	0	2	0	0	0	0	0	0	0	0	0	0	2
05:00	0	17	2	0	1	0	0	0	1	0	0	0	0	21
06:00	0	67	11	0	2	1	0	0	0	0	0	0	0	81
07:00	2	189	14	1	2	0	0	0	0	0	0	0	0	208
08:00	0	178	23	1	4	0	0	0	0	0	0	0	0	206
09:00	0	82	19	0	4	1	0	0	0	0	0	0	0	106
10:00	0	62	8	0	3	1	0	1	0	0	0	0	0	75
11:00	0	62	15	0	5	0	0	1	0	0	0	0	0	83
12 PM	0	49	12	0	2	0	0	0	0	0	0	0	0	63
13:00	0	71	10	0	2	0	0	0	0	0	0	0	0	83
14:00	0	82	17	4	2	1	0	0	0	0	0	0	0	106
15:00	0	83	10	1	2	1	0	0	0	0	0	0	0	97
16:00	0	83	10	0	2	0	0	0	0	0	0	0	0	95
17:00	0	76	10	0	2	0	0	0	0	0	0	0	0	88
18:00	0	69	3	0	1	0	0	0	0	0	0	0	0	73
19:00	0	47	4	0	0	0	0	0	0	0	0	0	0	51
20:00	0	30	1	0	2	0	0	0	0	0	0	0	0	33
21:00	0	11	0	0	1	0	0	0	0	0	0	0	0	12
22:00	0	9	0	0	2	0	0	0	0	0	0	0	0	11
23:00	0	6	0	0	0	0	0	0	0	0	0	0	0	6
Total	2	1273	172	7	39	5	0	2	1	0	0	0	0	1501
Percent	0.1%	84.8%	11.5%	0.5%	2.6%	0.3%	0.0%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	
AM Peak	07:00	07:00	08:00	07:00	11:00	06:00		10:00	05:00					07:00
Vol.	2	189	23	1	5	1		1	1					208
PM Peak		15:00	14:00	14:00	12:00	14:00								14:00
Vol.		83	17	4	2	1								106
Total		2474	340	15	67	6	0	4	2	0	0	0	0	2911

Summer Street
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143741 C Speed
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/ 14	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	33	32
02:00	0	0	0	0	0	1	0	0	0	0	0	0	0	1	38	37
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	42	39
05:00	0	0	1	1	5	2	0	0	0	0	0	0	0	9	35	31
06:00	0	0	3	6	15	7	3	0	0	0	0	0	0	34	37	32
07:00	0	0	3	13	**41**	**28**	**5**	0	0	0	0	0	0	90	37	33
08:00	0	**1**	5	13	35	22	4	**2**	0	0	0	0	0	82	37	32
09:00	0	1	**7**	**26**	38	17	3	0	0	0	0	0	0	**92**	35	31
10:00	0	2	5	19	38	14	5	1	0	0	0	0	0	84	36	31
11:00	0	1	4	18	45	18	1	**1**	0	0	0	0	0	88	35	32
12 PM	0	0	1	18	41	19	2	1	0	0	0	0	0	82	36	32
13:00	0	1	**6**	21	**58**	33	**5**	0	0	0	0	0	0	124	36	32
14:00	0	**2**	6	**33**	43	**41**	3	0	0	0	0	0	0	**128**	37	32
15:00	0	0	3	35	67	35	5	0	0	0	0	0	0	145	36	32
16:00	**1**	**4**	3	39	89	**45**	**6**	**1**	0	0	0	0	0	**188**	36	32
17:00	0	0	**8**	45	**90**	30	4	0	0	0	0	0	0	177	35	31
18:00	0	0	2	**49**	69	23	0	0	0	0	0	0	0	143	34	31
19:00	0	1	6	29	49	9	1	0	0	0	0	0	0	95	34	30
20:00	0	2	8	35	26	8	1	0	0	0	0	0	0	80	33	29
21:00	0	0	1	12	29	4	2	0	0	0	0	0	0	48	34	31
22:00	0	2	1	6	8	12	0	1	0	0	0	0	0	30	37	32
23:00	0	0	0	2	1	6	1	0	**1**	0	0	0	0	11	40	37
%	0.1%	1.0%	4.2%	24.2%	45.4%	21.6%	3.0%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak		08:00	09:00	09:00	07:00	07:00	07:00	08:00						09:00		
Vol.		1	7	26	41	28	5	2						92		
Midday Peak		14:00	13:00	14:00	13:00	14:00	13:00	11:00						14:00		
Vol.		2	6	33	58	41	5	1						128		
PM Peak	16:00	16:00	17:00	18:00	17:00	16:00	16:00	16:00	23:00					16:00		
Vol.	1	4	8	49	90	45	6	1	1					188		

% iles

15th Percentile :	25 MPH
50th Percentile :	31 MPH
85th Percentile :	36 MPH
95th Percentile :	39 MPH

Stats

10 MPH Pace Speed :	27-36 MPH
Number in Pace :	1184
Percent in Pace :	68.3%
Number of Vehicles > 30 MPH :	998
Percent of Vehicles > 30 MPH :	57.6%
Mean Speed(Average) :	32 MPH

Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

PRECISION
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143741 C Speed
Site Code: TBA
Date Start: 26-Feb-14

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
02/27/ 14	0	0	0	2	3	2	0	0	0	0	0	0	0	7	36	32
01:00	0	0	0	2	1	0	0	0	0	0	0	0	0	3	31	29
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	1	0	1	0	0	0	0	0	0	2	42	37
04:00	0	0	1	1	1	0	0	0	0	0	0	0	0	3	31	27
05:00	0	0	2	2	4	3	0	0	0	0	0	0	0	11	36	31
06:00	0	1	2	12	11	9	2	0	0	0	0	0	0	37	36	31
07:00	0	0	**8**	**17**	33	19	1	0	0	0	0	0	0	78	36	31
08:00	0	2	4	16	40	15	1	0	0	0	0	0	0	78	35	31
09:00	0	**3**	4	17	**42**	**20**	**3**	0	0	0	0	0	0	**89**	36	31
10:00	0	0	0	13	29	19	0	0	0	0	0	0	0	61	36	32
11:00	0	1	3	7	38	35	2	0	0	0	0	0	0	86	37	33
12 PM	0	**3**	4	26	52	31	5	0	0	0	0	0	0	121	36	32
13:00	0	0	**5**	**36**	**66**	30	**8**	0	0	0	0	0	0	145	36	32
14:00	0	1	2	36	65	**43**	7	0	0	0	0	0	0	**154**	37	32
15:00	0	**2**	7	35	76	38	**7**	0	0	0	0	0	0	165	36	32
16:00	0	2	10	47	95	**40**	4	**1**	0	0	0	0	0	199	35	31
17:00	0	1	7	**62**	**100**	29	3	1	0	0	0	0	0	**203**	34	31
18:00	0	1	7	55	73	23	0	0	0	0	0	0	0	159	34	30
19:00	0	2	6	30	57	15	1	0	0	0	0	0	0	111	34	30
20:00	0	1	**11**	23	39	6	0	0	0	0	0	0	0	80	33	29
21:00	**1**	0	6	22	20	5	0	0	0	0	0	0	0	54	33	29
22:00	0	0	4	12	5	0	0	0	0	0	0	0	0	21	30	27
23:00	0	0	0	11	10	2	0	0	0	0	0	0	0	23	33	30
%	0.1%	1.1%	4.9%	25.6%	45.6%	20.3%	2.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak		09:00	07:00	07:00	09:00	09:00	09:00							09:00		
Vol.		3	8	17	42	20	3							89		
Midday Peak		12:00	13:00	13:00	13:00	14:00	13:00							14:00		
Vol.		3	5	36	66	43	8							154		
PM Peak	21:00	15:00	20:00	17:00	17:00	16:00	15:00	16:00						17:00		
Vol.	1	2	11	62	100	40	7	1						203		

% iles

15th Percentile : 25 MPH
50th Percentile : 30 MPH
85th Percentile : 35 MPH
95th Percentile : 38 MPH

Stats

10 MPH Pace Speed : 27-36 MPH
Number in Pace : 1298
Percent in Pace : 68.7%
Number of Vehicles > 30 MPH : 1044
Percent of Vehicles > 30 MPH : 55.2%
Mean Speed(Average) : 31 MPH

Summer Street
south of Linden Street
City, State: Ashland, MA
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143741 C Speed
Site Code: TBA
Date Start: 26-Feb-14

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
02/26/ 14	0	0	0	0	0	1	0	0	0	0	0	0	0	1	38	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	0	0	1	0	1	0	0	0	0	0	0	2	42	37
05:00	0	0	2	2	10	0	0	0	0	0	0	0	0	14	33	30
06:00	0	0	5	14	28	23	**4**	0	0	0	0	0	0	74	37	32
07:00	**1**	0	**12**	**62**	**100**	37	1	**2**	0	0	0	0	0	**215**	35	31
08:00	1	**4**	5	52	87	**51**	4	1	0	0	0	0	0	205	36	31
09:00	0	1	3	23	46	23	2	0	0	0	0	0	0	98	36	32
10:00	1	1	4	20	38	18	6	1	0	0	0	0	0	89	37	32
11:00	0	0	1	24	**42**	13	1	0	0	0	0	0	0	81	35	31
12 PM	0	0	3	13	38	12	1	**2**	0	0	0	0	0	69	35	32
13:00	0	1	0	13	33	**19**	**4**	0	0	0	0	0	0	70	37	33
14:00	0	**3**	**4**	**28**	37	18	3	0	0	0	0	0	0	**93**	35	31
15:00	0	**2**	1	21	36	**17**	**4**	0	0	0	0	0	0	81	36	32
16:00	0	1	1	18	30	9	1	0	0	0	0	0	0	60	34	31
17:00	0	0	1	**31**	**41**	8	4	0	0	0	0	0	0	**85**	34	31
18:00	0	0	**4**	18	31	10	0	0	0	0	0	0	0	63	34	31
19:00	0	0	4	15	24	3	1	0	0	0	0	0	0	47	33	30
20:00	0	2	2	14	11	1	1	0	0	0	0	0	0	31	32	28
21:00	0	0	1	8	13	0	0	0	0	0	0	0	0	22	32	30
22:00	0	0	2	1	3	0	0	0	0	0	0	0	0	6	32	28
23:00	0	0	0	1	1	2	0	0	0	0	0	0	0	4	37	33
%	0.2%	1.1%	3.9%	26.8%	46.1%	18.8%	2.7%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	08:00	07:00	07:00	07:00	08:00	06:00	07:00						07:00		
Vol.	1	4	12	62	100	51	4	2						215		
Midday Peak		14:00	14:00	14:00	11:00	13:00	13:00	12:00						14:00		
Vol.		3	4	28	42	19	4	2						93		
PM Peak		15:00	18:00	17:00	17:00	15:00	15:00							17:00		
Vol.		2	4	31	41	17	4							85		

% iles	15th Percentile :	25 MPH
	50th Percentile :	30 MPH
	85th Percentile :	35 MPH
	95th Percentile :	39 MPH

Stats	10 MPH Pace Speed :	27-36 MPH
	Number in Pace :	976
	Percent in Pace :	69.2%
	Number of Vehicles > 30 MPH :	769
	Percent of Vehicles > 30 MPH :	54.5%
	Mean Speed(Average) :	31 MPH

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143741 C Speed
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Date Start: 26-Feb-14

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
02/27/ 14	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	1	0	0	0	0	0	0	0	0	1	33	32
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	1	1	0	0	0	0	0	0	0	2	37	34
05:00	0	0	3	7	10	1	0	0	0	0	0	0	0	21	33	29
06:00	0	0	**10**	17	35	17	2	0	0	0	0	0	0	81	36	31
07:00	0	0	7	59	**111**	29	2	0	0	0	0	0	0	**208**	34	31
08:00	0	**1**	6	**62**	96	**35**	**5**	**1**	0	0	0	0	0	206	35	31
09:00	0	0	8	27	47	21	2	1	0	0	0	0	0	106	35	31
10:00	0	0	2	11	34	24	3	0	1	0	0	0	0	75	37	33
11:00	0	1	3	18	30	**27**	**4**	0	0	0	0	0	0	83	37	32
12 PM	**1**	2	**4**	8	24	21	3	0	0	0	0	0	0	63	37	31
13:00	0	0	2	19	43	15	4	0	0	0	0	0	0	83	36	32
14:00	0	**4**	3	**25**	**47**	24	3	0	0	0	0	0	0	**106**	36	31
15:00	0	2	3	31	45	15	1	0	0	0	0	0	0	**97**	34	30
16:00	0	**3**	**6**	**32**	42	12	0	0	0	0	0	0	0	95	34	30
17:00	0	0	4	17	**47**	**17**	**3**	0	0	0	0	0	0	88	36	32
18:00	0	0	5	31	32	5	0	0	0	0	0	0	0	73	33	30
19:00	0	0	1	20	20	10	0	0	0	0	0	0	0	51	35	31
20:00	0	2	3	12	13	3	0	0	0	0	0	0	0	33	33	28
21:00	0	0	5	5	2	0	0	0	0	0	0	0	0	12	29	26
22:00	0	0	2	4	4	1	0	0	0	0	0	0	0	11	33	29
23:00	0	0	2	1	3	0	0	0	0	0	0	0	0	6	32	28
%	0.1%	1.0%	5.3%	27.0%	45.8%	18.5%	2.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak		08:00	06:00	08:00	07:00	08:00	08:00	08:00						07:00		
Vol.		1	10	62	111	35	5	1						208		
Midday Peak	12:00	14:00	12:00	14:00	14:00	11:00	11:00							14:00		
Vol.	1	4	4	25	47	27	4							106		
PM Peak		16:00	16:00	16:00	17:00	17:00	17:00							15:00		
Vol.		3	6	32	47	17	3							97		

% iles

15th Percentile : 25 MPH
50th Percentile : 30 MPH
85th Percentile : 35 MPH
95th Percentile : 38 MPH

Stats

10 MPH Pace Speed : 27-36 MPH
Number in Pace : 1036
Percent in Pace : 69.0%
Number of Vehicles > 30 MPH : 800
Percent of Vehicles > 30 MPH : 53.3%
Mean Speed(Average) : 31 MPH

Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

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

143741 C VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	SB				NB				Combined				26-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	0		19		0		15		0		34		
12:15	0		23		0		19		0		42		
12:30	0		15		0		21		0		36		
12:45	0	0	25	82	1	1	14	69	1	1	39	151	
01:00	1		28		0		10		1		38		
01:15	0		31		0		21		0		52		
01:30	0		40		0		19		0		59		
01:45	0	1	25	124	0	0	20	70	0	1	45	194	
02:00	0		28		0		16		0		44		
02:15	0		32		0		25		0		57		
02:30	0		29		0		31		0		60		
02:45	1	1	39	128	0	0	21	93	1	1	60	221	
03:00	0		35		0		19		0		54		
03:15	0		32		0		16		0		48		
03:30	0		41		0		20		0		61		
03:45	0	0	37	145	0	0	26	81	0	0	63	226	
04:00	0		46		0		14		0		60		
04:15	1		43		0		21		1		64		
04:30	1		45		0		18		1		63		
04:45	0	2	54	188	2	2	7	60	2	4	61	248	
05:00	2		43		2		13		4		56		
05:15	4		50		3		21		7		71		
05:30	1		35		3		30		4		65		
05:45	2	9	49	177	6	14	21	85	8	23	70	262	
06:00	6		37		9		23		15		60		
06:15	7		39		26		19		33		58		
06:30	4		39		17		11		21		50		
06:45	17	34	28	143	22	74	10	63	39	108	38	206	
07:00	17		23		41		12		58		35		
07:15	25		31		45		15		70		46		
07:30	25		21		67		14		92		35		
07:45	23	90	20	95	62	215	6	47	85	305	26	142	
08:00	18		20		56		13		74		33		
08:15	23		18		59		9		82		27		
08:30	24		24		50		7		74		31		
08:45	17	82	18	80	40	205	2	31	57	287	20	111	
09:00	23		15		36		6		59		21		
09:15	26		8		24		8		50		16		
09:30	25		18		20		3		45		21		
09:45	18	92	7	48	18	98	5	22	36	190	12	70	
10:00	25		9		29		3		54		12		
10:15	22		9		22		1		44		10		
10:30	19		5		12		1		31		6		
10:45	18	84	7	30	26	89	1	6	44	173	8	36	
11:00	21		3		23		3		44		6		
11:15	20		2		26		0		46		2		
11:30	22		5		18		1		40		6		
11:45	25	88	1	11	14	81	0	4	39	169	1	15	
Total	483		1251		779		631		1262		1882		
Percent	38.3%		66.5%		61.7%		33.5%						
Day Total		1734				1410				3144			
Peak	09:15	-	04:30	-	07:30	-	02:15	-	07:30	-	05:15	-	- -
Vol.	94	-	192	-	244	-	96	-	333	-	266	-	- -
P.H.F.	0.904		0.889		0.910		0.774		0.905		0.937		

Summer Street
south of Linden Street
City, State: Ashland, MA
Client: Green International/S. Keenan

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143741 C VOLUME
Site Code: TBA
Date Start: 26-Feb-14

Start	SB				NB				Combined				27-Feb-14
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Thu
12:00	3		28		0		17		3		45		
12:15	1		29		0		16		1		45		
12:30	2		25		0		20		2		45		
12:45	1	7	39	121	0	0	10	63	1	7	49	184	
01:00	0		36		0		17		0		53		
01:15	2		36		0		23		2		59		
01:30	1		34		0		16		1		50		
01:45	0	3	39	145	0	0	27	83	0	3	66	228	
02:00	0		47		1		22		1		69		
02:15	0		29		0		36		0		65		
02:30	0		33		0		28		0		61		
02:45	0	0	45	154	0	1	20	106	0	1	65	260	
03:00	1		42		0		21		1		63		
03:15	1		47		0		25		1		72		
03:30	0		40		0		25		0		65		
03:45	0	2	36	165	0	0	26	97	0	2	62	262	
04:00	0		43		0		28		0		71		
04:15	1		48		1		26		2		74		
04:30	0		56		0		18		0		74		
04:45	2	3	52	199	1	2	23	95	3	5	75	294	
05:00	2		65		1		13		3		78		
05:15	3		52		5		29		8		81		
05:30	2		37		4		19		6		56		
05:45	4	11	49	203	11	21	27	88	15	32	76	291	
06:00	6		51		9		30		15		81		
06:15	5		28		20		10		25		38		
06:30	10		49		21		15		31		64		
06:45	16	37	31	159	31	81	18	73	47	118	49	232	
07:00	14		36		30		11		44		47		
07:15	23		37		52		15		75		52		
07:30	20		19		57		13		77		32		
07:45	21	78	19	111	69	208	12	51	90	286	31	162	
08:00	22		26		52		14		74		40		
08:15	20		20		63		8		83		28		
08:30	20		17		65		6		85		23		
08:45	16	78	17	80	26	206	5	33	42	284	22	113	
09:00	16		16		37		1		53		17		
09:15	22		16		28		3		50		19		
09:30	27		8		16		5		43		13		
09:45	24	89	14	54	25	106	3	12	49	195	17	66	
10:00	11		5		17		3		28		8		
10:15	17		5		15		1		32		6		
10:30	18		7		23		3		41		10		
10:45	15	61	4	21	20	75	4	11	35	136	8	32	
11:00	16		4		22		1		38		5		
11:15	20		6		16		2		36		8		
11:30	29		6		24		2		53		8		
11:45	21	86	7	23	21	83	1	6	42	169	8	29	
Total	455		1435		783		718		1238		2153		
Percent	36.8%		66.7%		63.2%		33.3%						
Day Total		1890				1501				3391			
Peak	09:00	-	04:30	-	07:45	-	01:45	-	07:45	-	04:30	-	-	-
Vol.	89	-	225	-	249	-	113	-	332	-	308	-	-	-
P.H.F.	0.824		0.865		0.902		0.785		0.922		0.951			

N/S: Frankland Road/ Olive Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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File Name : 143741 A
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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	10	0	7	56	7	0	41	0	0	0	0	158	0	0	279
07:15 AM	1	1	13	0	11	60	9	0	81	0	1	0	0	174	2	0	353
07:30 AM	0	1	11	0	14	76	10	0	41	1	1	0	0	201	0	0	356
07:45 AM	3	0	8	0	13	79	8	0	46	2	1	0	1	189	1	0	351
Total	4	2	42	0	45	271	34	0	209	3	3	0	1	722	3	0	1339
08:00 AM	1	0	7	0	6	76	7	0	39	0	0	0	0	157	0	0	293
08:15 AM	3	0	18	0	8	69	1	0	24	0	1	0	1	154	0	0	279
08:30 AM	0	2	9	0	8	82	11	0	42	0	0	0	0	154	0	0	308
08:45 AM	0	1	5	0	15	66	9	0	34	0	0	0	0	147	0	0	277
Total	4	3	39	0	37	293	28	0	139	0	1	0	1	612	0	0	1157
Grand Total	8	5	81	0	82	564	62	0	348	3	4	0	2	1334	3	0	2496
Apprch %	8.5	5.3	86.2	0	11.6	79.7	8.8	0	98	0.8	1.1	0	0.1	99.6	0.2	0	
Total %	0.3	0.2	3.2	0	3.3	22.6	2.5	0	13.9	0.1	0.2	0	0.1	53.4	0.1	0	
Cars	8	5	77	0	80	529	59	0	340	3	4	0	2	1285	3	0	2395
% Cars	100	100	95.1	0	97.6	93.8	95.2	0	97.7	100	100	0	100	96.3	100	0	96
Heavy Vehicles	0	0	4	0	2	35	3	0	8	0	0	0	0	49	0	0	101
% Heavy Vehicles	0	0	4.9	0	2.4	6.2	4.8	0	2.3	0	0	0	0	3.7	0	0	4

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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	1	1	13	0	15	11	60	9	0	80	81	0	1	0	82	0	174	2	0	176	353
07:30 AM	0	1	11	0	12	14	76	10	0	100	41	1	1	0	43	0	201	0	0	201	356
07:45 AM	3	0	8	0	11	13	79	8	0	100	46	2	1	0	49	1	189	1	0	191	351
08:00 AM	1	0	7	0	8	6	76	7	0	89	39	0	0	0	39	0	157	0	0	157	293
Total Volume	5	2	39	0	46	44	291	34	0	369	207	3	3	0	213	1	721	3	0	725	1353
% App. Total	10.9	4.3	84.8	0		11.9	78.9	9.2	0		97.2	1.4	1.4	0		0.1	99.4	0.4	0		
PHF	.417	.500	.750	.000	.767	.786	.921	.850	.000	.923	.639	.375	.750	.000	.649	.250	.897	.375	.000	.902	.950
Cars	5	2	36	0	43	42	269	32	0	343	203	3	3	0	209	1	701	3	0	705	1300
% Cars	100	100	92.3	0	93.5	95.5	92.4	94.1	0	93.0	98.1	100	100	0	98.1	100	97.2	100	0	97.2	96.1
Heavy Vehicles	0	0	3	0	3	2	22	2	0	26	4	0	0	0	4	0	20	0	0	20	53
% Heavy Vehicles	0	0	7.7	0	6.5	4.5	7.6	5.9	0	7.0	1.9	0	0	0	1.9	0	2.8	0	0	2.8	3.9

PRECISION
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N/S: Frankland Road/ Olive Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 A
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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	10	0	7	53	7	0	39	0	0	0	0	157	0	0	273
07:15 AM	1	1	10	0	11	58	8	0	79	0	1	0	0	169	2	0	340
07:30 AM	0	1	11	0	13	67	10	0	40	1	1	0	0	199	0	0	343
07:45 AM	3	0	8	0	12	74	7	0	45	2	1	0	1	183	1	0	337
Total	4	2	39	0	43	252	32	0	203	3	3	0	1	708	3	0	1293
08:00 AM	1	0	7	0	6	70	7	0	39	0	0	0	0	150	0	0	280
08:15 AM	3	0	17	0	8	64	1	0	23	0	1	0	1	150	0	0	268
08:30 AM	0	2	9	0	8	81	11	0	41	0	0	0	0	149	0	0	301
08:45 AM	0	1	5	0	15	62	8	0	34	0	0	0	0	128	0	0	253
Total	4	3	38	0	37	277	27	0	137	0	1	0	1	577	0	0	1102
Grand Total	8	5	77	0	80	529	59	0	340	3	4	0	2	1285	3	0	2395
Apprch %	8.9	5.6	85.6	0	12	79.2	8.8	0	98	0.9	1.2	0	0.2	99.6	0.2	0	
Total %	0.3	0.2	3.2	0	3.3	22.1	2.5	0	14.2	0.1	0.2	0	0.1	53.7	0.1	0	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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	1	1	10	0	12	11	58	8	0	77	79	0	1	0	80	0	169	2	0	171	340
07:30 AM	0	1	11	0	12	13	67	10	0	90	40	1	1	0	42	0	199	0	0	199	343
07:45 AM	3	0	8	0	11	12	74	7	0	93	45	2	1	0	48	1	183	1	0	185	337
08:00 AM	1	0	7	0	8	6	70	7	0	83	39	0	0	0	39	0	150	0	0	150	280
Total Volume	5	2	36	0	43	42	269	32	0	343	203	3	3	0	209	1	701	3	0	705	1300
% App. Total	11.6	4.7	83.7	0		12.2	78.4	9.3	0		97.1	1.4	1.4	0		0.1	99.4	0.4	0		
PHF	.417	.500	.818	.000	.896	.808	.909	.800	.000	.922	.642	.375	.750	.000	.653	.250	.881	.375	.000	.886	.948

N/S: Frankland Road/ Olive Street
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Groups Printed- Heavy Vehicles

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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	3	0	0	2	0	0	0	0	1	0	0	6
07:15 AM	0	0	3	0	0	2	1	0	2	0	0	0	0	5	0	0	13
07:30 AM	0	0	0	0	1	9	0	0	1	0	0	0	0	2	0	0	13
07:45 AM	0	0	0	0	1	5	1	0	1	0	0	0	0	6	0	0	14
Total	0	0	3	0	2	19	2	0	6	0	0	0	0	14	0	0	46
08:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	7	0	0	13
08:15 AM	0	0	1	0	0	5	0	0	1	0	0	0	0	4	0	0	11
08:30 AM	0	0	0	0	0	1	0	0	1	0	0	0	0	5	0	0	7
08:45 AM	0	0	0	0	0	4	1	0	0	0	0	0	0	19	0	0	24
Total	0	0	1	0	0	16	1	0	2	0	0	0	0	35	0	0	55
Grand Total	0	0	4	0	2	35	3	0	8	0	0	0	0	49	0	0	101
Apprch %	0	0	100	0	5	87.5	7.5	0	100	0	0	0	0	100	0	0	
Total %	0	0	4	0	2	34.7	3	0	7.9	0	0	0	0	48.5	0	0	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 08:00 AM																					
08:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	7	0	0	7	13
08:15 AM	0	0	1	0	1	0	5	0	0	5	1	0	0	0	1	0	4	0	0	4	11
08:30 AM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	5	0	0	5	7
08:45 AM	0	0	0	0	0	0	4	1	0	5	0	0	0	0	0	0	19	0	0	19	24
Total Volume	0	0	1	0	1	0	16	1	0	17	2	0	0	0	2	0	35	0	0	35	55
% App. Total	0	0	100	0		0	94.1	5.9	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.250	.000	.250	.000	.667	.250	.000	.708	.500	.000	.000	.000	.500	.000	.461	.000	.000	.461	.573

N/S: Frankland Road/ Olive Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143741 A
Site Code : TBA
Start Date : 2/27/2014
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Groups Printed- Peds and Bikes

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	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
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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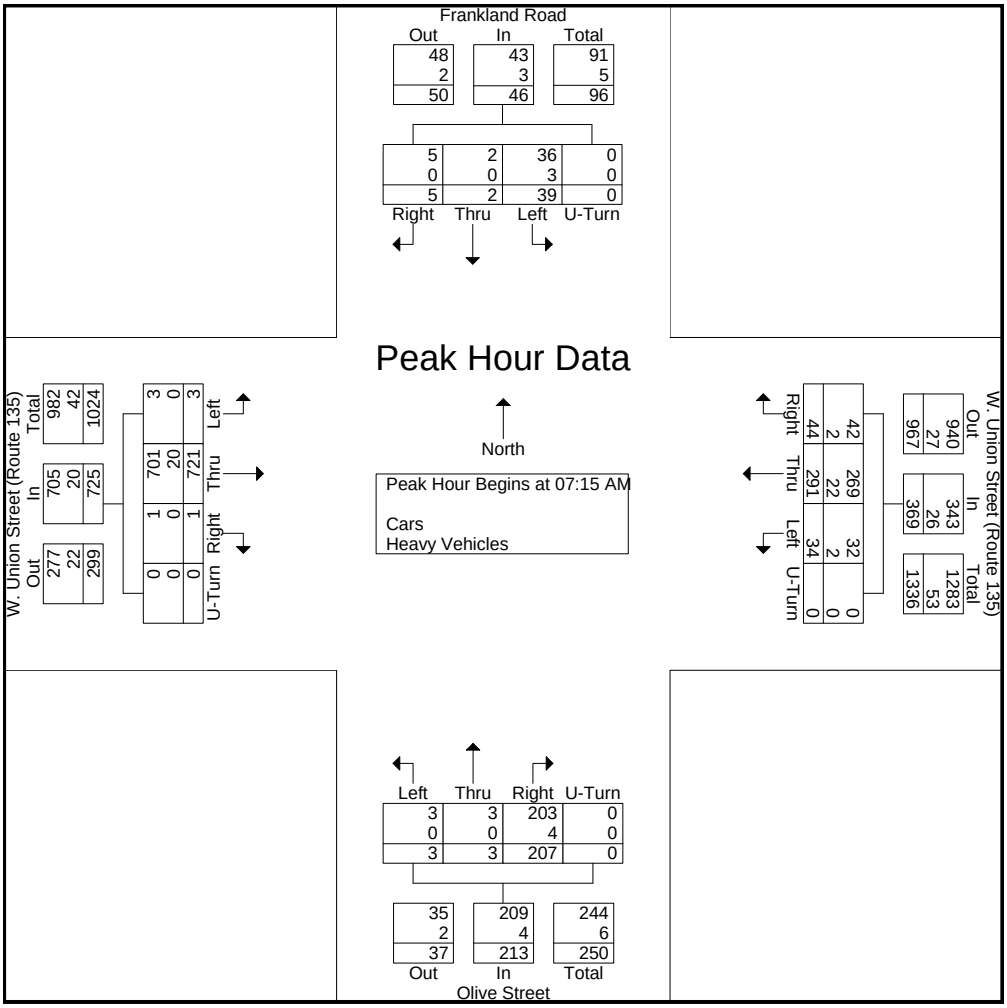
	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
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	1	1	13	0	15	11	60	9	0	80	81	0	1	0	82	0	174	2	0	176	353
07:30 AM	0	1	11	0	12	14	76	10	0	100	41	1	1	0	43	0	201	0	0	201	356
07:45 AM	3	0	8	0	11	13	79	8	0	100	46	2	1	0	49	1	189	1	0	191	351
08:00 AM	1	0	7	0	8	6	76	7	0	89	39	0	0	0	39	0	157	0	0	157	293
Total Volume	5	2	39	0	46	44	291	34	0	369	207	3	3	0	213	1	721	3	0	725	1353
% App. Total	10.9	4.3	84.8	0		11.9	78.9	9.2	0		97.2	1.4	1.4	0		0.1	99.4	0.4	0		
PHF	.417	.500	.750	.000	.767	.786	.921	.850	.000	.923	.639	.375	.750	.000	.649	.250	.897	.375	.000	.902	.950
Cars	5	2	36	0	43	42	269	32	0	343	203	3	3	0	209	1	701	3	0	705	1300
% Cars	100	100	92.3	0	93.5	95.5	92.4	94.1	0	93.0	98.1	100	100	0	98.1	100	97.2	100	0	97.2	96.1
Heavy Vehicles	0	0	3	0	3	2	22	2	0	26	4	0	0	0	4	0	20	0	0	20	53
% Heavy Vehicles	0	0	7.7	0	6.5	4.5	7.6	5.9	0	7.0	1.9	0	0	0	1.9	0	2.8	0	0	2.8	3.9



N/S: Frankland Road/ Olive Street
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Site Code : TBA
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Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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
04:00 PM	0	1	11	0	15	139	34	0	17	0	0	0	0	112	0	0	329
04:15 PM	1	0	3	0	6	138	23	0	17	0	1	0	0	114	1	0	304
04:30 PM	0	1	7	0	5	159	41	0	16	0	0	0	0	89	1	0	319
04:45 PM	0	0	7	0	15	158	39	0	13	2	0	0	1	99	0	0	334
Total	1	2	28	0	41	594	137	0	63	2	1	0	1	414	2	0	1286
05:00 PM	1	1	6	0	14	140	39	0	18	0	0	0	3	85	0	0	307
05:15 PM	0	0	11	0	17	162	23	0	15	2	0	0	1	121	2	0	354
05:30 PM	2	0	10	0	8	137	39	0	13	0	0	0	2	115	1	0	327
05:45 PM	0	1	16	0	10	170	41	0	15	1	0	0	0	110	1	0	365
Total	3	2	43	0	49	609	142	0	61	3	0	0	6	431	4	0	1353
Grand Total	4	4	71	0	90	1203	279	0	124	5	1	0	7	845	6	0	2639
Apprch %	5.1	5.1	89.9	0	5.7	76.5	17.7	0	95.4	3.8	0.8	0	0.8	98.5	0.7	0	
Total %	0.2	0.2	2.7	0	3.4	45.6	10.6	0	4.7	0.2	0	0	0.3	32	0.2	0	
Cars	4	4	71	0	90	1191	278	0	122	5	1	0	7	819	6	0	2598
% Cars	100	100	100	0	100	99	99.6	0	98.4	100	100	0	100	96.9	100	0	98.4
Heavy Vehicles	0	0	0	0	0	12	1	0	2	0	0	0	0	26	0	0	41
% Heavy Vehicles	0	0	0	0	0	1	0.4	0	1.6	0	0	0	0	3.1	0	0	1.6

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	1	6	0	8	14	140	39	0	193	18	0	0	0	18	3	85	0	0	88	307
05:15 PM	0	0	11	0	11	17	162	23	0	202	15	2	0	0	17	1	121	2	0	124	354
05:30 PM	2	0	10	0	12	8	137	39	0	184	13	0	0	0	13	2	115	1	0	118	327
05:45 PM	0	1	16	0	17	10	170	41	0	221	15	1	0	0	16	0	110	1	0	111	365
Total Volume	3	2	43	0	48	49	609	142	0	800	61	3	0	0	64	6	431	4	0	441	1353
% App. Total	6.2	4.2	89.6	0		6.1	76.1	17.8	0		95.3	4.7	0	0		1.4	97.7	0.9	0		
PHF	.375	.500	.672	.000	.706	.721	.896	.866	.000	.905	.847	.375	.000	.000	.889	.500	.890	.500	.000	.889	.927
Cars	3	2	43	0	48	49	603	141	0	793	61	3	0	0	64	6	422	4	0	432	1337
% Cars	100	100	100	0	100	100	99.0	99.3	0	99.1	100	100	0	0	100	100	97.9	100	0	98.0	98.8
Heavy Vehicles	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	9	0	0	9	16
% Heavy Vehicles	0	0	0	0	0	0	1.0	0.7	0	0.9	0	0	0	0	0	0	2.1	0	0	2.0	1.2

N/S: Frankland Road/ Olive Street
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File Name : 143741 AA
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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
04:00 PM	0	1	11	0	15	138	34	0	16	0	0	0	0	101	0	0	316
04:15 PM	1	0	3	0	6	136	23	0	17	0	1	0	0	113	1	0	301
04:30 PM	0	1	7	0	5	158	41	0	16	0	0	0	0	86	1	0	315
04:45 PM	0	0	7	0	15	156	39	0	12	2	0	0	1	97	0	0	329
Total	1	2	28	0	41	588	137	0	61	2	1	0	1	397	2	0	1261
05:00 PM	1	1	6	0	14	138	39	0	18	0	0	0	3	83	0	0	303
05:15 PM	0	0	11	0	17	161	22	0	15	2	0	0	1	120	2	0	351
05:30 PM	2	0	10	0	8	135	39	0	13	0	0	0	2	113	1	0	323
05:45 PM	0	1	16	0	10	169	41	0	15	1	0	0	0	106	1	0	360
Total	3	2	43	0	49	603	141	0	61	3	0	0	6	422	4	0	1337
Grand Total	4	4	71	0	90	1191	278	0	122	5	1	0	7	819	6	0	2598
Apprch %	5.1	5.1	89.9	0	5.8	76.4	17.8	0	95.3	3.9	0.8	0	0.8	98.4	0.7	0	
Total %	0.2	0.2	2.7	0	3.5	45.8	10.7	0	4.7	0.2	0	0	0.3	31.5	0.2	0	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	1	6	0	8	14	138	39	0	191	18	0	0	0	18	3	83	0	0	86	303
05:15 PM	0	0	11	0	11	17	161	22	0	200	15	2	0	0	17	1	120	2	0	123	351
05:30 PM	2	0	10	0	12	8	135	39	0	182	13	0	0	0	13	2	113	1	0	116	323
05:45 PM	0	1	16	0	17	10	169	41	0	220	15	1	0	0	16	0	106	1	0	107	360
Total Volume	3	2	43	0	48	49	603	141	0	793	61	3	0	0	64	6	422	4	0	432	1337
% App. Total	6.2	4.2	89.6	0		6.2	76	17.8	0		95.3	4.7	0	0		1.4	97.7	0.9	0		
PHF	.375	.500	.672	.000	.706	.721	.892	.860	.000	.901	.847	.375	.000	.000	.889	.500	.879	.500	.000	.878	.928

N/S: Frankland Road/ Olive Street
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Groups Printed- Heavy Vehicles

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) 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
04:00 PM	0	0	0	0	0	1	0	0	1	0	0	0	0	11	0	0	13
04:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	3
04:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	3	0	0	4
04:45 PM	0	0	0	0	0	2	0	0	1	0	0	0	0	2	0	0	5
Total	0	0	0	0	0	6	0	0	2	0	0	0	0	17	0	0	25
05:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
05:15 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	1	0	0	3
05:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
05:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	4	0	0	5
Total	0	0	0	0	0	6	1	0	0	0	0	0	0	9	0	0	16
Grand Total	0	0	0	0	0	12	1	0	2	0	0	0	0	26	0	0	41
Apprch %	0	0	0	0	0	92.3	7.7	0	100	0	0	0	0	100	0	0	
Total %	0	0	0	0	0	29.3	2.4	0	4.9	0	0	0	0	63.4	0	0	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	1	0	0	1	1	0	0	0	1	0	11	0	0	11	13
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	3
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	3	0	0	3	4
04:45 PM	0	0	0	0	0	0	2	0	0	2	1	0	0	0	1	0	2	0	0	2	5
Total Volume	0	0	0	0	0	0	6	0	0	6	2	0	0	0	2	0	17	0	0	17	25
% App. Total	0	0	0	0		0	100	0	0		100	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.750	.000	.000	.750	.500	.000	.000	.000	.500	.000	.386	.000	.000	.386	.481

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Groups Printed- Peds and Bikes

	Frankland Road From North				W. Union Street (Route 135) From East				Olive Street From South				W. Union Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	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	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total %																	

	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

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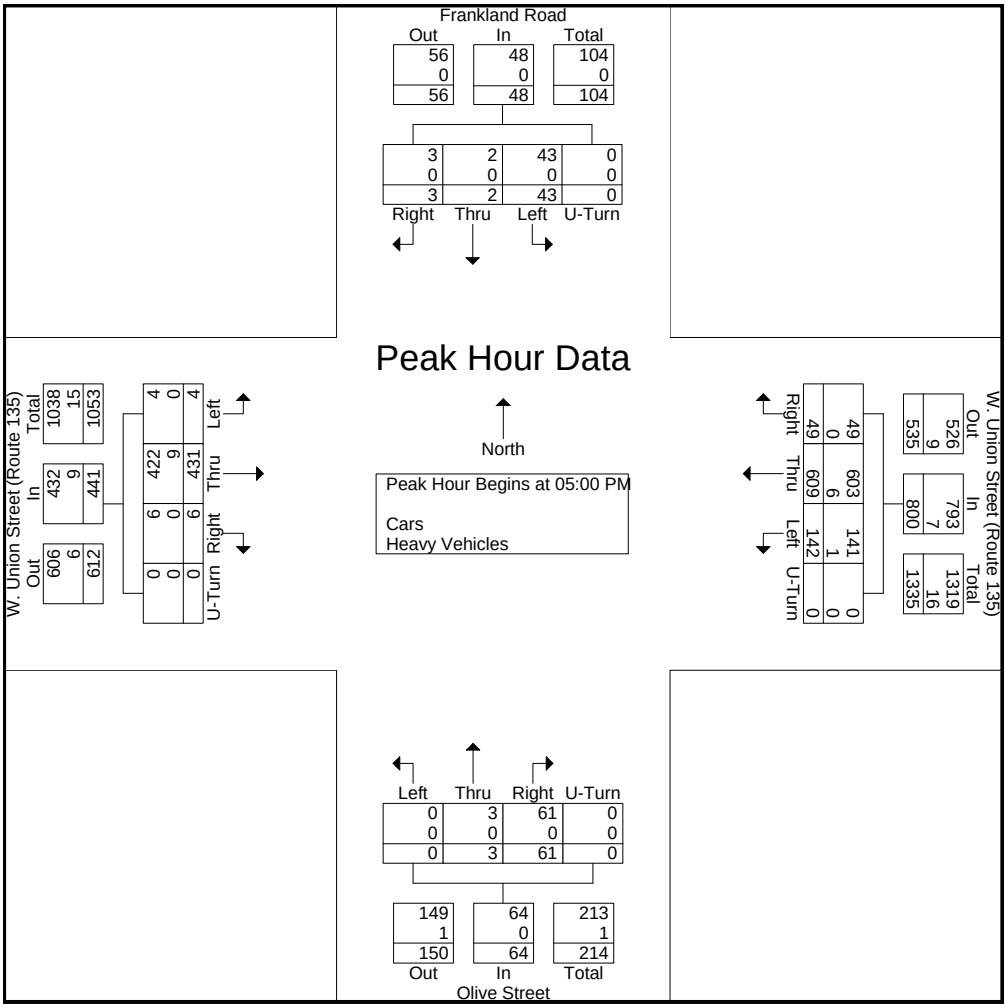
	Frankland Road From North					W. Union Street (Route 135) From East					Olive Street From South					W. Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	1	6	0	8	14	140	39	0	193	18	0	0	0	18	3	85	0	0	88	307
05:15 PM	0	0	11	0	11	17	162	23	0	202	15	2	0	0	17	1	121	2	0	124	354
05:30 PM	2	0	10	0	12	8	137	39	0	184	13	0	0	0	13	2	115	1	0	118	327
05:45 PM	0	1	16	0	17	10	170	41	0	221	15	1	0	0	16	0	110	1	0	111	365
Total Volume	3	2	43	0	48	49	609	142	0	800	61	3	0	0	64	6	431	4	0	441	1353
% App. Total	6.2	4.2	89.6	0		6.1	76.1	17.8	0		95.3	4.7	0	0		1.4	97.7	0.9	0		
PHF	.375	.500	.672	.000	.706	.721	.896	.866	.000	.905	.847	.375	.000	.000	.889	.500	.890	.500	.000	.889	.927
Cars	3	2	43	0	48	49	603	141	0	793	61	3	0	0	64	6	422	4	0	432	1337
% Cars	100	100	100	0	100	100	99.0	99.3	0	99.1	100	100	0	0	100	100	97.9	100	0	98.0	98.8
Heavy Vehicles	0	0	0	0	0	0	6	1	0	7	0	0	0	0	0	0	9	0	0	9	16
% Heavy Vehicles	0	0	0	0	0	0	1.0	0.7	0	0.9	0	0	0	0	0	0	2.1	0	0	2.0	1.2



N: James Jackson Way
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143741 B
Site Code : TBA
Start Date : 2/27/2014
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Groups Printed- Cars - Heavy Vehicles

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	10	70	0	209	2	0	291
07:15 AM	9	37	0	58	78	0	238	14	0	434
07:30 AM	13	60	0	82	90	0	223	20	0	488
07:45 AM	7	17	0	21	96	0	281	7	0	429
Total	29	114	0	171	334	0	951	43	0	1642
08:00 AM	1	5	0	16	92	0	197	3	0	314
08:15 AM	3	10	0	8	83	0	202	3	0	309
08:30 AM	1	3	0	4	104	0	215	0	0	327
08:45 AM	0	1	0	3	94	0	185	1	0	284
Total	5	19	0	31	373	0	799	7	0	1234
Grand Total	34	133	0	202	707	0	1750	50	0	2876
Apprch %	20.4	79.6	0	22.2	77.8	0	97.2	2.8	0	
Total %	1.2	4.6	0	7	24.6	0	60.8	1.7	0	
Cars	32	119	0	189	667	0	1690	47	0	2744
% Cars	94.1	89.5	0	93.6	94.3	0	96.6	94	0	95.4
Heavy Vehicles	2	14	0	13	40	0	60	3	0	132
% Heavy Vehicles	5.9	10.5	0	6.4	5.7	0	3.4	6	0	4.6

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	9	37	0	46	58	78	0	136	238	14	0	252	434
07:30 AM	13	60	0	73	82	90	0	172	223	20	0	243	488
07:45 AM	7	17	0	24	21	96	0	117	281	7	0	288	429
08:00 AM	1	5	0	6	16	92	0	108	197	3	0	200	314
Total Volume	30	119	0	149	177	356	0	533	939	44	0	983	1665
% App. Total	20.1	79.9	0		33.2	66.8	0		95.5	4.5	0		
PHF	.577	.496	.000	.510	.540	.927	.000	.775	.835	.550	.000	.853	.853
Cars	28	106	0	134	165	331	0	496	911	41	0	952	1582
% Cars	93.3	89.1	0	89.9	93.2	93.0	0	93.1	97.0	93.2	0	96.8	95.0
Heavy Vehicles	2	13	0	15	12	25	0	37	28	3	0	31	83
% Heavy Vehicles	6.7	10.9	0	10.1	6.8	7.0	0	6.9	3.0	6.8	0	3.2	5.0

N: James Jackson Way
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Groups Printed- Cars

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	10	67	0	207	2	0	286
07:15 AM	9	29	0	49	72	0	227	13	0	399
07:30 AM	11	56	0	80	84	0	222	18	0	471
07:45 AM	7	16	0	20	89	0	272	7	0	411
Total	27	101	0	159	312	0	928	40	0	1567
08:00 AM	1	5	0	16	86	0	190	3	0	301
08:15 AM	3	9	0	7	77	0	195	3	0	294
08:30 AM	1	3	0	4	103	0	210	0	0	321
08:45 AM	0	1	0	3	89	0	167	1	0	261
Total	5	18	0	30	355	0	762	7	0	1177
Grand Total	32	119	0	189	667	0	1690	47	0	2744
Apprch %	21.2	78.8	0	22.1	77.9	0	97.3	2.7	0	
Total %	1.2	4.3	0	6.9	24.3	0	61.6	1.7	0	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	9	29	0	38	49	72	0	121	227	13	0	240	399
07:30 AM	11	56	0	67	80	84	0	164	222	18	0	240	471
07:45 AM	7	16	0	23	20	89	0	109	272	7	0	279	411
08:00 AM	1	5	0	6	16	86	0	102	190	3	0	193	301
Total Volume	28	106	0	134	165	331	0	496	911	41	0	952	1582
% App. Total	20.9	79.1	0		33.3	66.7	0		95.7	4.3	0		
PHF	.636	.473	.000	.500	.516	.930	.000	.756	.837	.569	.000	.853	.840

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N: James Jackson Way
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 B
Site Code : TBA
Start Date : 2/27/2014
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Groups Printed- Heavy Vehicles

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	3	0	2	0	0	5
07:15 AM	0	8	0	9	6	0	11	1	0	35
07:30 AM	2	4	0	2	6	0	1	2	0	17
07:45 AM	0	1	0	1	7	0	9	0	0	18
Total	2	13	0	12	22	0	23	3	0	75
08:00 AM	0	0	0	0	6	0	7	0	0	13
08:15 AM	0	1	0	1	6	0	7	0	0	15
08:30 AM	0	0	0	0	1	0	5	0	0	6
08:45 AM	0	0	0	0	5	0	18	0	0	23
Total	0	1	0	1	18	0	37	0	0	57
Grand Total	2	14	0	13	40	0	60	3	0	132
Apprch %	12.5	87.5	0	24.5	75.5	0	95.2	4.8	0	
Total %	1.5	10.6	0	9.8	30.3	0	45.5	2.3	0	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	8	0	8	9	6	0	15	11	1	0	12	35
07:30 AM	2	4	0	6	2	6	0	8	1	2	0	3	17
07:45 AM	0	1	0	1	1	7	0	8	9	0	0	9	18
08:00 AM	0	0	0	0	0	6	0	6	7	0	0	7	13
Total Volume	2	13	0	15	12	25	0	37	28	3	0	31	83
% App. Total	13.3	86.7	0		32.4	67.6	0		90.3	9.7	0		
PHF	.250	.406	.000	.469	.333	.893	.000	.617	.636	.375	.000	.646	.593

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Groups Printed- Peds and Bikes

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	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	1	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	1
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	0	1	0	0	0	0	0	0	1
08:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	0	0	0	0	0	1
Grand Total	0	0	2	0	0	0	0	0	0	2
Apprch %	0	0	100	0	0	0	0	0	0	
Total %	0	0	100	0	0	0	0	0	0	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	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 07:00 AM													
07:00 AM	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
07:30 AM	0	0	1	1	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	1	1	0	0	0	0	0	0	0	0	1
% App. Total	0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

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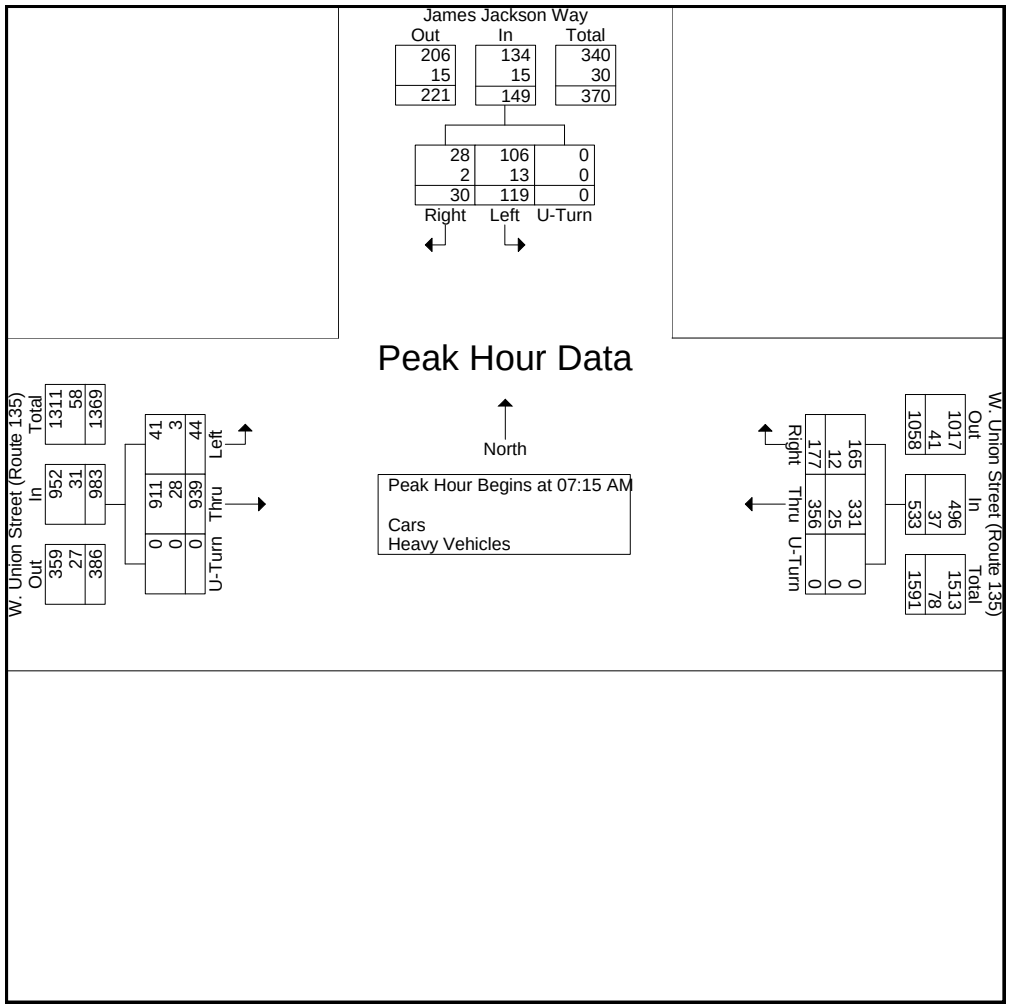
	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	9	37	0	46	58	78	0	136	238	14	0	252	434
07:30 AM	13	60	0	73	82	90	0	172	223	20	0	243	488
07:45 AM	7	17	0	24	21	96	0	117	281	7	0	288	429
08:00 AM	1	5	0	6	16	92	0	108	197	3	0	200	314
Total Volume	30	119	0	149	177	356	0	533	939	44	0	983	1665
% App. Total	20.1	79.9	0		33.2	66.8	0		95.5	4.5	0		
PHF	.577	.496	.000	.510	.540	.927	.000	.775	.835	.550	.000	.853	.853
Cars	28	106	0	134	165	331	0	496	911	41	0	952	1582
% Cars	93.3	89.1	0	89.9	93.2	93.0	0	93.1	97.0	93.2	0	96.8	95.0
Heavy Vehicles	2	13	0	15	12	25	0	37	28	3	0	31	83
% Heavy Vehicles	6.7	10.9	0	10.1	6.8	7.0	0	6.9	3.0	6.8	0	3.2	5.0



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Groups Printed- Cars - Heavy Vehicles

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	2	10	0	3	181	0	150	0	0	346
04:15 PM	4	2	0	2	181	0	133	1	0	323
04:30 PM	0	3	0	0	201	0	120	0	0	324
04:45 PM	0	2	0	0	215	0	125	0	0	342
Total	6	17	0	5	778	0	528	1	0	1335
05:00 PM	1	0	0	2	202	0	113	0	0	318
05:15 PM	3	0	0	4	210	0	150	0	0	367
05:30 PM	1	3	0	6	176	0	139	1	0	326
05:45 PM	9	16	0	4	225	0	137	2	0	393
Total	14	19	0	16	813	0	539	3	0	1404
Grand Total	20	36	0	21	1591	0	1067	4	0	2739
Apprch %	35.7	64.3	0	1.3	98.7	0	99.6	0.4	0	
Total %	0.7	1.3	0	0.8	58.1	0	39	0.1	0	
Cars	20	36	0	21	1575	0	1037	4	0	2693
% Cars	100	100	0	100	99	0	97.2	100	0	98.3
Heavy Vehicles	0	0	0	0	16	0	30	0	0	46
% Heavy Vehicles	0	0	0	0	1	0	2.8	0	0	1.7

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	1	0	0	1	2	202	0	204	113	0	0	113	318
05:15 PM	3	0	0	3	4	210	0	214	150	0	0	150	367
05:30 PM	1	3	0	4	6	176	0	182	139	1	0	140	326
05:45 PM	9	16	0	25	4	225	0	229	137	2	0	139	393
Total Volume	14	19	0	33	16	813	0	829	539	3	0	542	1404
% App. Total	42.4	57.6	0		1.9	98.1	0		99.4	0.6	0		
PHF	.389	.297	.000	.330	.667	.903	.000	.905	.898	.375	.000	.903	.893
Cars	14	19	0	33	16	805	0	821	529	3	0	532	1386
% Cars	100	100	0	100	100	99.0	0	99.0	98.1	100	0	98.2	98.7
Heavy Vehicles	0	0	0	0	0	8	0	8	10	0	0	10	18
% Heavy Vehicles	0	0	0	0	0	1.0	0	1.0	1.9	0	0	1.8	1.3

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Groups Printed- Cars

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	2	10	0	3	179	0	139	0	0	333
04:15 PM	4	2	0	2	179	0	130	1	0	318
04:30 PM	0	3	0	0	199	0	117	0	0	319
04:45 PM	0	2	0	0	213	0	122	0	0	337
Total	6	17	0	5	770	0	508	1	0	1307
05:00 PM	1	0	0	2	199	0	111	0	0	313
05:15 PM	3	0	0	4	208	0	149	0	0	364
05:30 PM	1	3	0	6	174	0	137	1	0	322
05:45 PM	9	16	0	4	224	0	132	2	0	387
Total	14	19	0	16	805	0	529	3	0	1386
Grand Total	20	36	0	21	1575	0	1037	4	0	2693
Apprch %	35.7	64.3	0	1.3	98.7	0	99.6	0.4	0	
Total %	0.7	1.3	0	0.8	58.5	0	38.5	0.1	0	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	1	0	0	1	2	199	0	201	111	0	0	111	313
05:15 PM	3	0	0	3	4	208	0	212	149	0	0	149	364
05:30 PM	1	3	0	4	6	174	0	180	137	1	0	138	322
05:45 PM	9	16	0	25	4	224	0	228	132	2	0	134	387
Total Volume	14	19	0	33	16	805	0	821	529	3	0	532	1386
% App. Total	42.4	57.6	0		1.9	98.1	0		99.4	0.6	0		
PHF	.389	.297	.000	.330	.667	.898	.000	.900	.888	.375	.000	.893	.895

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Groups Printed- Heavy Vehicles

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	0	0	0	2	0	11	0	0	13
04:15 PM	0	0	0	0	2	0	3	0	0	5
04:30 PM	0	0	0	0	2	0	3	0	0	5
04:45 PM	0	0	0	0	2	0	3	0	0	5
Total	0	0	0	0	8	0	20	0	0	28
05:00 PM	0	0	0	0	3	0	2	0	0	5
05:15 PM	0	0	0	0	2	0	1	0	0	3
05:30 PM	0	0	0	0	2	0	2	0	0	4
05:45 PM	0	0	0	0	1	0	5	0	0	6
Total	0	0	0	0	8	0	10	0	0	18
Grand Total	0	0	0	0	16	0	30	0	0	46
Apprch %	0	0	0	0	100	0	100	0	0	
Total %	0	0	0	0	34.8	0	65.2	0	0	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	0	0	0	0	2	0	2	11	0	0	11	13
04:15 PM	0	0	0	0	0	2	0	2	3	0	0	3	5
04:30 PM	0	0	0	0	0	2	0	2	3	0	0	3	5
04:45 PM	0	0	0	0	0	2	0	2	3	0	0	3	5
Total Volume	0	0	0	0	0	8	0	8	20	0	0	20	28
% App. Total	0	0	0		0	100	0		100	0	0		
PHF	.000	.000	.000	.000	.000	1.00	.000	1.00	.455	.000	.000	.455	.538

N: James Jackson Way
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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File Name : 143741 BB
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Peds and Bikes

	James Jackson Way From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
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	3	3
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	1	0	0	0	0	0	0	1
Total	0	0	1	0	0	0	0	0	3	4
Grand Total	0	0	1	0	0	0	0	0	3	4
Apprch %	0	0	100	0	0	0	0	0	100	
Total %	0	0	25	0	0	0	0	0	75	

	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	0	0	0	0	0	3	3	3
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	1	1	0	0	0	0	0	0	0	0	1
Total Volume	0	0	1	1	0	0	0	0	0	0	3	3	4
% App. Total	0	0	100		0	0	0		0	0	100		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.250	.250	.333

N: James Jackson Way
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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File Name : 143741 BB
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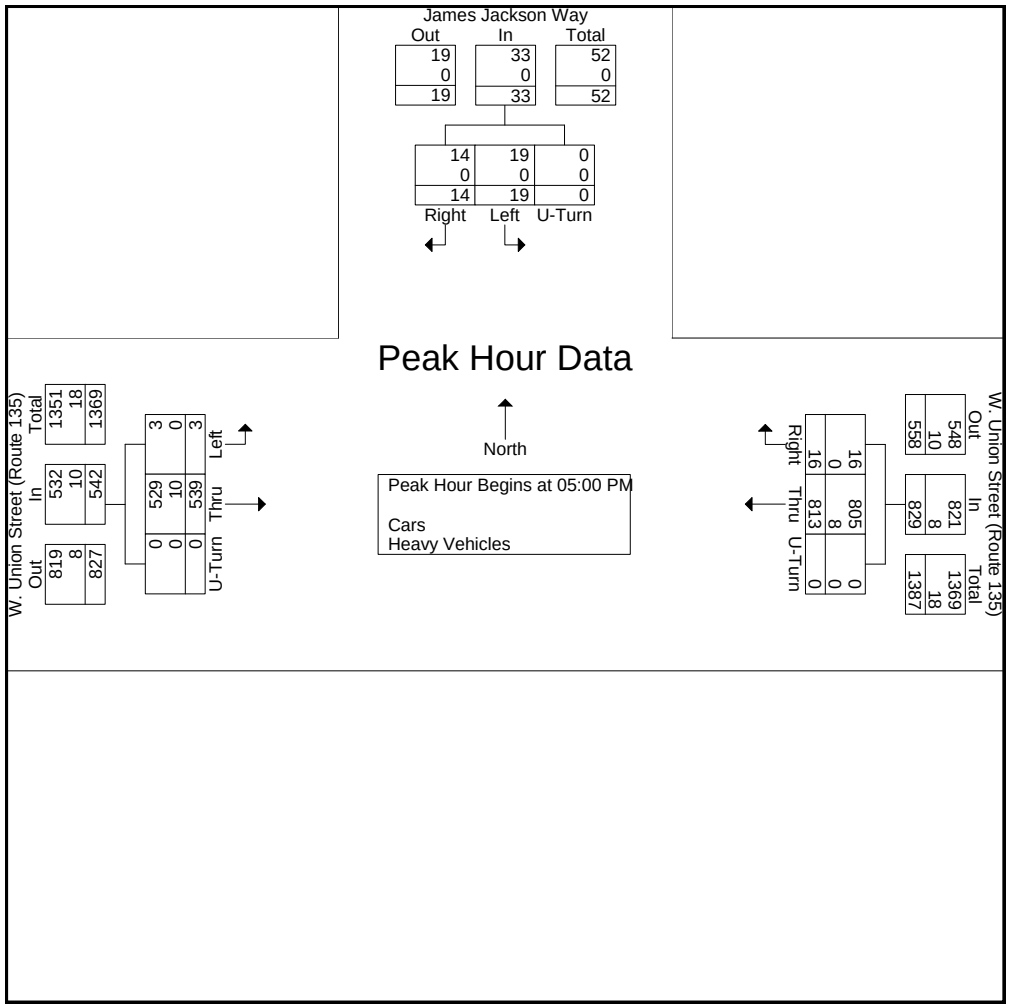
	James Jackson Way From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	1	0	0	1	2	202	0	204	113	0	0	113	318
05:15 PM	3	0	0	3	4	210	0	214	150	0	0	150	367
05:30 PM	1	3	0	4	6	176	0	182	139	1	0	140	326
05:45 PM	9	16	0	25	4	225	0	229	137	2	0	139	393
Total Volume	14	19	0	33	16	813	0	829	539	3	0	542	1404
% App. Total	42.4	57.6	0		1.9	98.1	0		99.4	0.6	0		
PHF	.389	.297	.000	.330	.667	.903	.000	.905	.898	.375	.000	.903	.893
Cars	14	19	0	33	16	805	0	821	529	3	0	532	1386
% Cars	100	100	0	100	100	99.0	0	99.0	98.1	100	0	98.2	98.7
Heavy Vehicles	0	0	0	0	0	8	0	8	10	0	0	10	18
% Heavy Vehicles	0	0	0	0	0	1.0	0	1.0	1.9	0	0	1.8	1.3



N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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File Name : 143741 C
Site Code : TBA
Start Date : 2/27/2014
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Groups Printed- Cars - Heavy Vehicles

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	27	3	0	2	65	0	160	52	0	309
07:15 AM	43	1	0	4	128	0	166	72	0	414
07:30 AM	57	7	0	8	113	0	174	100	0	459
07:45 AM	37	6	0	8	102	0	207	110	0	470
Total	164	17	0	22	408	0	707	334	0	1652
08:00 AM	33	4	0	6	82	0	154	78	0	357
08:15 AM	37	7	0	8	84	0	149	86	0	371
08:30 AM	36	7	0	8	90	0	166	92	0	399
08:45 AM	22	4	0	7	90	0	151	52	0	326
Total	128	22	0	29	346	0	620	308	0	1453
Grand Total	292	39	0	51	754	0	1327	642	0	3105
Apprch %	88.2	11.8	0	6.3	93.7	0	67.4	32.6	0	
Total %	9.4	1.3	0	1.6	24.3	0	42.7	20.7	0	
Cars	274	36	0	50	718	0	1271	626	0	2975
% Cars	93.8	92.3	0	98	95.2	0	95.8	97.5	0	95.8
Heavy Vehicles	18	3	0	1	36	0	56	16	0	130
% Heavy Vehicles	6.2	7.7	0	2	4.8	0	4.2	2.5	0	4.2

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	43	1	0	44	4	128	0	132	166	72	0	238	414
07:30 AM	57	7	0	64	8	113	0	121	174	100	0	274	459
07:45 AM	37	6	0	43	8	102	0	110	207	110	0	317	470
08:00 AM	33	4	0	37	6	82	0	88	154	78	0	232	357
Total Volume	170	18	0	188	26	425	0	451	701	360	0	1061	1700
% App. Total	90.4	9.6	0		5.8	94.2	0		66.1	33.9	0		
PHF	.746	.643	.000	.734	.813	.830	.000	.854	.847	.818	.000	.837	.904
Cars	158	16	0	174	26	400	0	426	675	348	0	1023	1623
% Cars	92.9	88.9	0	92.6	100	94.1	0	94.5	96.3	96.7	0	96.4	95.5
Heavy Vehicles	12	2	0	14	0	25	0	25	26	12	0	38	77
% Heavy Vehicles	7.1	11.1	0	7.4	0	5.9	0	5.5	3.7	3.3	0	3.6	4.5

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Groups Printed- Cars

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	26	3	0	2	63	0	157	52	0	303
07:15 AM	37	1	0	4	120	0	157	67	0	386
07:30 AM	55	6	0	8	105	0	170	97	0	441
07:45 AM	36	6	0	8	97	0	198	108	0	453
Total	154	16	0	22	385	0	682	324	0	1583
08:00 AM	30	3	0	6	78	0	150	76	0	343
08:15 AM	35	6	0	7	79	0	145	85	0	357
08:30 AM	34	7	0	8	90	0	161	89	0	389
08:45 AM	21	4	0	7	86	0	133	52	0	303
Total	120	20	0	28	333	0	589	302	0	1392
Grand Total	274	36	0	50	718	0	1271	626	0	2975
Apprch %	88.4	11.6	0	6.5	93.5	0	67	33	0	
Total %	9.2	1.2	0	1.7	24.1	0	42.7	21	0	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	37	1	0	38	4	120	0	124	157	67	0	224	386
07:30 AM	55	6	0	61	8	105	0	113	170	97	0	267	441
07:45 AM	36	6	0	42	8	97	0	105	198	108	0	306	453
08:00 AM	30	3	0	33	6	78	0	84	150	76	0	226	343
Total Volume	158	16	0	174	26	400	0	426	675	348	0	1023	1623
% App. Total	90.8	9.2	0		6.1	93.9	0		66	34	0		
PHF	.718	.667	.000	.713	.813	.833	.000	.859	.852	.806	.000	.836	.896

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Start Date : 2/27/2014
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Groups Printed- Heavy Vehicles

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
07:00 AM	1	0	0	0	2	0	3	0	0	6
07:15 AM	6	0	0	0	8	0	9	5	0	28
07:30 AM	2	1	0	0	8	0	4	3	0	18
07:45 AM	1	0	0	0	5	0	9	2	0	17
Total	10	1	0	0	23	0	25	10	0	69
08:00 AM	3	1	0	0	4	0	4	2	0	14
08:15 AM	2	1	0	1	5	0	4	1	0	14
08:30 AM	2	0	0	0	0	0	5	3	0	10
08:45 AM	1	0	0	0	4	0	18	0	0	23
Total	8	2	0	1	13	0	31	6	0	61
Grand Total	18	3	0	1	36	0	56	16	0	130
Apprch %	85.7	14.3	0	2.7	97.3	0	77.8	22.2	0	
Total %	13.8	2.3	0	0.8	27.7	0	43.1	12.3	0	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	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	6	0	0	6	0	8	0	8	9	5	0	14	28
07:30 AM	2	1	0	3	0	8	0	8	4	3	0	7	18
07:45 AM	1	0	0	1	0	5	0	5	9	2	0	11	17
08:00 AM	3	1	0	4	0	4	0	4	4	2	0	6	14
Total Volume	12	2	0	14	0	25	0	25	26	12	0	38	77
% App. Total	85.7	14.3	0		0	100	0		68.4	31.6	0		
PHF	.500	.500	.000	.583	.000	.781	.000	.781	.722	.600	.000	.679	.688

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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File Name : 143741 C
Site Code : TBA
Start Date : 2/27/2014
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Groups Printed- Peds and Bikes

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	2	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0
Total	0	0	2	0	0	0	0	0	0	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	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	0	0	0	0	0	0	0
Grand Total	0	0	2	0	0	0	0	0	0	2
Apprch %	0	0	100	0	0	0	0	0	0	
Total %	0	0	100	0	0	0	0	0	0	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	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 07:00 AM													
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	2	2	0	0	0	0	0	0	0	0	2
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	2	2	0	0	0	0	0	0	0	0	2
% App. Total	0	0	100		0	0	0		0	0	0		
PHF	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250

N: Summer Street
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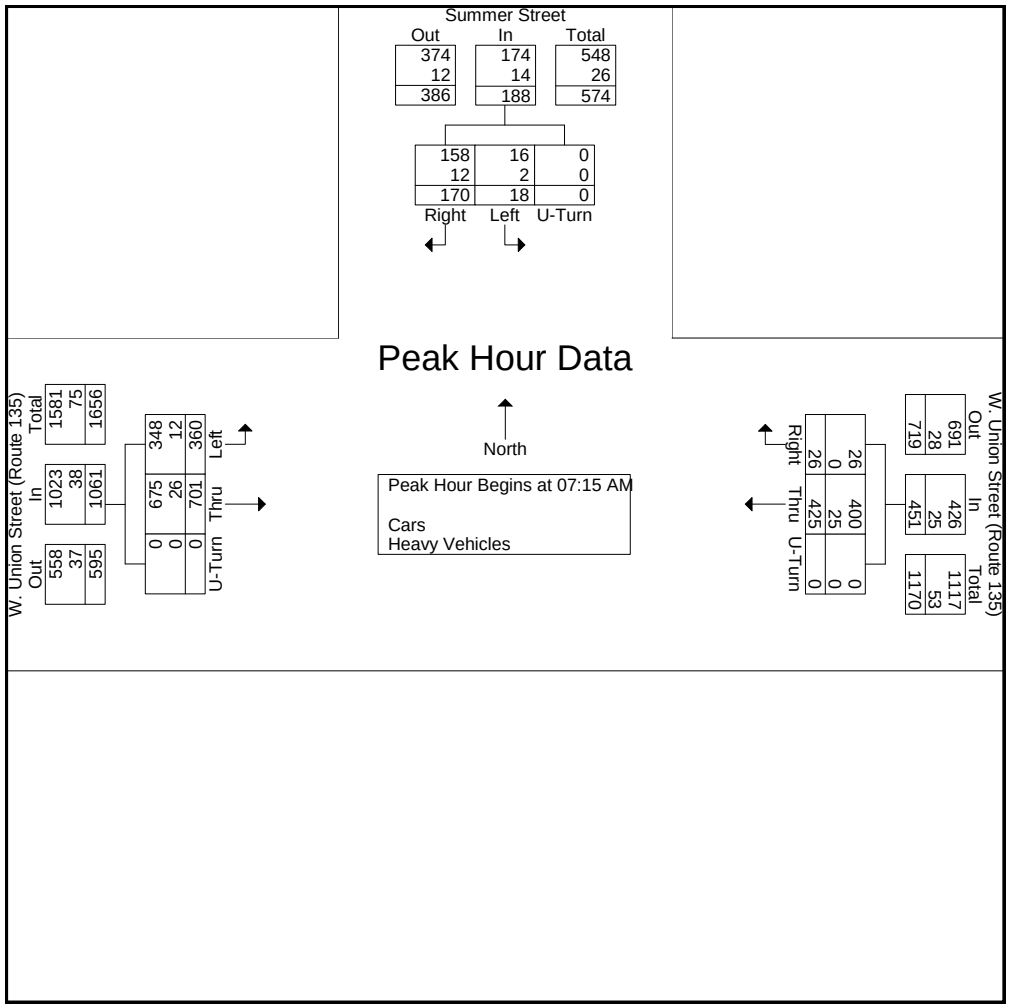
	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 07:15 AM													
07:15 AM	43	1	0	44	4	128	0	132	166	72	0	238	414
07:30 AM	57	7	0	64	8	113	0	121	174	100	0	274	459
07:45 AM	37	6	0	43	8	102	0	110	207	110	0	317	470
08:00 AM	33	4	0	37	6	82	0	88	154	78	0	232	357
Total Volume	170	18	0	188	26	425	0	451	701	360	0	1061	1700
% App. Total	90.4	9.6	0		5.8	94.2	0		66.1	33.9	0		
PHF	.746	.643	.000	.734	.813	.830	.000	.854	.847	.818	.000	.837	.904
Cars	158	16	0	174	26	400	0	426	675	348	0	1023	1623
% Cars	92.9	88.9	0	92.6	100	94.1	0	94.5	96.3	96.7	0	96.4	95.5
Heavy Vehicles	12	2	0	14	0	25	0	25	26	12	0	38	77
% Heavy Vehicles	7.1	11.1	0	7.4	0	5.9	0	5.5	3.7	3.3	0	3.6	4.5



N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Site Code : TBA
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Groups Printed- Cars - Heavy Vehicles

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	66	15	0	14	138	0	140	40	0	413
04:15 PM	52	19	0	11	139	0	117	26	0	364
04:30 PM	74	16	0	15	142	0	104	31	0	382
04:45 PM	63	25	0	9	133	0	116	37	0	383
Total	255	75	0	49	552	0	477	134	0	1542
05:00 PM	72	17	0	11	134	0	105	22	0	361
05:15 PM	72	35	0	14	140	0	115	45	0	421
05:30 PM	54	29	0	13	139	0	123	27	0	385
05:45 PM	63	26	0	8	132	0	140	40	0	409
Total	261	107	0	46	545	0	483	134	0	1576
Grand Total	516	182	0	95	1097	0	960	268	0	3118
Apprch %	73.9	26.1	0	8	92	0	78.2	21.8	0	
Total %	16.5	5.8	0	3	35.2	0	30.8	8.6	0	
Cars	510	181	0	93	1089	0	939	259	0	3071
% Cars	98.8	99.5	0	97.9	99.3	0	97.8	96.6	0	98.5
Heavy Vehicles	6	1	0	2	8	0	21	9	0	47
% Heavy Vehicles	1.2	0.5	0	2.1	0.7	0	2.2	3.4	0	1.5

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	72	17	0	89	11	134	0	145	105	22	0	127	361
05:15 PM	72	35	0	107	14	140	0	154	115	45	0	160	421
05:30 PM	54	29	0	83	13	139	0	152	123	27	0	150	385
05:45 PM	63	26	0	89	8	132	0	140	140	40	0	180	409
Total Volume	261	107	0	368	46	545	0	591	483	134	0	617	1576
% App. Total	70.9	29.1	0		7.8	92.2	0		78.3	21.7	0		
PHF	.906	.764	.000	.860	.821	.973	.000	.959	.863	.744	.000	.857	.936
Cars	258	107	0	365	46	541	0	587	478	130	0	608	1560
% Cars	98.9	100	0	99.2	100	99.3	0	99.3	99.0	97.0	0	98.5	99.0
Heavy Vehicles	3	0	0	3	0	4	0	4	5	4	0	9	16
% Heavy Vehicles	1.1	0	0	0.8	0	0.7	0	0.7	1.0	3.0	0	1.5	1.0

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Groups Printed- Cars

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	66	14	0	14	137	0	131	38	0	400
04:15 PM	50	19	0	10	138	0	115	24	0	356
04:30 PM	74	16	0	14	141	0	101	31	0	377
04:45 PM	62	25	0	9	132	0	114	36	0	378
Total	252	74	0	47	548	0	461	129	0	1511
05:00 PM	71	17	0	11	133	0	104	21	0	357
05:15 PM	71	35	0	14	139	0	115	45	0	419
05:30 PM	54	29	0	13	137	0	121	26	0	380
05:45 PM	62	26	0	8	132	0	138	38	0	404
Total	258	107	0	46	541	0	478	130	0	1560
Grand Total	510	181	0	93	1089	0	939	259	0	3071
Apprch %	73.8	26.2	0	7.9	92.1	0	78.4	21.6	0	
Total %	16.6	5.9	0	3	35.5	0	30.6	8.4	0	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	71	17	0	88	11	133	0	144	104	21	0	125	357
05:15 PM	71	35	0	106	14	139	0	153	115	45	0	160	419
05:30 PM	54	29	0	83	13	137	0	150	121	26	0	147	380
05:45 PM	62	26	0	88	8	132	0	140	138	38	0	176	404
Total Volume	258	107	0	365	46	541	0	587	478	130	0	608	1560
% App. Total	70.7	29.3	0		7.8	92.2	0		78.6	21.4	0		
PHF	.908	.764	.000	.861	.821	.973	.000	.959	.866	.722	.000	.864	.931

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION
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File Name : 143741 CC
Site Code : TBA
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Page No : 1

Groups Printed- Heavy Vehicles

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	U-Turn	Right	Thru	U-Turn	Thru	Left	U-Turn	Int. Total
04:00 PM	0	1	0	0	1	0	9	2	0	13
04:15 PM	2	0	0	1	1	0	2	2	0	8
04:30 PM	0	0	0	1	1	0	3	0	0	5
04:45 PM	1	0	0	0	1	0	2	1	0	5
Total	3	1	0	2	4	0	16	5	0	31
05:00 PM	1	0	0	0	1	0	1	1	0	4
05:15 PM	1	0	0	0	1	0	0	0	0	2
05:30 PM	0	0	0	0	2	0	2	1	0	5
05:45 PM	1	0	0	0	0	0	2	2	0	5
Total	3	0	0	0	4	0	5	4	0	16
Grand Total	6	1	0	2	8	0	21	9	0	47
Apprch %	85.7	14.3	0	20	80	0	70	30	0	
Total %	12.8	2.1	0	4.3	17	0	44.7	19.1	0	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 04:00 PM													
04:00 PM	0	1	0	1	0	1	0	1	9	2	0	11	13
04:15 PM	2	0	0	2	1	1	0	2	2	2	0	4	8
04:30 PM	0	0	0	0	1	1	0	2	3	0	0	3	5
04:45 PM	1	0	0	1	0	1	0	1	2	1	0	3	5
Total Volume	3	1	0	4	2	4	0	6	16	5	0	21	31
% App. Total	75	25	0		33.3	66.7	0		76.2	23.8	0		
PHF	.375	.250	.000	.500	.500	1.00	.000	.750	.444	.625	.000	.477	.596

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Groups Printed- Peds and Bikes

	Summer Street From North			W. Union Street (Route 135) From East			W. Union Street (Route 135) From West			
Start Time	Right	Left	Peds	Right	Thru	Peds	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	2	0	0	0	2
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	2	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	0	1	1
05:15 PM	0	0	1	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	1	1
05:45 PM	0	0	2	0	0	0	0	0	0	2
Total	0	0	3	0	0	0	0	0	2	5
Grand Total	0	0	3	0	0	2	0	0	2	7
Apprch %	0	0	100	0	0	100	0	0	100	
Total %	0	0	42.9	0	0	28.6	0	0	28.6	

	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	Peds	App. Total	Right	Thru	Peds	App. Total	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	0	0	0	0	0	0	0	0	0	0	1	1	1
05:15 PM	0	0	1	1	0	0	0	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	1	1	1
05:45 PM	0	0	2	2	0	0	0	0	0	0	0	0	2
Total Volume	0	0	3	3	0	0	0	0	0	0	2	2	5
% App. Total	0	0	100		0	0	0		0	0	100		
PHF	.000	.000	.375	.375	.000	.000	.000	.000	.000	.000	.500	.500	.625

N: Summer Street
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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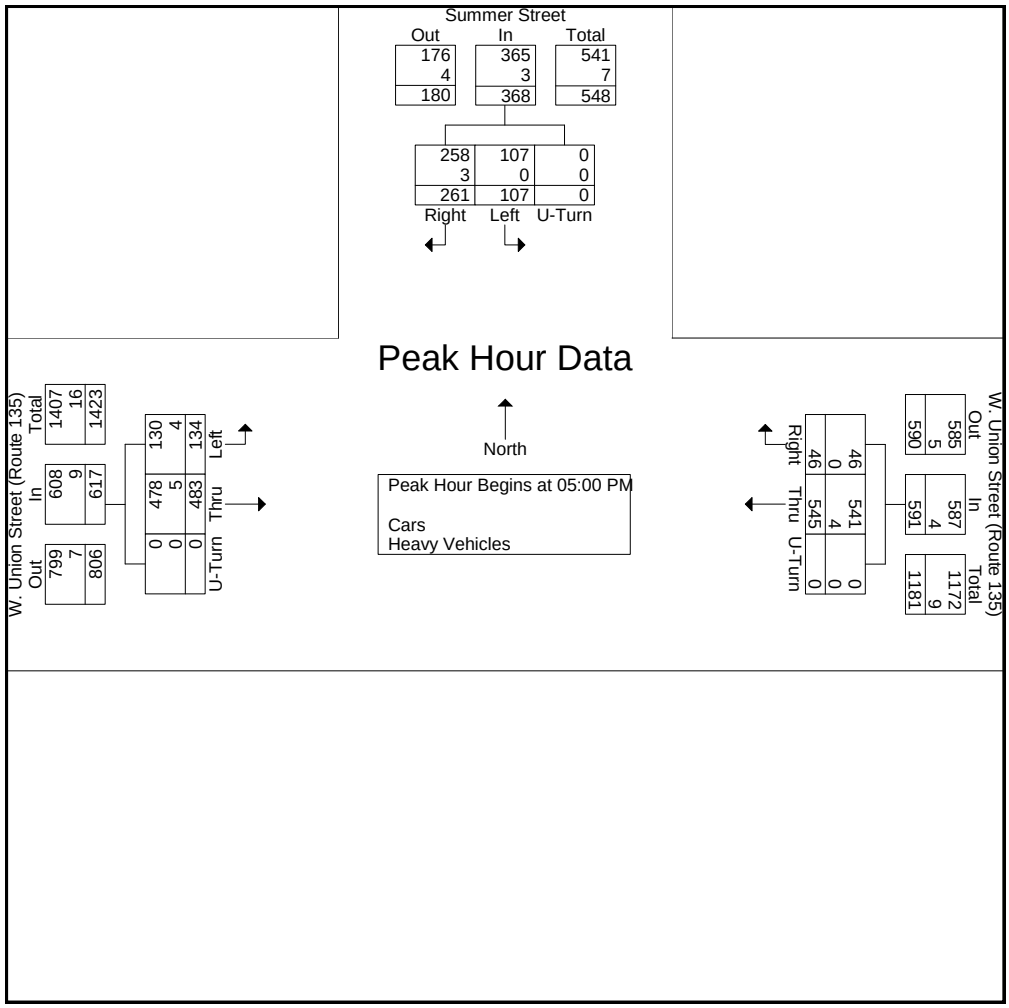
	Summer Street From North				W. Union Street (Route 135) From East				W. Union Street (Route 135) From West				
Start Time	Right	Left	U-Turn	App. Total	Right	Thru	U-Turn	App. Total	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1													
Peak Hour for Entire Intersection Begins at 05:00 PM													
05:00 PM	72	17	0	89	11	134	0	145	105	22	0	127	361
05:15 PM	72	35	0	107	14	140	0	154	115	45	0	160	421
05:30 PM	54	29	0	83	13	139	0	152	123	27	0	150	385
05:45 PM	63	26	0	89	8	132	0	140	140	40	0	180	409
Total Volume	261	107	0	368	46	545	0	591	483	134	0	617	1576
% App. Total	70.9	29.1	0		7.8	92.2	0		78.3	21.7	0		
PHF	.906	.764	.000	.860	.821	.973	.000	.959	.863	.744	.000	.857	.936
Cars	258	107	0	365	46	541	0	587	478	130	0	608	1560
% Cars	98.9	100	0	99.2	100	99.3	0	99.3	99.0	97.0	0	98.5	99.0
Heavy Vehicles	3	0	0	3	0	4	0	4	5	4	0	9	16
% Heavy Vehicles	1.1	0	0	0.8	0	0.7	0	0.7	1.0	3.0	0	1.5	1.0



N/S: MBTA Train Station/ Voyagers Lane
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Groups Printed- Cars - Heavy Vehicles

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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	13	1	26	0	23	69	0	0	1	1	1	0	0	184	32	0	351
07:15 AM	16	0	26	0	45	116	0	0	5	2	3	0	0	204	62	0	479
07:30 AM	39	1	35	0	28	135	1	0	3	0	0	0	0	247	34	0	523
07:45 AM	17	0	29	0	42	100	1	0	7	1	0	0	0	271	37	0	505
Total	85	2	116	0	138	420	2	0	16	4	4	0	0	906	165	0	1858
08:00 AM	16	0	19	0	14	89	2	0	8	0	1	0	1	199	16	0	365
08:15 AM	10	0	29	0	26	82	1	0	5	1	0	0	0	216	14	0	384
08:30 AM	11	0	29	0	23	95	1	0	7	0	1	0	0	215	11	0	393
08:45 AM	13	0	17	0	19	82	0	0	4	1	0	0	0	179	16	0	331
Total	50	0	94	0	82	348	4	0	24	2	2	0	1	809	57	0	1473
Grand Total	135	2	210	0	220	768	6	0	40	6	6	0	1	1715	222	0	3331
Apprch %	38.9	0.6	60.5	0	22.1	77.3	0.6	0	76.9	11.5	11.5	0	0.1	88.5	11.5	0	
Total %	4.1	0.1	6.3	0	6.6	23.1	0.2	0	1.2	0.2	0.2	0	0	51.5	6.7	0	
Cars	134	2	210	0	219	717	6	0	40	6	6	0	0	1642	221	0	3203
% Cars	99.3	100	100	0	99.5	93.4	100	0	100	100	100	0	0	95.7	99.5	0	96.2
Heavy Vehicles	1	0	0	0	1	51	0	0	0	0	0	0	1	73	1	0	128
% Heavy Vehicles	0.7	0	0	0	0.5	6.6	0	0	0	0	0	0	100	4.3	0.5	0	3.8

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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	16	0	26	0	42	45	116	0	0	161	5	2	3	0	10	0	204	62	0	266	479
07:30 AM	39	1	35	0	75	28	135	1	0	164	3	0	0	0	3	0	247	34	0	281	523
07:45 AM	17	0	29	0	46	42	100	1	0	143	7	1	0	0	8	0	271	37	0	308	505
08:00 AM	16	0	19	0	35	14	89	2	0	105	8	0	1	0	9	1	199	16	0	216	365
Total Volume	88	1	109	0	198	129	440	4	0	573	23	3	4	0	30	1	921	149	0	1071	1872
% App. Total	44.4	0.5	55.1	0		22.5	76.8	0.7	0		76.7	10	13.3	0		0.1	86	13.9	0		
PHF	.564	.250	.779	.000	.660	.717	.815	.500	.000	.873	.719	.375	.333	.000	.750	.250	.850	.601	.000	.869	.895
Cars	88	1	109	0	198	128	403	4	0	535	23	3	4	0	30	0	881	149	0	1030	1793
% Cars	100	100	100	0	100	99.2	91.6	100	0	93.4	100	100	100	0	100	0	95.7	100	0	96.2	95.8
Heavy Vehicles	0	0	0	0	0	1	37	0	0	38	0	0	0	0	0	1	40	0	0	41	79
% Heavy Vehicles	0	0	0	0	0	0.8	8.4	0	0	6.6	0	0	0	0	0	100	4.3	0	0	3.8	4.2

N/S: MBTA Train Station/ Voyagers Lane
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Page No : 1

Groups Printed- Cars

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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	13	1	26	0	23	66	0	0	1	1	1	0	0	181	32	0	345
07:15 AM	16	0	26	0	45	99	0	0	5	2	3	0	0	187	62	0	445
07:30 AM	39	1	35	0	27	127	1	0	3	0	0	0	0	240	34	0	507
07:45 AM	17	0	29	0	42	94	1	0	7	1	0	0	0	261	37	0	489
Total	85	2	116	0	137	386	2	0	16	4	4	0	0	869	165	0	1786
08:00 AM	16	0	19	0	14	83	2	0	8	0	1	0	0	193	16	0	352
08:15 AM	9	0	29	0	26	76	1	0	5	1	0	0	0	210	13	0	370
08:30 AM	11	0	29	0	23	94	1	0	7	0	1	0	0	208	11	0	385
08:45 AM	13	0	17	0	19	78	0	0	4	1	0	0	0	162	16	0	310
Total	49	0	94	0	82	331	4	0	24	2	2	0	0	773	56	0	1417
Grand Total	134	2	210	0	219	717	6	0	40	6	6	0	0	1642	221	0	3203
Apprch %	38.7	0.6	60.7	0	23.2	76.1	0.6	0	76.9	11.5	11.5	0	0	88.1	11.9	0	
Total %	4.2	0.1	6.6	0	6.8	22.4	0.2	0	1.2	0.2	0.2	0	0	51.3	6.9	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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	16	0	26	0	42	45	99	0	0	144	5	2	3	0	10	0	187	62	0	249	445
07:30 AM	39	1	35	0	75	27	127	1	0	155	3	0	0	0	3	0	240	34	0	274	507
07:45 AM	17	0	29	0	46	42	94	1	0	137	7	1	0	0	8	0	261	37	0	298	489
08:00 AM	16	0	19	0	35	14	83	2	0	99	8	0	1	0	9	0	193	16	0	209	352
Total Volume	88	1	109	0	198	128	403	4	0	535	23	3	4	0	30	0	881	149	0	1030	1793
% App. Total	44.4	0.5	55.1	0		23.9	75.3	0.7	0		76.7	10	13.3	0		0	85.5	14.5	0		
PHF	.564	.250	.779	.000	.660	.711	.793	.500	.000	.863	.719	.375	.333	.000	.750	.000	.844	.601	.000	.864	.884

N/S: MBTA Train Station/ Voyagers Lane
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Groups Printed- Heavy Vehicles

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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	3	0	0	0	0	0	0	0	3	0	0	6
07:15 AM	0	0	0	0	0	17	0	0	0	0	0	0	0	17	0	0	34
07:30 AM	0	0	0	0	1	8	0	0	0	0	0	0	0	7	0	0	16
07:45 AM	0	0	0	0	0	6	0	0	0	0	0	0	0	10	0	0	16
Total	0	0	0	0	1	34	0	0	0	0	0	0	0	37	0	0	72
08:00 AM	0	0	0	0	0	6	0	0	0	0	0	0	1	6	0	0	13
08:15 AM	1	0	0	0	0	6	0	0	0	0	0	0	0	6	1	0	14
08:30 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	7	0	0	8
08:45 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	17	0	0	21
Total	1	0	0	0	0	17	0	0	0	0	0	0	1	36	1	0	56
Grand Total	1	0	0	0	1	51	0	0	0	0	0	0	1	73	1	0	128
Apprch %	100	0	0	0	1.9	98.1	0	0	0	0	0	0	1.3	97.3	1.3	0	
Total %	0.8	0	0	0	0.8	39.8	0	0	0	0	0	0	0.8	57	0.8	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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	17	0	0	17	0	0	0	0	0	0	17	0	0	17	34
07:30 AM	0	0	0	0	0	1	8	0	0	9	0	0	0	0	0	0	7	0	0	7	16
07:45 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	0	10	0	0	10	16
08:00 AM	0	0	0	0	0	0	6	0	0	6	0	0	0	0	0	1	6	0	0	7	13
Total Volume	0	0	0	0	0	1	37	0	0	38	0	0	0	0	0	1	40	0	0	41	79
% App. Total	0	0	0	0		2.6	97.4	0	0		0	0	0	0		2.4	97.6	0	0		
PHF	.000	.000	.000	.000	.000	.250	.544	.000	.000	.559	.000	.000	.000	.000	.000	.250	.588	.000	.000	.603	.581

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E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 D
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Peds and Bikes

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	2	0	0	0	0	0	0	0	0	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	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2
Apprch %	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500

N/S: MBTA Train Station/ Voyagers Lane
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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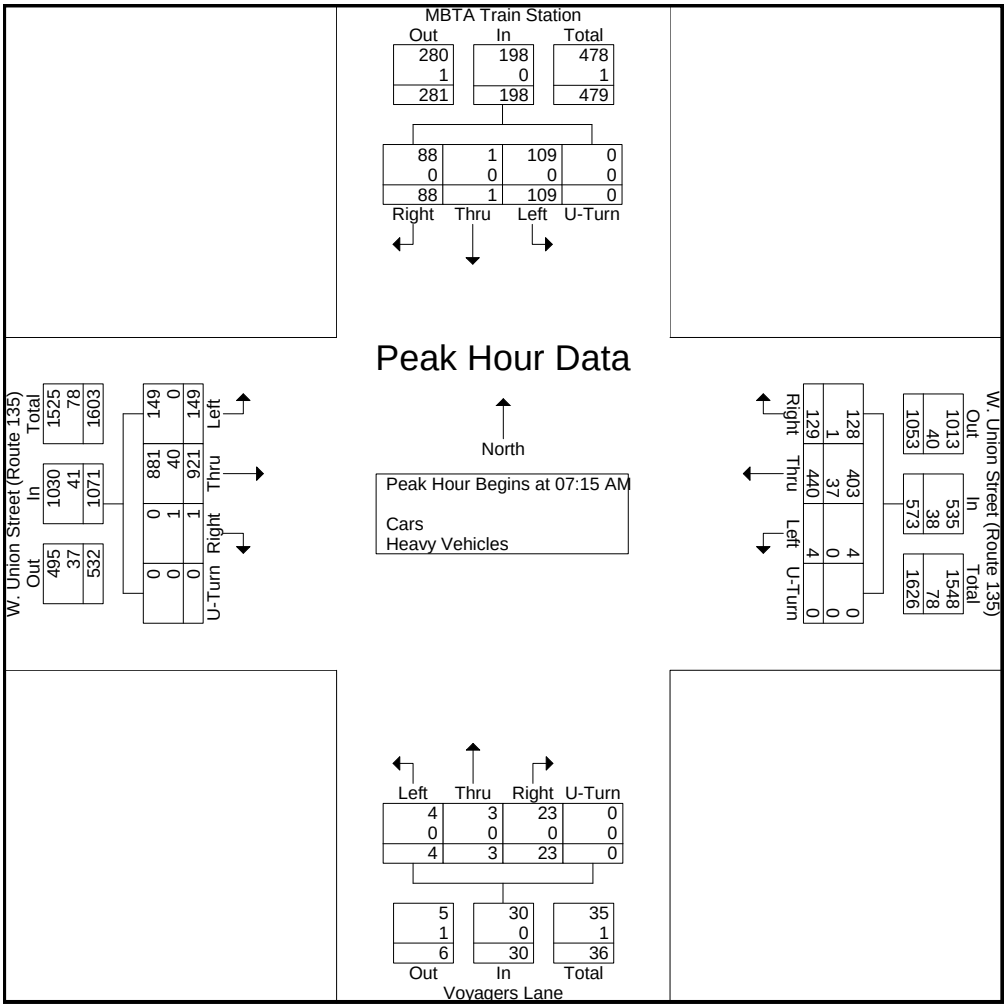
	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
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	16	0	26	0	42	45	116	0	0	161	5	2	3	0	10	0	204	62	0	266	479
07:30 AM	39	1	35	0	75	28	135	1	0	164	3	0	0	0	3	0	247	34	0	281	523
07:45 AM	17	0	29	0	46	42	100	1	0	143	7	1	0	0	8	0	271	37	0	308	505
08:00 AM	16	0	19	0	35	14	89	2	0	105	8	0	1	0	9	1	199	16	0	216	365
Total Volume	88	1	109	0	198	129	440	4	0	573	23	3	4	0	30	1	921	149	0	1071	1872
% App. Total	44.4	0.5	55.1	0		22.5	76.8	0.7	0		76.7	10	13.3	0		0.1	86	13.9	0		
PHF	.564	.250	.779	.000	.660	.717	.815	.500	.000	.873	.719	.375	.333	.000	.750	.250	.850	.601	.000	.869	.895
Cars	88	1	109	0	198	128	403	4	0	535	23	3	4	0	30	0	881	149	0	1030	1793
% Cars	100	100	100	0	100	99.2	91.6	100	0	93.4	100	100	100	0	100	0	95.7	100	0	96.2	95.8
Heavy Vehicles	0	0	0	0	0	1	37	0	0	38	0	0	0	0	0	1	40	0	0	41	79
% Heavy Vehicles	0	0	0	0	0	0.8	8.4	0	0	6.6	0	0	0	0	0	100	4.3	0	0	3.8	4.2



N/S: MBTA Train Station/ Voyagers Lane
E/W: W. Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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Groups Printed- Cars - Heavy Vehicles

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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
04:00 PM	5	0	10	0	8	181	7	0	1	0	1	0	1	153	9	0	376
04:15 PM	3	0	7	0	6	175	3	0	5	0	1	0	0	129	1	0	330
04:30 PM	6	0	2	0	13	199	2	0	3	0	1	0	0	117	0	0	343
04:45 PM	39	1	16	0	12	180	6	0	1	0	1	0	0	128	3	0	387
Total	53	1	35	0	39	735	18	0	10	0	4	0	1	527	13	0	1436
05:00 PM	6	0	8	0	9	195	2	0	1	0	2	0	0	114	3	0	340
05:15 PM	9	0	5	0	7	204	2	0	2	0	1	0	0	149	6	0	385
05:30 PM	6	0	1	0	9	177	5	0	1	1	1	0	1	134	7	0	343
05:45 PM	53	2	43	1	10	180	6	0	5	0	0	0	4	143	8	0	455
Total	74	2	57	1	35	756	15	0	9	1	4	0	5	540	24	0	1523
Grand Total	127	3	92	1	74	1491	33	0	19	1	8	0	6	1067	37	0	2959
Apprch %	57	1.3	41.3	0.4	4.6	93.3	2.1	0	67.9	3.6	28.6	0	0.5	96.1	3.3	0	
Total %	4.3	0.1	3.1	0	2.5	50.4	1.1	0	0.6	0	0.3	0	0.2	36.1	1.3	0	
Cars	127	3	92	1	74	1476	33	0	18	1	7	0	5	1040	37	0	2914
% Cars	100	100	100	100	100	99	100	0	94.7	100	87.5	0	83.3	97.5	100	0	98.5
Heavy Vehicles	0	0	0	0	0	15	0	0	1	0	1	0	1	27	0	0	45
% Heavy Vehicles	0	0	0	0	0	1	0	0	5.3	0	12.5	0	16.7	2.5	0	0	1.5

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	0	8	0	14	9	195	2	0	206	1	0	2	0	3	0	114	3	0	117	340
05:15 PM	9	0	5	0	14	7	204	2	0	213	2	0	1	0	3	0	149	6	0	155	385
05:30 PM	6	0	1	0	7	9	177	5	0	191	1	1	1	0	3	1	134	7	0	142	343
05:45 PM	53	2	43	1	99	10	180	6	0	196	5	0	0	0	5	4	143	8	0	155	455
Total Volume	74	2	57	1	134	35	756	15	0	806	9	1	4	0	14	5	540	24	0	569	1523
% App. Total	55.2	1.5	42.5	0.7		4.3	93.8	1.9	0		64.3	7.1	28.6	0		0.9	94.9	4.2	0		
PHF	.349	.250	.331	.250	.338	.875	.926	.625	.000	.946	.450	.250	.500	.000	.700	.313	.906	.750	.000	.918	.837
Cars	74	2	57	1	134	35	749	15	0	799	8	1	3	0	12	4	531	24	0	559	1504
% Cars	100	100	100	100	100	100	99.1	100	0	99.1	88.9	100	75.0	0	85.7	80.0	98.3	100	0	98.2	98.8
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	1	9	0	0	10	19
% Heavy Vehicles	0	0	0	0	0	0	0.9	0	0	0.9	11.1	0	25.0	0	14.3	20.0	1.7	0	0	1.8	1.2

N/S: MBTA Train Station/ Voyagers Lane
E/W: W. Union Street (Route 135)
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Groups Printed- Cars

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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
04:00 PM	5	0	10	0	8	178	7	0	1	0	1	0	1	142	9	0	362
04:15 PM	3	0	7	0	6	173	3	0	5	0	1	0	0	126	1	0	325
04:30 PM	6	0	2	0	13	197	2	0	3	0	1	0	0	115	0	0	339
04:45 PM	39	1	16	0	12	179	6	0	1	0	1	0	0	126	3	0	384
Total	53	1	35	0	39	727	18	0	10	0	4	0	1	509	13	0	1410
05:00 PM	6	0	8	0	9	193	2	0	1	0	1	0	0	112	3	0	335
05:15 PM	9	0	5	0	7	202	2	0	2	0	1	0	0	149	6	0	383
05:30 PM	6	0	1	0	9	175	5	0	1	1	1	0	1	131	7	0	338
05:45 PM	53	2	43	1	10	179	6	0	4	0	0	0	3	139	8	0	448
Total	74	2	57	1	35	749	15	0	8	1	3	0	4	531	24	0	1504
Grand Total	127	3	92	1	74	1476	33	0	18	1	7	0	5	1040	37	0	2914
Apprch %	57	1.3	41.3	0.4	4.7	93.2	2.1	0	69.2	3.8	26.9	0	0.5	96.1	3.4	0	
Total %	4.4	0.1	3.2	0	2.5	50.7	1.1	0	0.6	0	0.2	0	0.2	35.7	1.3	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	0	8	0	14	9	193	2	0	204	1	0	1	0	2	0	112	3	0	115	335
05:15 PM	9	0	5	0	14	7	202	2	0	211	2	0	1	0	3	0	149	6	0	155	383
05:30 PM	6	0	1	0	7	9	175	5	0	189	1	1	1	0	3	1	131	7	0	139	338
05:45 PM	53	2	43	1	99	10	179	6	0	195	4	0	0	0	4	3	139	8	0	150	448
Total Volume	74	2	57	1	134	35	749	15	0	799	8	1	3	0	12	4	531	24	0	559	1504
% App. Total	55.2	1.5	42.5	0.7		4.4	93.7	1.9	0		66.7	8.3	25	0		0.7	95	4.3	0		
PHF	.349	.250	.331	.250	.338	.875	.927	.625	.000	.947	.500	.250	.750	.000	.750	.333	.891	.750	.000	.902	.839

N/S: MBTA Train Station/ Voyagers Lane
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Groups Printed- Heavy Vehicles

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) 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
04:00 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	11	0	0	14
04:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
04:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0	0	4
04:45 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0	0	3
Total	0	0	0	0	0	8	0	0	0	0	0	0	0	18	0	0	26
05:00 PM	0	0	0	0	0	2	0	0	0	0	1	0	0	2	0	0	5
05:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2
05:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	3	0	0	5
05:45 PM	0	0	0	0	0	1	0	0	1	0	0	0	1	4	0	0	7
Total	0	0	0	0	0	7	0	0	1	0	1	0	1	9	0	0	19
Grand Total	0	0	0	0	0	15	0	0	1	0	1	0	1	27	0	0	45
Apprch %	0	0	0	0	0	100	0	0	50	0	50	0	3.6	96.4	0	0	
Total %	0	0	0	0	0	33.3	0	0	2.2	0	2.2	0	2.2	60	0	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	11	0	0	11	14
04:15 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	3	0	0	3	5
04:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	2	0	0	2	4
04:45 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	2	0	0	2	3
Total Volume	0	0	0	0	0	0	8	0	0	8	0	0	0	0	0	0	18	0	0	18	26
% App. Total	0	0	0	0		0	100	0	0		0	0	0	0		0	100	0	0		
PHF	.000	.000	.000	.000	.000	.000	.667	.000	.000	.667	.000	.000	.000	.000	.000	.000	.409	.000	.000	.409	.464

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Groups Printed- Peds and Bikes

	MBTA Train Station From North				W. Union Street (Route 135) From East				Voyagers Lane From South				W. Union Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
05:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
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	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	3
Grand Total	0	0	0	2	0	0	0	1	1	0	0	1	0	0	0	0	5
Apprch %	0	0	0	100	0	0	0	100	50	0	0	50	0	0	0	0	
Total %	0	0	0	40	0	0	0	20	20	0	0	20	0	0	0	0	

	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total Volume	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	0	0	3
% App. Total	0	0	0	100		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.750

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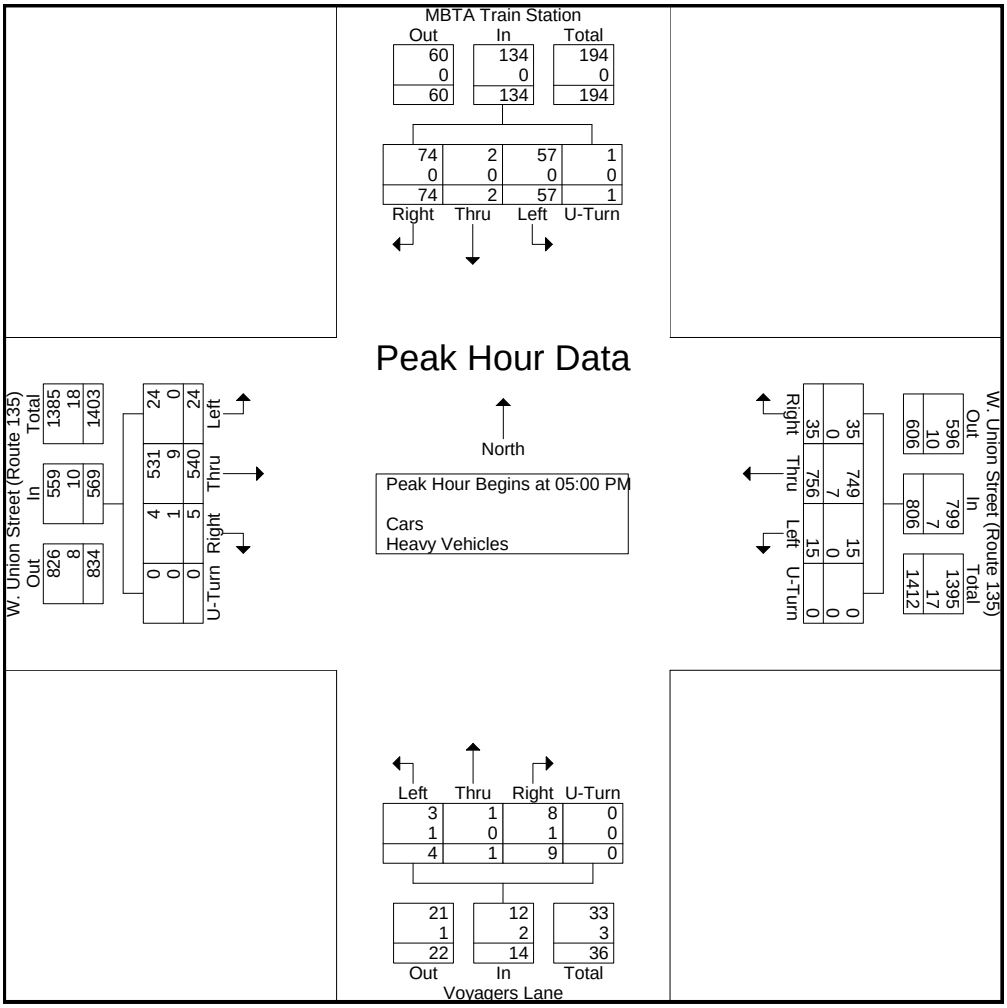
	MBTA Train Station From North					W. Union Street (Route 135) From East					Voyagers Lane From South					W. Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	6	0	8	0	14	9	195	2	0	206	1	0	2	0	3	0	114	3	0	117	340
05:15 PM	9	0	5	0	14	7	204	2	0	213	2	0	1	0	3	0	149	6	0	155	385
05:30 PM	6	0	1	0	7	9	177	5	0	191	1	1	1	0	3	1	134	7	0	142	343
05:45 PM	53	2	43	1	99	10	180	6	0	196	5	0	0	0	5	4	143	8	0	155	455
Total Volume	74	2	57	1	134	35	756	15	0	806	9	1	4	0	14	5	540	24	0	569	1523
% App. Total	55.2	1.5	42.5	0.7		4.3	93.8	1.9	0		64.3	7.1	28.6	0		0.9	94.9	4.2	0		
PHF	.349	.250	.331	.250	.338	.875	.926	.625	.000	.946	.450	.250	.500	.000	.700	.313	.906	.750	.000	.918	.837
Cars	74	2	57	1	134	35	749	15	0	799	8	1	3	0	12	4	531	24	0	559	1504
% Cars	100	100	100	100	100	100	99.1	100	0	99.1	88.9	100	75.0	0	85.7	80.0	98.3	100	0	98.2	98.8
Heavy Vehicles	0	0	0	0	0	0	7	0	0	7	1	0	1	0	2	1	9	0	0	10	19
% Heavy Vehicles	0	0	0	0	0	0	0.9	0	0	0.9	11.1	0	25.0	0	14.3	20.0	1.7	0	0	1.8	1.2



N/S: Main Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
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File Name : 143741 E
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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	2	64	6	0	5	47	6	0	6	97	21	0	20	138	3	0	415
07:15 AM	3	68	7	0	4	77	3	0	4	101	50	0	29	139	4	0	489
07:30 AM	3	80	9	0	4	68	5	0	1	104	50	0	32	134	3	0	493
07:45 AM	2	87	7	0	8	75	6	0	11	105	36	0	45	149	8	0	539
Total	10	299	29	0	21	267	20	0	22	407	157	0	126	560	18	0	1936
08:00 AM	2	79	10	0	8	56	5	0	6	114	32	0	40	145	7	0	504
08:15 AM	2	116	10	0	7	61	3	0	8	113	32	0	36	109	5	0	502
08:30 AM	3	76	8	0	11	54	11	0	5	121	44	0	39	126	8	0	506
08:45 AM	1	51	6	0	0	54	4	0	11	101	42	0	20	130	5	0	425
Total	8	322	34	0	26	225	23	0	30	449	150	0	135	510	25	0	1937
Grand Total	18	621	63	0	47	492	43	0	52	856	307	0	261	1070	43	0	3873
Apprch %	2.6	88.5	9	0	8.1	84.5	7.4	0	4.3	70.5	25.3	0	19	77.9	3.1	0	
Total %	0.5	16	1.6	0	1.2	12.7	1.1	0	1.3	22.1	7.9	0	6.7	27.6	1.1	0	
Cars	17	608	59	0	44	469	35	0	51	839	299	0	251	1038	41	0	3751
% Cars	94.4	97.9	93.7	0	93.6	95.3	81.4	0	98.1	98	97.4	0	96.2	97	95.3	0	96.8
Heavy Vehicles	1	13	4	0	3	23	8	0	1	17	8	0	10	32	2	0	122
% Heavy Vehicles	5.6	2.1	6.3	0	6.4	4.7	18.6	0	1.9	2	2.6	0	3.8	3	4.7	0	3.2

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 07:45 AM																					
07:45 AM	2	87	7	0	96	8	75	6	0	89	11	105	36	0	152	45	149	8	0	202	539
08:00 AM	2	79	10	0	91	8	56	5	0	69	6	114	32	0	152	40	145	7	0	192	504
08:15 AM	2	116	10	0	128	7	61	3	0	71	8	113	32	0	153	36	109	5	0	150	502
08:30 AM	3	76	8	0	87	11	54	11	0	76	5	121	44	0	170	39	126	8	0	173	506
Total Volume	9	358	35	0	402	34	246	25	0	305	30	453	144	0	627	160	529	28	0	717	2051
% App. Total	2.2	89.1	8.7	0		11.1	80.7	8.2	0		4.8	72.2	23	0		22.3	73.8	3.9	0		
PHF	.750	.772	.875	.000	.785	.773	.820	.568	.000	.857	.682	.936	.818	.000	.922	.889	.888	.875	.000	.887	.951
Cars	9	350	31	0	390	31	233	22	0	286	30	445	142	0	617	157	518	27	0	702	1995
% Cars	100	97.8	88.6	0	97.0	91.2	94.7	88.0	0	93.8	100	98.2	98.6	0	98.4	98.1	97.9	96.4	0	97.9	97.3
Heavy Vehicles	0	8	4	0	12	3	13	3	0	19	0	8	2	0	10	3	11	1	0	15	56
% Heavy Vehicles	0	2.2	11.4	0	3.0	8.8	5.3	12.0	0	6.2	0	1.8	1.4	0	1.6	1.9	2.1	3.6	0	2.1	2.7

N/S: Main Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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File Name : 143741 E
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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	2	63	6	0	5	45	4	0	6	97	21	0	19	137	3	0	408
07:15 AM	2	66	7	0	4	75	3	0	4	99	44	0	25	137	4	0	470
07:30 AM	3	79	9	0	4	65	3	0	1	101	50	0	31	130	2	0	478
07:45 AM	2	86	7	0	7	71	5	0	11	101	35	0	45	147	7	0	524
Total	9	294	29	0	20	256	15	0	22	398	150	0	120	551	16	0	1880
08:00 AM	2	78	9	0	7	53	4	0	6	114	32	0	39	142	7	0	493
08:15 AM	2	113	9	0	6	56	3	0	8	112	31	0	34	107	5	0	486
08:30 AM	3	73	6	0	11	53	10	0	5	118	44	0	39	122	8	0	492
08:45 AM	1	50	6	0	0	51	3	0	10	97	42	0	19	116	5	0	400
Total	8	314	30	0	24	213	20	0	29	441	149	0	131	487	25	0	1871
Grand Total	17	608	59	0	44	469	35	0	51	839	299	0	251	1038	41	0	3751
Apprch %	2.5	88.9	8.6	0	8	85.6	6.4	0	4.3	70.6	25.1	0	18.9	78	3.1	0	
Total %	0.5	16.2	1.6	0	1.2	12.5	0.9	0	1.4	22.4	8	0	6.7	27.7	1.1	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 07:45 AM																					
07:45 AM	2	86	7	0	95	7	71	5	0	83	11	101	35	0	147	45	147	7	0	199	524
08:00 AM	2	78	9	0	89	7	53	4	0	64	6	114	32	0	152	39	142	7	0	188	493
08:15 AM	2	113	9	0	124	6	56	3	0	65	8	112	31	0	151	34	107	5	0	146	486
08:30 AM	3	73	6	0	82	11	53	10	0	74	5	118	44	0	167	39	122	8	0	169	492
Total Volume	9	350	31	0	390	31	233	22	0	286	30	445	142	0	617	157	518	27	0	702	1995
% App. Total	2.3	89.7	7.9	0		10.8	81.5	7.7	0		4.9	72.1	23	0		22.4	73.8	3.8	0		
PHF	.750	.774	.861	.000	.786	.705	.820	.550	.000	.861	.682	.943	.807	.000	.924	.872	.881	.844	.000	.882	.952

N/S: Main Street
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File Name : 143741 E
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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	1	0	0	0	2	2	0	0	0	0	0	1	1	0	0	7
07:15 AM	1	2	0	0	0	2	0	0	0	2	6	0	4	2	0	0	19
07:30 AM	0	1	0	0	0	3	2	0	0	3	0	0	1	4	1	0	15
07:45 AM	0	1	0	0	1	4	1	0	0	4	1	0	0	2	1	0	15
Total	1	5	0	0	1	11	5	0	0	9	7	0	6	9	2	0	56
08:00 AM	0	1	1	0	1	3	1	0	0	0	0	0	1	3	0	0	11
08:15 AM	0	3	1	0	1	5	0	0	0	1	1	0	2	2	0	0	16
08:30 AM	0	3	2	0	0	1	1	0	0	3	0	0	0	4	0	0	14
08:45 AM	0	1	0	0	0	3	1	0	1	4	0	0	1	14	0	0	25
Total	0	8	4	0	2	12	3	0	1	8	1	0	4	23	0	0	66
Grand Total	1	13	4	0	3	23	8	0	1	17	8	0	10	32	2	0	122
Apprch %	5.6	72.2	22.2	0	8.8	67.6	23.5	0	3.8	65.4	30.8	0	22.7	72.7	4.5	0	
Total %	0.8	10.7	3.3	0	2.5	18.9	6.6	0	0.8	13.9	6.6	0	8.2	26.2	1.6	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 08:00 AM																					
08:00 AM	0	1	1	0	2	1	3	1	0	5	0	0	0	0	0	1	3	0	0	4	11
08:15 AM	0	3	1	0	4	1	5	0	0	6	0	1	1	0	2	2	2	0	0	4	16
08:30 AM	0	3	2	0	5	0	1	1	0	2	0	3	0	0	3	0	4	0	0	4	14
08:45 AM	0	1	0	0	1	0	3	1	0	4	1	4	0	0	5	1	14	0	0	15	25
Total Volume	0	8	4	0	12	2	12	3	0	17	1	8	1	0	10	4	23	0	0	27	66
% App. Total	0	66.7	33.3	0		11.8	70.6	17.6	0		10	80	10	0		14.8	85.2	0	0		
PHF	.000	.667	.500	.000	.600	.500	.600	.750	.000	.708	.250	.500	.250	.000	.500	.500	.411	.000	.000	.450	.660

PRECISION
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INDUSTRIES, LLC
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N/S: Main Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 E
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Peds and Bikes

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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	1	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
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	0	0	0	0
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	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Apprch %	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	100	0	0	0	0	0	0	0	0	0	0	0	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

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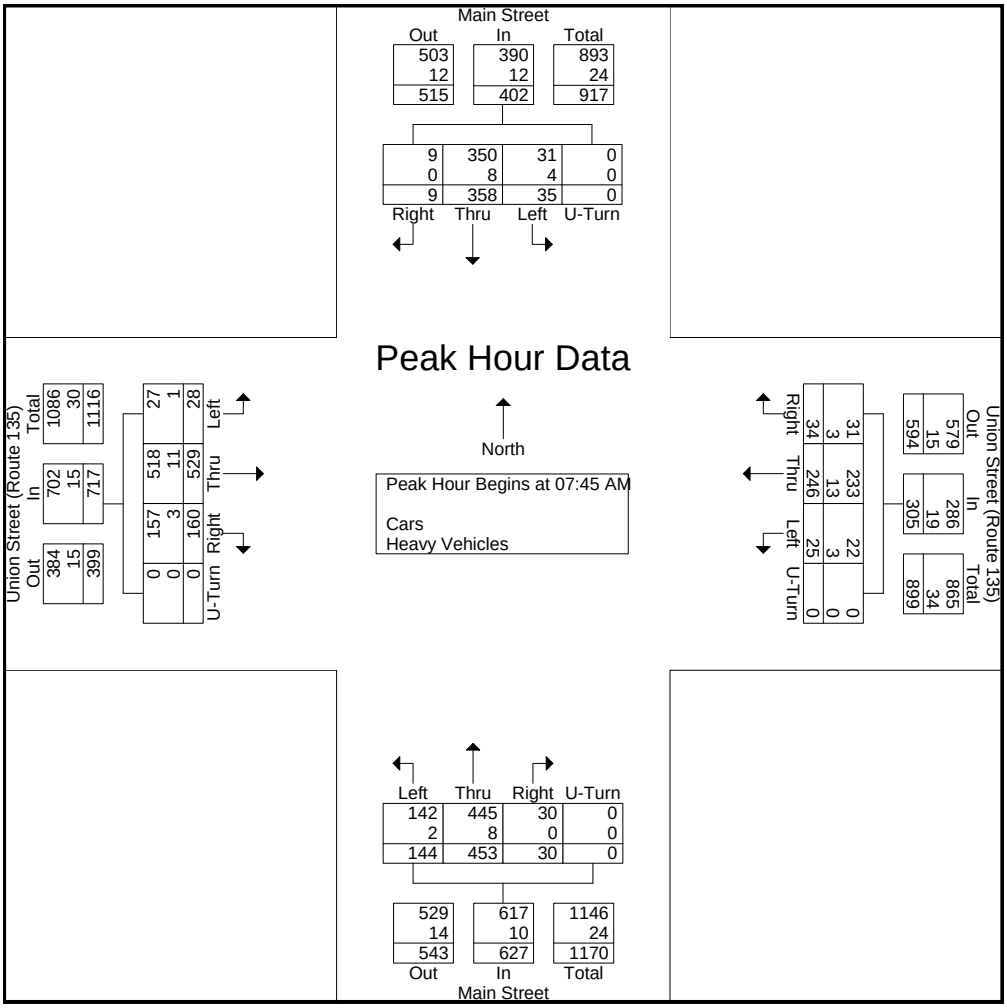
	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	2	87	7	0	96	8	75	6	0	89	11	105	36	0	152	45	149	8	0	202	539
08:00 AM	2	79	10	0	91	8	56	5	0	69	6	114	32	0	152	40	145	7	0	192	504
08:15 AM	2	116	10	0	128	7	61	3	0	71	8	113	32	0	153	36	109	5	0	150	502
08:30 AM	3	76	8	0	87	11	54	11	0	76	5	121	44	0	170	39	126	8	0	173	506
Total Volume	9	358	35	0	402	34	246	25	0	305	30	453	144	0	627	160	529	28	0	717	2051
% App. Total	2.2	89.1	8.7	0		11.1	80.7	8.2	0		4.8	72.2	23	0		22.3	73.8	3.9	0		
PHF	.750	.772	.875	.000	.785	.773	.820	.568	.000	.857	.682	.936	.818	.000	.922	.889	.888	.875	.000	.887	.951
Cars	9	350	31	0	390	31	233	22	0	286	30	445	142	0	617	157	518	27	0	702	1995
% Cars	100	97.8	88.6	0	97.0	91.2	94.7	88.0	0	93.8	100	98.2	98.6	0	98.4	98.1	97.9	96.4	0	97.9	97.3
Heavy Vehicles	0	8	4	0	12	3	13	3	0	19	0	8	2	0	10	3	11	1	0	15	56
% Heavy Vehicles	0	2.2	11.4	0	3.0	8.8	5.3	12.0	0	6.2	0	1.8	1.4	0	1.6	1.9	2.1	3.6	0	2.1	2.7



N/S: Main Street
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File Name : 143741 EE
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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
04:00 PM	29	93	2	0	14	105	3	0	2	98	50	0	31	82	14	0	523
04:15 PM	15	99	3	0	8	119	9	0	5	64	32	0	38	83	12	0	487
04:30 PM	9	96	9	0	9	109	6	0	2	68	35	0	29	77	21	0	470
04:45 PM	13	110	7	0	11	120	1	0	6	104	40	0	44	62	21	0	539
Total	66	398	21	0	42	453	19	0	15	334	157	0	142	304	68	0	2019
05:00 PM	8	105	6	0	11	96	9	0	7	86	52	0	37	81	17	0	515
05:15 PM	7	104	3	0	13	110	4	0	4	78	48	0	46	85	17	0	519
05:30 PM	9	132	7	0	7	103	6	0	8	92	43	0	42	85	18	0	552
05:45 PM	11	102	10	0	5	117	5	0	6	64	38	0	56	93	18	0	525
Total	35	443	26	0	36	426	24	0	25	320	181	0	181	344	70	0	2111
Grand Total	101	841	47	0	78	879	43	0	40	654	338	0	323	648	138	0	4130
Apprch %	10.2	85	4.8	0	7.8	87.9	4.3	0	3.9	63.4	32.8	0	29.1	58.4	12.4	0	
Total %	2.4	20.4	1.1	0	1.9	21.3	1	0	1	15.8	8.2	0	7.8	15.7	3.3	0	
Cars	101	819	45	0	77	871	40	0	38	639	330	0	318	631	137	0	4046
% Cars	100	97.4	95.7	0	98.7	99.1	93	0	95	97.7	97.6	0	98.5	97.4	99.3	0	98
Heavy Vehicles	0	22	2	0	1	8	3	0	2	15	8	0	5	17	1	0	84
% Heavy Vehicles	0	2.6	4.3	0	1.3	0.9	7	0	5	2.3	2.4	0	1.5	2.6	0.7	0	2

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	110	7	0	130	11	120	1	0	132	6	104	40	0	150	44	62	21	0	127	539
05:00 PM	8	105	6	0	119	11	96	9	0	116	7	86	52	0	145	37	81	17	0	135	515
05:15 PM	7	104	3	0	114	13	110	4	0	127	4	78	48	0	130	46	85	17	0	148	519
05:30 PM	9	132	7	0	148	7	103	6	0	116	8	92	43	0	143	42	85	18	0	145	552
Total Volume	37	451	23	0	511	42	429	20	0	491	25	360	183	0	568	169	313	73	0	555	2125
% App. Total	7.2	88.3	4.5	0		8.6	87.4	4.1	0		4.4	63.4	32.2	0		30.5	56.4	13.2	0		
PHF	.712	.854	.821	.000	.863	.808	.894	.556	.000	.930	.781	.865	.880	.000	.947	.918	.921	.869	.000	.938	.962
Cars	37	438	22	0	497	41	428	20	0	489	24	353	179	0	556	168	309	73	0	550	2092
% Cars	100	97.1	95.7	0	97.3	97.6	99.8	100	0	99.6	96.0	98.1	97.8	0	97.9	99.4	98.7	100	0	99.1	98.4
Heavy Vehicles	0	13	1	0	14	1	1	0	0	2	1	7	4	0	12	1	4	0	0	5	33
% Heavy Vehicles	0	2.9	4.3	0	2.7	2.4	0.2	0	0	0.4	4.0	1.9	2.2	0	2.1	0.6	1.3	0	0	0.9	1.6

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

N/S: Main Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 EE
Site Code : TBA
Start Date : 2/27/2014

Groups Printed- Cars

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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
04:00 PM	29	89	2	0	14	103	3	0	2	91	47	0	29	73	14	0	496
04:15 PM	15	97	3	0	8	117	7	0	4	64	31	0	37	81	12	0	476
04:30 PM	9	95	9	0	9	106	6	0	2	68	35	0	28	76	20	0	463
04:45 PM	13	107	7	0	10	119	1	0	5	103	40	0	44	60	21	0	530
Total	66	388	21	0	41	445	17	0	13	326	153	0	138	290	67	0	1965
05:00 PM	8	98	6	0	11	96	9	0	7	86	51	0	36	81	17	0	506
05:15 PM	7	102	3	0	13	110	4	0	4	75	47	0	46	85	17	0	513
05:30 PM	9	131	6	0	7	103	6	0	8	89	41	0	42	83	18	0	543
05:45 PM	11	100	9	0	5	117	4	0	6	63	38	0	56	92	18	0	519
Total	35	431	24	0	36	426	23	0	25	313	177	0	180	341	70	0	2081
Grand Total	101	819	45	0	77	871	40	0	38	639	330	0	318	631	137	0	4046
Apprch %	10.5	84.9	4.7	0	7.8	88.2	4	0	3.8	63.5	32.8	0	29.3	58.1	12.6	0	
Total %	2.5	20.2	1.1	0	1.9	21.5	1	0	0.9	15.8	8.2	0	7.9	15.6	3.4	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	107	7	0	127	10	119	1	0	130	5	103	40	0	148	44	60	21	0	125	530
05:00 PM	8	98	6	0	112	11	96	9	0	116	7	86	51	0	144	36	81	17	0	134	506
05:15 PM	7	102	3	0	112	13	110	4	0	127	4	75	47	0	126	46	85	17	0	148	513
05:30 PM	9	131	6	0	146	7	103	6	0	116	8	89	41	0	138	42	83	18	0	143	543
Total Volume	37	438	22	0	497	41	428	20	0	489	24	353	179	0	556	168	309	73	0	550	2092
% App. Total	7.4	88.1	4.4	0		8.4	87.5	4.1	0		4.3	63.5	32.2	0		30.5	56.2	13.3	0		
PHF	.712	.836	.786	.000	.851	.788	.899	.556	.000	.940	.750	.857	.877	.000	.939	.913	.909	.869	.000	.929	.963

N/S: Main Street
E/W: Union Street (Route 135)
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Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
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File Name : 143741 EE
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) 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
04:00 PM	0	4	0	0	0	2	0	0	0	7	3	0	2	9	0	0	27
04:15 PM	0	2	0	0	0	2	2	0	1	0	1	0	1	2	0	0	11
04:30 PM	0	1	0	0	0	3	0	0	0	0	0	0	1	1	1	0	7
04:45 PM	0	3	0	0	1	1	0	0	1	1	0	0	0	2	0	0	9
Total	0	10	0	0	1	8	2	0	2	8	4	0	4	14	1	0	54
05:00 PM	0	7	0	0	0	0	0	0	0	0	1	0	1	0	0	0	9
05:15 PM	0	2	0	0	0	0	0	0	0	3	1	0	0	0	0	0	6
05:30 PM	0	1	1	0	0	0	0	0	0	3	2	0	0	2	0	0	9
05:45 PM	0	2	1	0	0	0	1	0	0	1	0	0	0	1	0	0	6
Total	0	12	2	0	0	0	1	0	0	7	4	0	1	3	0	0	30
Grand Total	0	22	2	0	1	8	3	0	2	15	8	0	5	17	1	0	84
Apprch %	0	91.7	8.3	0	8.3	66.7	25	0	8	60	32	0	21.7	73.9	4.3	0	
Total %	0	26.2	2.4	0	1.2	9.5	3.6	0	2.4	17.9	9.5	0	6	20.2	1.2	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	4	0	0	4	0	2	0	0	2	0	7	3	0	10	2	9	0	0	11	27
04:15 PM	0	2	0	0	2	0	2	2	0	4	1	0	1	0	2	1	2	0	0	3	11
04:30 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	1	1	0	3	7
04:45 PM	0	3	0	0	3	1	1	0	0	2	1	1	0	0	2	0	2	0	0	2	9
Total Volume	0	10	0	0	10	1	8	2	0	11	2	8	4	0	14	4	14	1	0	19	54
% App. Total	0	100	0	0		9.1	72.7	18.2	0		14.3	57.1	28.6	0		21.1	73.7	5.3	0		
PHF	.000	.625	.000	.000	.625	.250	.667	.250	.000	.688	.500	.286	.333	.000	.350	.500	.389	.250	.000	.432	.500

N/S: Main Street
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File Name : 143741 EE
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Peds and Bikes

	Main Street From North				Union Street (Route 135) From East				Main Street From South				Union Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3
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	1	0	0	0	0	1
05:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	2
Grand Total	0	0	0	4	0	0	0	0	0	0	0	1	0	0	0	0	5
Apprch %	0	0	0	100	0	0	0	0	0	0	0	100	0	0	0	0	
Total %	0	0	0	80	0	0	0	0	0	0	0	20	0	0	0	0	

	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
% App. Total	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.750	.750	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.750

N/S: Main Street
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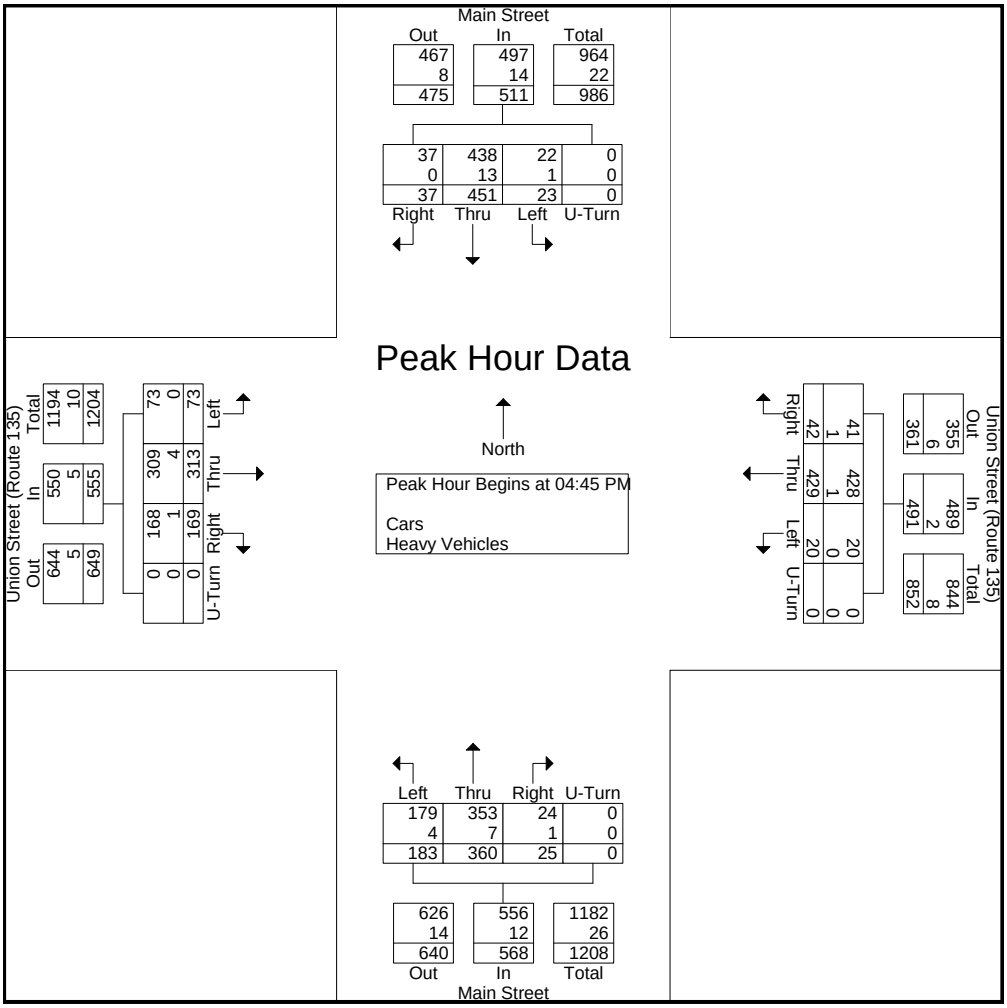
	Main Street From North					Union Street (Route 135) From East					Main Street From South					Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	13	110	7	0	130	11	120	1	0	132	6	104	40	0	150	44	62	21	0	127	539
05:00 PM	8	105	6	0	119	11	96	9	0	116	7	86	52	0	145	37	81	17	0	135	515
05:15 PM	7	104	3	0	114	13	110	4	0	127	4	78	48	0	130	46	85	17	0	148	519
05:30 PM	9	132	7	0	148	7	103	6	0	116	8	92	43	0	143	42	85	18	0	145	552
Total Volume	37	451	23	0	511	42	429	20	0	491	25	360	183	0	568	169	313	73	0	555	2125
% App. Total	7.2	88.3	4.5	0		8.6	87.4	4.1	0		4.4	63.4	32.2	0		30.5	56.4	13.2	0		
PHF	.712	.854	.821	.000	.863	.808	.894	.556	.000	.930	.781	.865	.880	.000	.947	.918	.921	.869	.000	.938	.962
Cars	37	438	22	0	497	41	428	20	0	489	24	353	179	0	556	168	309	73	0	550	2092
% Cars	100	97.1	95.7	0	97.3	97.6	99.8	100	0	99.6	96.0	98.1	97.8	0	97.9	99.4	98.7	100	0	99.1	98.4
Heavy Vehicles	0	13	1	0	14	1	1	0	0	2	1	7	4	0	12	1	4	0	0	5	33
% Heavy Vehicles	0	2.9	4.3	0	2.7	2.4	0.2	0	0	0.4	4.0	1.9	2.2	0	2.1	0.6	1.3	0	0	0.9	1.6



N/S: Homer Avenue/ Chestnut Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

PRECISION DATA INDUSTRIES, LLC
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File Name : 143741 F
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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	2	10	30	0	12	53	17	0	85	10	9	0	1	140	1	0	370
07:15 AM	0	7	20	0	18	76	41	0	103	15	11	0	3	174	0	0	468
07:30 AM	2	6	25	0	12	75	29	0	111	13	9	0	6	128	1	0	417
07:45 AM	1	8	25	0	11	71	26	0	112	10	14	0	2	155	0	0	435
Total	5	31	100	0	53	275	113	0	411	48	43	0	12	597	2	0	1690
08:00 AM	2	15	25	0	16	61	39	0	101	20	8	0	4	160	0	0	451
08:15 AM	2	10	15	0	25	65	25	0	78	18	3	0	5	109	1	0	356
08:30 AM	2	22	21	0	24	61	31	0	90	24	3	0	4	118	1	0	401
08:45 AM	2	4	21	0	20	54	17	0	79	14	9	0	23	124	1	0	368
Total	8	51	82	0	85	241	112	0	348	76	23	0	36	511	3	0	1576
Grand Total	13	82	182	0	138	516	225	0	759	124	66	0	48	1108	5	0	3266
Apprch %	4.7	29.6	65.7	0	15.7	58.7	25.6	0	80	13.1	7	0	4.1	95.4	0.4	0	
Total %	0.4	2.5	5.6	0	4.2	15.8	6.9	0	23.2	3.8	2	0	1.5	33.9	0.2	0	
Cars	13	76	172	0	124	488	214	0	749	114	62	0	28	1081	5	0	3126
% Cars	100	92.7	94.5	0	89.9	94.6	95.1	0	98.7	91.9	93.9	0	58.3	97.6	100	0	95.7
Heavy Vehicles	0	6	10	0	14	28	11	0	10	10	4	0	20	27	0	0	140
% Heavy Vehicles	0	7.3	5.5	0	10.1	5.4	4.9	0	1.3	8.1	6.1	0	41.7	2.4	0	0	4.3

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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	7	20	0	27	18	76	41	0	135	103	15	11	0	129	3	174	0	0	177	468
07:30 AM	2	6	25	0	33	12	75	29	0	116	111	13	9	0	133	6	128	1	0	135	417
07:45 AM	1	8	25	0	34	11	71	26	0	108	112	10	14	0	136	2	155	0	0	157	435
08:00 AM	2	15	25	0	42	16	61	39	0	116	101	20	8	0	129	4	160	0	0	164	451
Total Volume	5	36	95	0	136	57	283	135	0	475	427	58	42	0	527	15	617	1	0	633	1771
% App. Total	3.7	26.5	69.9	0		12	59.6	28.4	0		81	11	8	0		2.4	97.5	0.2	0		
PHF	.625	.600	.950	.000	.810	.792	.931	.823	.000	.880	.953	.725	.750	.000	.969	.625	.886	.250	.000	.894	.946
Cars	5	34	91	0	130	50	269	129	0	448	423	52	39	0	514	13	601	1	0	615	1707
% Cars	100	94.4	95.8	0	95.6	87.7	95.1	95.6	0	94.3	99.1	89.7	92.9	0	97.5	86.7	97.4	100	0	97.2	96.4
Heavy Vehicles	0	2	4	0	6	7	14	6	0	27	4	6	3	0	13	2	16	0	0	18	64
% Heavy Vehicles	0	5.6	4.2	0	4.4	12.3	4.9	4.4	0	5.7	0.9	10.3	7.1	0	2.5	13.3	2.6	0	0	2.8	3.6

N/S: Homer Avenue/ Chestnut Street
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Page No : 1

Groups Printed- Cars

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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	2	10	27	0	11	50	14	0	81	9	8	0	0	139	1	0	352
07:15 AM	0	7	18	0	12	76	36	0	101	12	10	0	3	168	0	0	443
07:30 AM	2	6	23	0	12	71	29	0	109	12	9	0	4	126	1	0	404
07:45 AM	1	7	25	0	10	65	26	0	112	9	12	0	2	152	0	0	421
Total	5	30	93	0	45	262	105	0	403	42	39	0	9	585	2	0	1620
08:00 AM	2	14	25	0	16	57	38	0	101	19	8	0	4	155	0	0	439
08:15 AM	2	8	15	0	22	59	24	0	78	17	3	0	4	105	1	0	338
08:30 AM	2	20	19	0	23	60	30	0	88	22	3	0	3	112	1	0	383
08:45 AM	2	4	20	0	18	50	17	0	79	14	9	0	8	124	1	0	346
Total	8	46	79	0	79	226	109	0	346	72	23	0	19	496	3	0	1506
Grand Total	13	76	172	0	124	488	214	0	749	114	62	0	28	1081	5	0	3126
Apprch %	5	29.1	65.9	0	15	59.1	25.9	0	81	12.3	6.7	0	2.5	97	0.4	0	
Total %	0.4	2.4	5.5	0	4	15.6	6.8	0	24	3.6	2	0	0.9	34.6	0.2	0	

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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	7	18	0	25	12	76	36	0	124	101	12	10	0	123	3	168	0	0	171	443
07:30 AM	2	6	23	0	31	12	71	29	0	112	109	12	9	0	130	4	126	1	0	131	404
07:45 AM	1	7	25	0	33	10	65	26	0	101	112	9	12	0	133	2	152	0	0	154	421
08:00 AM	2	14	25	0	41	16	57	38	0	111	101	19	8	0	128	4	155	0	0	159	439
Total Volume	5	34	91	0	130	50	269	129	0	448	423	52	39	0	514	13	601	1	0	615	1707
% App. Total	3.8	26.2	70	0		11.2	60	28.8	0		82.3	10.1	7.6	0		2.1	97.7	0.2	0		
PHF	.625	.607	.910	.000	.793	.781	.885	.849	.000	.903	.944	.684	.813	.000	.966	.813	.894	.250	.000	.899	.963

PRECISION
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N/S: Homer Avenue/ Chestnut Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

File Name : 143741 F
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Heavy Vehicles

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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	3	0	1	3	3	0	4	1	1	0	1	1	0	0	18
07:15 AM	0	0	2	0	6	0	5	0	2	3	1	0	0	6	0	0	25
07:30 AM	0	0	2	0	0	4	0	0	2	1	0	0	2	2	0	0	13
07:45 AM	0	1	0	0	1	6	0	0	0	1	2	0	0	3	0	0	14
Total	0	1	7	0	8	13	8	0	8	6	4	0	3	12	0	0	70
08:00 AM	0	1	0	0	0	4	1	0	0	1	0	0	0	5	0	0	12
08:15 AM	0	2	0	0	3	6	1	0	0	1	0	0	1	4	0	0	18
08:30 AM	0	2	2	0	1	1	1	0	2	2	0	0	1	6	0	0	18
08:45 AM	0	0	1	0	2	4	0	0	0	0	0	0	15	0	0	0	22
Total	0	5	3	0	6	15	3	0	2	4	0	0	17	15	0	0	70
Grand Total	0	6	10	0	14	28	11	0	10	10	4	0	20	27	0	0	140
Apprch %	0	37.5	62.5	0	26.4	52.8	20.8	0	41.7	41.7	16.7	0	42.6	57.4	0	0	
Total %	0	4.3	7.1	0	10	20	7.9	0	7.1	7.1	2.9	0	14.3	19.3	0	0	

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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	3	0	3	1	3	3	0	7	4	1	1	0	6	1	1	0	0	2	18
07:15 AM	0	0	2	0	2	6	0	5	0	11	2	3	1	0	6	0	6	0	0	6	25
07:30 AM	0	0	2	0	2	0	4	0	0	4	2	1	0	0	3	2	2	0	0	4	13
07:45 AM	0	1	0	0	1	1	6	0	0	7	0	1	2	0	3	0	3	0	0	3	14
Total Volume	0	1	7	0	8	8	13	8	0	29	8	6	4	0	18	3	12	0	0	15	70
% App. Total	0	12.5	87.5	0		27.6	44.8	27.6	0		44.4	33.3	22.2	0		20	80	0	0		
PHF	.000	.250	.583	.000	.667	.333	.542	.400	.000	.659	.500	.500	.500	.000	.750	.375	.500	.000	.000	.625	.700

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Groups Printed- Peds and Bikes

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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	7	0	0	0	2	0	0	0	0	0	0	0	16	25
07:15 AM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	17	30
07:30 AM	0	0	0	13	0	0	0	0	0	0	0	0	0	0	0	19	32
07:45 AM	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	32	65
Total	0	0	0	66	0	0	0	2	0	0	0	0	0	0	0	84	152
08:00 AM	0	0	0	26	0	0	0	0	0	0	0	0	0	0	0	28	54
08:15 AM	0	0	0	33	0	0	0	0	0	0	0	0	0	0	0	33	66
08:30 AM	0	0	0	31	0	0	0	1	0	0	0	0	0	0	0	33	65
08:45 AM	0	0	0	18	0	0	0	2	0	0	0	0	0	0	0	23	43
Total	0	0	0	108	0	0	0	3	0	0	0	0	0	0	0	117	228
Grand Total	0	0	0	174	0	0	0	5	0	0	0	0	0	0	0	201	380
Apprch %	0	0	0	100	0	0	0	100	0	0	0	0	0	0	0	100	
Total %	0	0	0	45.8	0	0	0	1.3	0	0	0	0	0	0	0	52.9	

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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 07:45 AM																					
07:45 AM	0	0	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	32	32	65
08:00 AM	0	0	0	26	26	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	54
08:15 AM	0	0	0	33	33	0	0	0	0	0	0	0	0	0	0	0	0	0	33	33	66
08:30 AM	0	0	0	31	31	0	0	0	1	1	0	0	0	0	0	0	0	0	33	33	65
Total Volume	0	0	0	123	123	0	0	0	1	1	0	0	0	0	0	0	0	0	126	126	250
% App. Total	0	0	0	100		0	0	0	100		0	0	0	0		0	0	0	100		
PHF	.000	.000	.000	.932	.932	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.955	.955	.947

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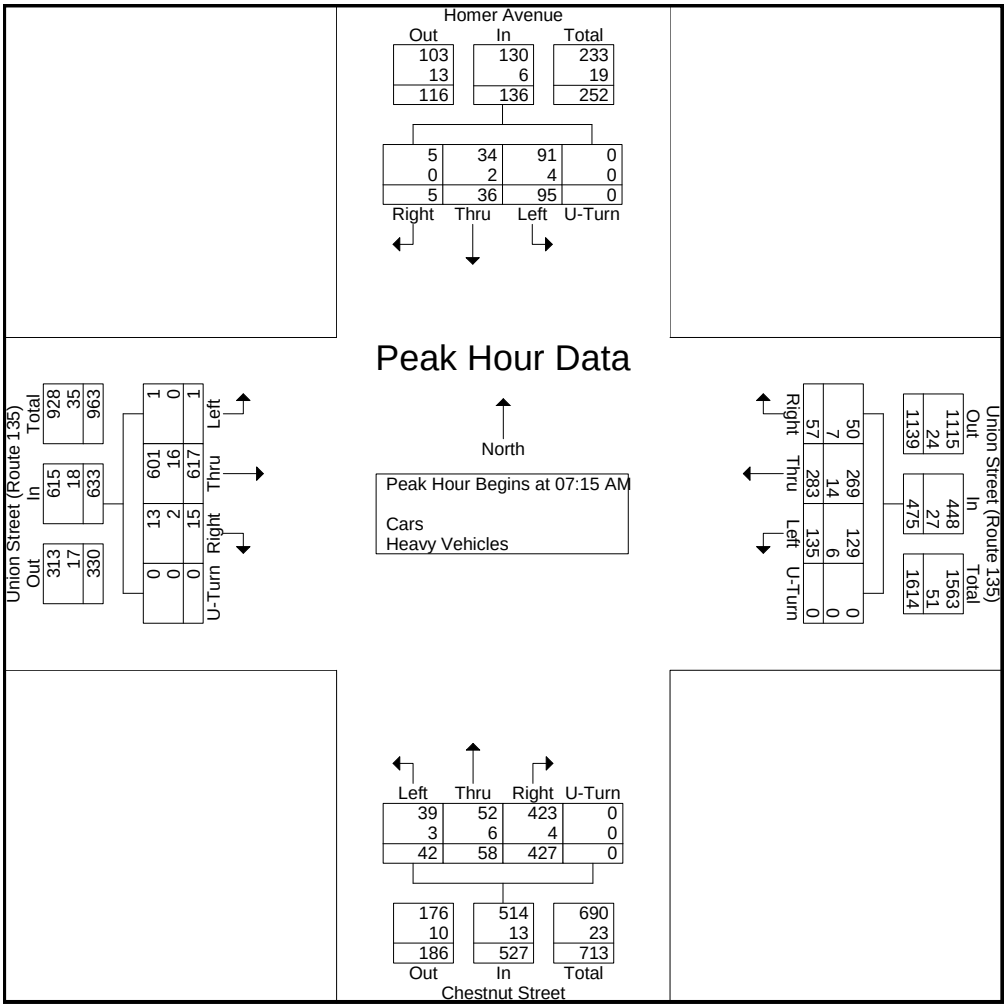
	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) From West					
Start Time	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Right	Thru	Left	U-Turn	App. Total	Int. Total
Peak 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	7	20	0	27	18	76	41	0	135	103	15	11	0	129	3	174	0	0	177	468
07:30 AM	2	6	25	0	33	12	75	29	0	116	111	13	9	0	133	6	128	1	0	135	417
07:45 AM	1	8	25	0	34	11	71	26	0	108	112	10	14	0	136	2	155	0	0	157	435
08:00 AM	2	15	25	0	42	16	61	39	0	116	101	20	8	0	129	4	160	0	0	164	451
Total Volume	5	36	95	0	136	57	283	135	0	475	427	58	42	0	527	15	617	1	0	633	1771
% App. Total	3.7	26.5	69.9	0		12	59.6	28.4	0		81	11	8	0		2.4	97.5	0.2	0		
PHF	.625	.600	.950	.000	.810	.792	.931	.823	.000	.880	.953	.725	.750	.000	.969	.625	.886	.250	.000	.894	.946
Cars	5	34	91	0	130	50	269	129	0	448	423	52	39	0	514	13	601	1	0	615	1707
% Cars	100	94.4	95.8	0	95.6	87.7	95.1	95.6	0	94.3	99.1	89.7	92.9	0	97.5	86.7	97.4	100	0	97.2	96.4
Heavy Vehicles	0	2	4	0	6	7	14	6	0	27	4	6	3	0	13	2	16	0	0	18	64
% Heavy Vehicles	0	5.6	4.2	0	4.4	12.3	4.9	4.4	0	5.7	0.9	10.3	7.1	0	2.5	13.3	2.6	0	0	2.8	3.6



N/S: Homer Avenue/ Chestnut Street
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File Name : 143741 FF
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Groups Printed- Cars - Heavy Vehicles

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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
04:00 PM	5	20	28	0	21	103	66	0	40	18	7	0	17	65	4	0	394
04:15 PM	5	10	22	0	17	100	58	0	40	10	10	0	10	74	3	0	359
04:30 PM	5	14	21	0	16	109	69	0	36	11	8	0	2	82	3	0	376
04:45 PM	2	12	24	0	20	107	53	0	37	11	3	0	10	66	0	0	345
Total	17	56	95	0	74	419	246	0	153	50	28	0	39	287	10	0	1474
05:00 PM	1	22	18	0	21	98	62	0	50	11	9	0	7	84	0	0	383
05:15 PM	3	18	24	0	19	107	81	0	54	13	5	0	4	88	0	0	416
05:30 PM	3	28	26	0	22	103	78	0	39	12	6	0	3	94	3	0	417
05:45 PM	0	10	26	0	21	111	69	0	48	6	2	0	8	89	2	0	392
Total	7	78	94	0	83	419	290	0	191	42	22	0	22	355	5	0	1608
Grand Total	24	134	189	0	157	838	536	0	344	92	50	0	61	642	15	0	3082
Apprch %	6.9	38.6	54.5	0	10.3	54.7	35	0	70.8	18.9	10.3	0	8.5	89.4	2.1	0	
Total %	0.8	4.3	6.1	0	5.1	27.2	17.4	0	11.2	3	1.6	0	2	20.8	0.5	0	
Cars	22	130	184	0	155	828	529	0	341	91	49	0	47	632	14	0	3022
% Cars	91.7	97	97.4	0	98.7	98.8	98.7	0	99.1	98.9	98	0	77	98.4	93.3	0	98.1
Heavy Vehicles	2	4	5	0	2	10	7	0	3	1	1	0	14	10	1	0	60
% Heavy Vehicles	8.3	3	2.6	0	1.3	1.2	1.3	0	0.9	1.1	2	0	23	1.6	6.7	0	1.9

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	22	18	0	41	21	98	62	0	181	50	11	9	0	70	7	84	0	0	91	383
05:15 PM	3	18	24	0	45	19	107	81	0	207	54	13	5	0	72	4	88	0	0	92	416
05:30 PM	3	28	26	0	57	22	103	78	0	203	39	12	6	0	57	3	94	3	0	100	417
05:45 PM	0	10	26	0	36	21	111	69	0	201	48	6	2	0	56	8	89	2	0	99	392
Total Volume	7	78	94	0	179	83	419	290	0	792	191	42	22	0	255	22	355	5	0	382	1608
% App. Total	3.9	43.6	52.5	0		10.5	52.9	36.6	0		74.9	16.5	8.6	0		5.8	92.9	1.3	0		
PHF	.583	.696	.904	.000	.785	.943	.944	.895	.000	.957	.884	.808	.611	.000	.885	.688	.944	.417	.000	.955	.964
Cars	7	76	92	0	175	82	416	287	0	785	190	42	22	0	254	22	350	5	0	377	1591
% Cars	100	97.4	97.9	0	97.8	98.8	99.3	99.0	0	99.1	99.5	100	100	0	99.6	100	98.6	100	0	98.7	98.9
Heavy Vehicles	0	2	2	0	4	1	3	3	0	7	1	0	0	0	1	0	5	0	0	5	17
% Heavy Vehicles	0	2.6	2.1	0	2.2	1.2	0.7	1.0	0	0.9	0.5	0	0	0	0.4	0	1.4	0	0	1.3	1.1

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Groups Printed- Cars

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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
04:00 PM	5	19	28	0	21	102	65	0	38	17	7	0	5	64	4	0	375
04:15 PM	4	9	22	0	17	98	57	0	40	10	9	0	8	74	2	0	350
04:30 PM	5	14	19	0	16	105	67	0	36	11	8	0	2	81	3	0	367
04:45 PM	1	12	23	0	19	107	53	0	37	11	3	0	10	63	0	0	339
Total	15	54	92	0	73	412	242	0	151	49	27	0	25	282	9	0	1431
05:00 PM	1	22	18	0	21	97	61	0	50	11	9	0	7	84	0	0	381
05:15 PM	3	17	23	0	19	106	81	0	54	13	5	0	4	87	0	0	412
05:30 PM	3	27	25	0	22	103	78	0	39	12	6	0	3	91	3	0	412
05:45 PM	0	10	26	0	20	110	67	0	47	6	2	0	8	88	2	0	386
Total	7	76	92	0	82	416	287	0	190	42	22	0	22	350	5	0	1591
Grand Total	22	130	184	0	155	828	529	0	341	91	49	0	47	632	14	0	3022
Apprch %	6.5	38.7	54.8	0	10.3	54.8	35	0	70.9	18.9	10.2	0	6.8	91.2	2	0	
Total %	0.7	4.3	6.1	0	5.1	27.4	17.5	0	11.3	3	1.6	0	1.6	20.9	0.5	0	

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	22	18	0	41	21	97	61	0	179	50	11	9	0	70	7	84	0	0	91	381
05:15 PM	3	17	23	0	43	19	106	81	0	206	54	13	5	0	72	4	87	0	0	91	412
05:30 PM	3	27	25	0	55	22	103	78	0	203	39	12	6	0	57	3	91	3	0	97	412
05:45 PM	0	10	26	0	36	20	110	67	0	197	47	6	2	0	55	8	88	2	0	98	386
Total Volume	7	76	92	0	175	82	416	287	0	785	190	42	22	0	254	22	350	5	0	377	1591
% App. Total	4	43.4	52.6	0		10.4	53	36.6	0		74.8	16.5	8.7	0		5.8	92.8	1.3	0		
PHF	.583	.704	.885	.000	.795	.932	.945	.886	.000	.953	.880	.808	.611	.000	.882	.688	.962	.417	.000	.962	.965

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Groups Printed- Heavy Vehicles

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) 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
04:00 PM	0	1	0	0	0	1	1	0	2	1	0	0	12	1	0	0	19
04:15 PM	1	1	0	0	0	2	1	0	0	0	1	0	2	0	1	0	9
04:30 PM	0	0	2	0	0	4	2	0	0	0	0	0	0	1	0	0	9
04:45 PM	1	0	1	0	1	0	0	0	0	0	0	0	0	3	0	0	6
Total	2	2	3	0	1	7	4	0	2	1	1	0	14	5	1	0	43
05:00 PM	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	2
05:15 PM	0	1	1	0	0	1	0	0	0	0	0	0	0	1	0	0	4
05:30 PM	0	1	1	0	0	0	0	0	0	0	0	0	0	3	0	0	5
05:45 PM	0	0	0	0	1	1	2	0	1	0	0	0	0	1	0	0	6
Total	0	2	2	0	1	3	3	0	1	0	0	0	0	5	0	0	17
Grand Total	2	4	5	0	2	10	7	0	3	1	1	0	14	10	1	0	60
Apprch %	18.2	36.4	45.5	0	10.5	52.6	36.8	0	60	20	20	0	56	40	4	0	
Total %	3.3	6.7	8.3	0	3.3	16.7	11.7	0	5	1.7	1.7	0	23.3	16.7	1.7	0	

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	1	0	0	1	0	1	1	0	2	2	1	0	0	3	12	1	0	0	13	19
04:15 PM	1	1	0	0	2	0	2	1	0	3	0	0	1	0	1	2	0	1	0	3	9
04:30 PM	0	0	2	0	2	0	4	2	0	6	0	0	0	0	0	0	1	0	0	1	9
04:45 PM	1	0	1	0	2	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	6
Total Volume	2	2	3	0	7	1	7	4	0	12	2	1	1	0	4	14	5	1	0	20	43
% App. Total	28.6	28.6	42.9	0		8.3	58.3	33.3	0		50	25	25	0		70	25	5	0		
PHF	.500	.500	.375	.000	.875	.250	.438	.500	.000	.500	.250	.250	.250	.000	.333	.292	.417	.250	.000	.385	.566

N/S: Homer Avenue/ Chestnut Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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

File Name : 143741 FF
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

Groups Printed- Peds and Bikes

	Homer Avenue From North				Union Street (Route 135) From East				Chestnut Street From South				Union Street (Route 135) From West				
Start Time	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Right	Thru	Left	Peds	Int. Total
04:00 PM	0	0	0	19	0	0	0	1	0	0	0	0	0	0	0	36	56
04:15 PM	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	14	23
04:30 PM	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	20	30
04:45 PM	0	0	0	12	0	0	0	1	0	0	0	0	0	0	0	20	33
Total	0	0	0	50	0	0	0	2	0	0	0	0	0	0	0	90	142
05:00 PM	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	19	24
05:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	14	15
05:30 PM	0	0	0	7	0	0	0	1	0	0	0	1	0	0	0	16	25
05:45 PM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7	8
Total	0	0	0	14	0	0	0	1	0	0	0	1	0	0	0	56	72
Grand Total	0	0	0	64	0	0	0	3	0	0	0	1	0	0	0	146	214
Apprch %	0	0	0	100	0	0	0	100	0	0	0	100	0	0	0	100	
Total %	0	0	0	29.9	0	0	0	1.4	0	0	0	0.5	0	0	0	68.2	

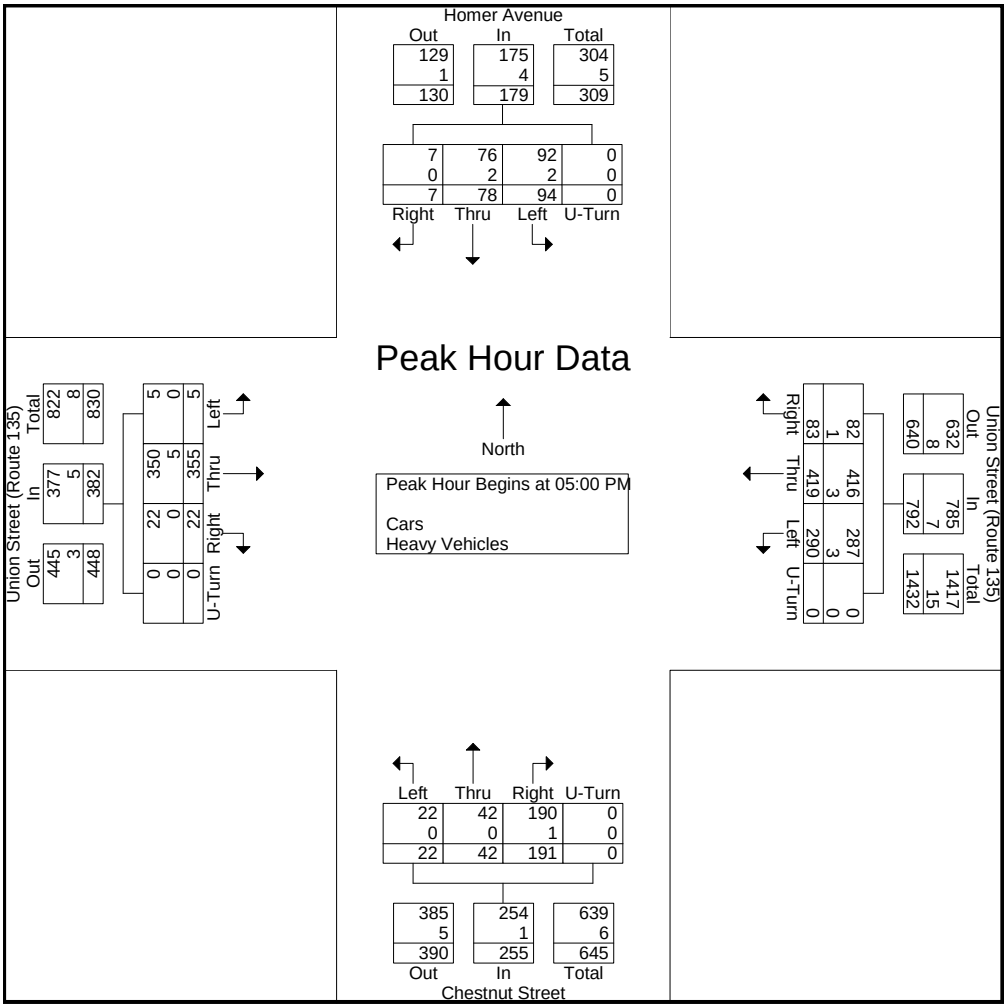
	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	19	19	0	0	0	1	1	0	0	0	0	0	0	0	0	36	36	56
04:15 PM	0	0	0	9	9	0	0	0	0	0	0	0	0	0	0	0	0	0	14	14	23
04:30 PM	0	0	0	10	10	0	0	0	0	0	0	0	0	0	0	0	0	0	20	20	30
04:45 PM	0	0	0	12	12	0	0	0	1	1	0	0	0	0	0	0	0	0	20	20	33
Total Volume	0	0	0	50	50	0	0	0	2	2	0	0	0	0	0	0	0	0	90	90	142
% App. Total	0	0	0	100		0	0	0	100		0	0	0	0		0	0	0	100		
PHF	.000	.000	.000	.658	.658	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.625	.625	.634

N/S: Homer Avenue/ Chestnut Street
E/W: Union Street (Route 135)
City, State: Ashland, MA
Client: Green/ S. Keenan

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

File Name : 143741 FF
Site Code : TBA
Start Date : 2/27/2014
Page No : 1

	Homer Avenue From North					Union Street (Route 135) From East					Chestnut Street From South					Union Street (Route 135) 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 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	22	18	0	41	21	98	62	0	181	50	11	9	0	70	7	84	0	0	91	383
05:15 PM	3	18	24	0	45	19	107	81	0	207	54	13	5	0	72	4	88	0	0	92	416
05:30 PM	3	28	26	0	57	22	103	78	0	203	39	12	6	0	57	3	94	3	0	100	417
05:45 PM	0	10	26	0	36	21	111	69	0	201	48	6	2	0	56	8	89	2	0	99	392
Total Volume	7	78	94	0	179	83	419	290	0	792	191	42	22	0	255	22	355	5	0	382	1608
% App. Total	3.9	43.6	52.5	0		10.5	52.9	36.6	0		74.9	16.5	8.6	0		5.8	92.9	1.3	0		
PHF	.583	.696	.904	.000	.785	.943	.944	.895	.000	.957	.884	.808	.611	.000	.885	.688	.944	.417	.000	.955	.964
Cars	7	76	92	0	175	82	416	287	0	785	190	42	22	0	254	22	350	5	0	377	1591
% Cars	100	97.4	97.9	0	97.8	98.8	99.3	99.0	0	99.1	99.5	100	100	0	99.6	100	98.6	100	0	98.7	98.9
Heavy Vehicles	0	2	2	0	4	1	3	3	0	7	1	0	0	0	1	0	5	0	0	5	17
% Heavy Vehicles	0	2.6	2.1	0	2.2	1.2	0.7	1.0	0	0.9	0.5	0	0	0	0.4	0	1.4	0	0	1.3	1.1



APPENDIX B- CRASH RATE CALCULATIONS

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

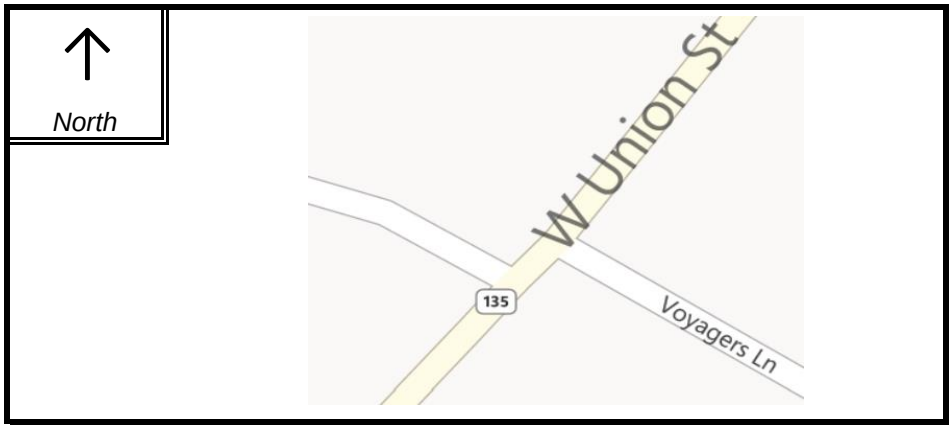
DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : √

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : MBTA Access/Voyagers Lane

INTERSECTION DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB	NB		
PEAK HOURLY VOLUMES (PM) :	569	806	134	14		**1,523**

" K " FACTOR : 0.09

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **16,554**

TOTAL # OF CRASHES : 3

OF YEARS : 3

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

CRASH RATE CALCULATION : **0.17**

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

Comments : The average crash rate for signalized intersections in District 3 is 0.89 MEV. West Union St E-\

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

DISTRICT : 3 UNSIGNALIZED : √ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : Olive Street

INTERSECTION DIAGRAM

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB			
PEAK HOURLY VOLUMES (PM) :	441	453	64			**958**

" K " FACTOR : 0.08

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **11,975**

TOTAL # OF CRASHES : 5

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.67**

CRASH RATE CALCULATION : **0.38**

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

Comments : The average crash rate for un-signalized intersections in District 3 is 0.66 MEV. W Union St E-

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

DISTRICT : 3 UNSIGNALIZED : √ SIGNALIZED :

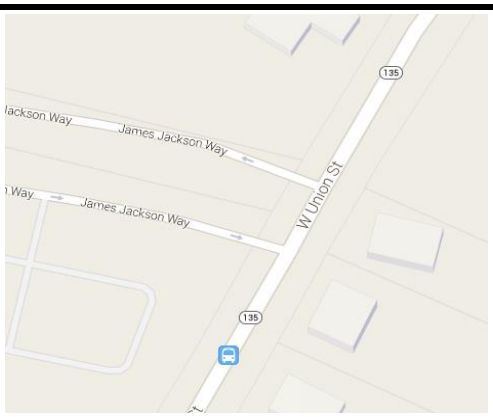
~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : James Jackson Way (Ashland Middle School)

INTERSECTION DIAGRAM

North



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB			
PEAK HOURLY VOLUMES (PM) :	542	829	33			**1,404**

" K " FACTOR : 0.09

INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **15,261**

TOTAL # OF CRASHES : 5

OF YEARS : 3

AVERAGE # OF CRASHES PER YEAR (**A**) : **1.67**

CRASH RATE CALCULATION : **0.30**

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

Comments : The average crash rate for unsignalized intersections in District 3 is 0.66 MEV.

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

DISTRICT : 3 UNSIGNALIZED : √ SIGNALIZED :

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : Frankland Road

INTERSECTION DIAGRAM

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB			
PEAK HOURLY VOLUMES (PM) :	499	800	48			**1,347**

" K " FACTOR : 0.09 INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **14,967**

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

CRASH RATE CALCULATION : **0.24** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : The average crash rate for un-signalized intersections in District 3 is 0.66 MEV. W Union St EE

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 7/9/2013

DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : √

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : Summer Street

INTERSECTION DIAGRAM

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	SB			
PEAK HOURLY VOLUMES (PM) :	617	591	368			**1,576**

" K " FACTOR : 0.09 INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **17,130**

TOTAL # OF CRASHES : 11 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **3.67**

CRASH RATE CALCULATION : **0.59** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : The average crash rate for signalized intersections in District 3 is 0.89 MEV.

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

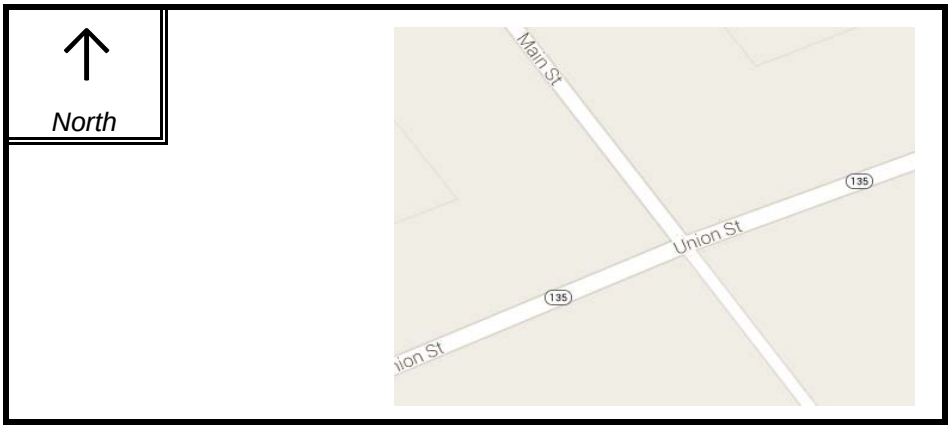
DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : √

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : Main Street

INTERSECTION DIAGRAM



PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	555	491	556	511		**2,113**

" K " FACTOR :	0.09	INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME :			**22,967**
TOTAL # OF CRASHES :	8	# OF YEARS :	3	AVERAGE # OF CRASHES PER YEAR (**A**) :	**2.67**

CRASH RATE CALCULATION : **0.32** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : The average crash rate for signalized intersections in District 3 is 0.89 MEV.

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

INTERSECTION CRASH RATE WORKSHEET

TOWN : Ashland COUNT DATE : 2/27/2014

DISTRICT : 3 UNSIGNALIZED : SIGNALIZED : √

~ INTERSECTION DATA ~

MAJOR STREET : Route 135 (West Union Street)

MINOR STREET(S) : Chestnut St/ Homer Ave

INTERSECTION DIAGRAM

PEAK HOUR VOLUMES

APPROACH :	1	2	3	4	5	Total Peak Hourly Approach Volume
DIRECTION :	EB	WB	NB	SB		
PEAK HOURLY VOLUMES (PM) :	382	792	255	179		**1,608**

" K " FACTOR : 0.09 INTERSECTION ADT (**V**) = TOTAL DAILY APPROACH VOLUME : **17,478**

TOTAL # OF CRASHES : 16 # OF YEARS : 3 AVERAGE # OF CRASHES PER YEAR (**A**) : **5.33**

CRASH RATE CALCULATION : **0.84** RATE = $\frac{(A * 1{,}000{,}000)}{(V * 365)}$

Comments : The average crash rate for signalized intersections in District 3 is 0.89 MEV.

Project Title & Date: Proposed 133 W. Union St. 40B Residential Development Traffic Analysis, Ashland, MA

APPENDIX C- TRIP GENERATION/ TRIP DISTRIBUTION CALCULATIONS AND SPECIFIC DEVELOPMENT PROJECTS

TRIP GENERATION WORKSHEET

LAND USE: *Apartment*
LAND USE CODE: 220 Independent Variable---Dwelling Units

PROJECT NAME: Ashland West Union 40B Traffic Study
PROJECT #: 13045 Number of Units: 140

WEEKDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	6.65	1.27	12.50	50%	50%	88
AM PEAK	0.51	0.10	1.02	20%	80%	78
PM PEAK	0.62	0.10	1.64	65%	35%	90
PK GEN AM	0.55	0.10	1.08	29%	71%	83
PK GEN PM	0.67	0.10	1.64	61%	39%	85

	BY AVERAGE			**BY REGRESSION**			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	931	466	466	972	486	486	0.87
AM PEAK	71	14	57	72	14	58	0.83
PM PEAK	87	57	30	95	62	33	0.77
PK GEN AM	77	22	55	78	23	55	0.82
PK GEN PM	94	57	37	99	60	39	0.80

SATURDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	6.39	2.84	8.40	50%	50%	16
PEAK HR	0.52	0.26	1.05	-	-	14

	BY AVERAGE			**BY REGRESSION**			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	895	448	448	843	422	422	0.85
PEAK HR	73	-	-	77	-	-	0.56

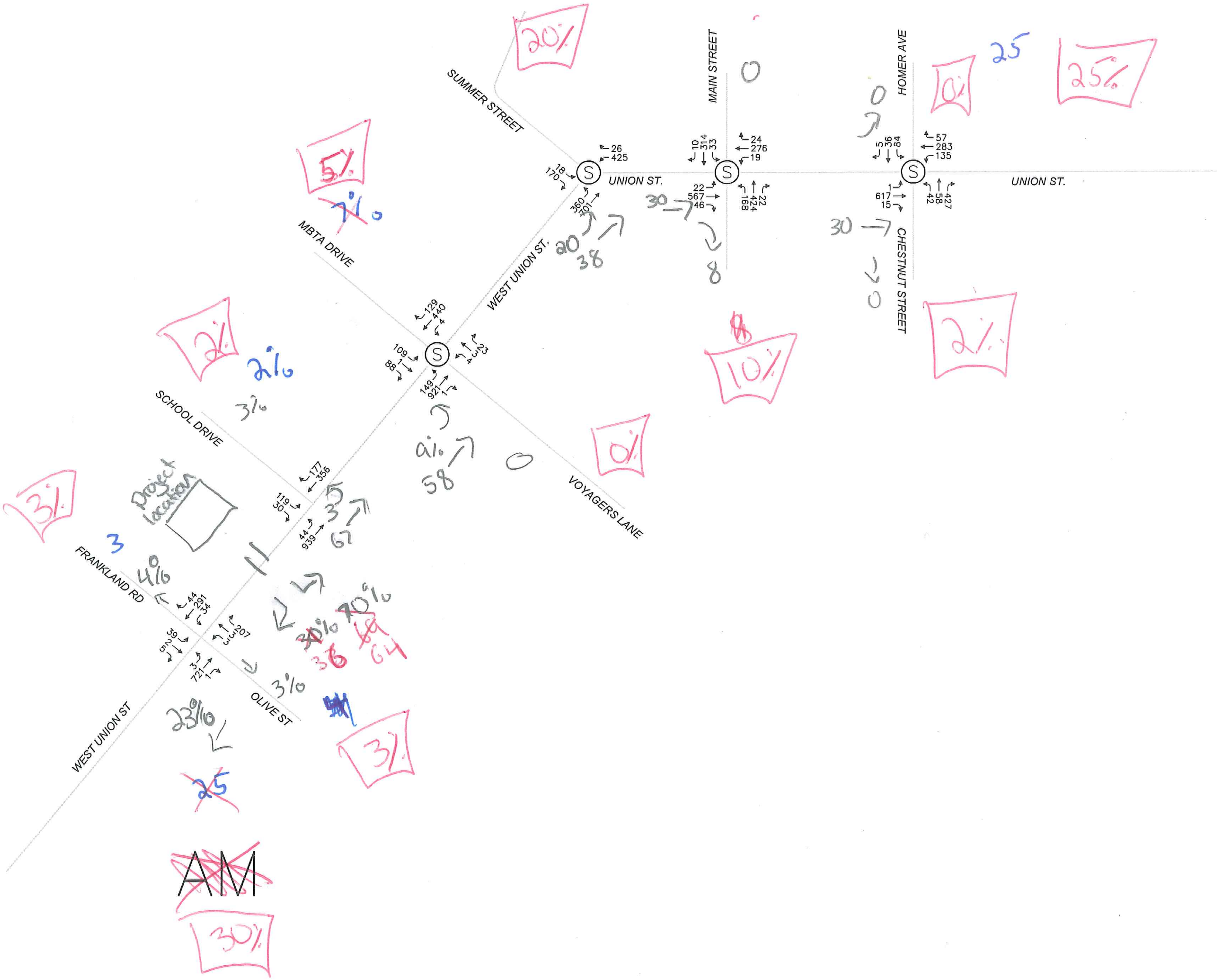
SUNDAY

RATES:	Total Trip Ends			Directional Dist.		Number
	Average	Low	High	Enter	Exit	of Studies
DAILY	5.86	3.21	7.53	50%	50%	14
PEAK HR	0.51	0.26	1.43	-	-	13

	BY AVERAGE			**BY REGRESSION**			
	Total	Enter	Exit	Total	Enter	Exit	R^2
DAILY	820	410	410	798	399	399	0.82
PEAK HR	71	-	-	*** Not Given ***			

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

Final

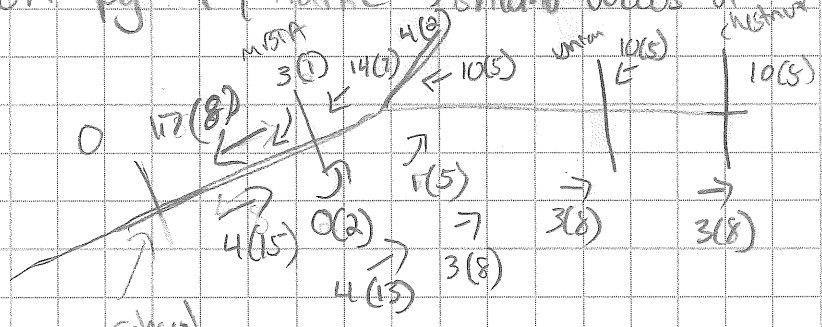

SUMMER STREET
UNION ST.
MAIN STREET
HOMER AVE
UNION ST.
CHESTNUT STREET
MBTA DRIVE
WEST UNION ST.
SCHOOL DRIVE
VOYAGERS LANE
FRANKLAND RD
OLIVE ST
WEST UNION ST
Project location
AM

GREEN INTERNATIONAL AFFILIATES, INC.
Civil & Structural Engineers
239 Littleton Road, Suite 3
WESTFORD, MA 01886
(978) 923-0400 (978) 923-0404 (Fax)

JOB Ashland 40B 13045
SHEET NO. 1 OF
CALCULATED BY SBK DATE 4/28/14
CHECKED BY DATE
SCALE NTS

Specific Development Trips

- 250 West Union Street - Nursing Home
  - no trip info
  - get from Bill
  - trip dist. done
- Rail District
  - peak trips pg 34 / Traffic Jefferson 2
    Figure 6
- Robert Hill Way
  - Colonial Drive
  - low trip volume, approx. 3 mi from nearest study intersection, 4 mi from project site
  - ⇒ leave out / include in background
- Ashland Woods
  - trips on pg 19 / Traffic - Ashland Woods 2



- Village of Americas
  - no trip info
  - trip gen / dist done
- 21 Main St
  - no traffic study done
  - include in background growth

36 Units / Approved

VOLLMER

Village of the Americas – Peer Review – Traffic

Vollmer Associates LLP has reviewed the September 2003 *Traffic Analysis/Functional Design Report* for Union Street at East Union Street and Union Street at Fountain Street, prepared by MS Transportation Systems, Inc. for Benchmark Engineering. The Functional Design Report examines vehicular and pedestrian activity and evaluates the need for traffic signal control at the intersections of Union Street/East Union Street and Union Street/Fountain Street. Vollmer also reviewed the October 2003 *Traffic Signal Management Study*, prepared by MS Transportation Systems, Inc. for Benchmark Engineering. The traffic signal study examines existing and potential traffic signal installations in an effort to establish fully operational and optimized signal equipment of the existing signal system along the corridors of Union Street and Main Street.

Vollmer offers the following comments:

Traffic Analysis/Functional Design Report

Design of Union Street/East Union Street/Waverly Street:

Pedestrian signal heads, crosswalks, and sidewalks should be considered for this location due to its proximity to the new high school.

Alternative 1:

1. Neither a WB-50 nor SU design vehicle can complete the East Union Street northbound right turn as proposed in Alternative 1. The WB-50 and the SU vehicle also cannot complete the Waverly Street westbound left turn of the Alternative 1 design.

2. Neither signal head F or G is within the cone of vision for the East Union Street northbound approach.

3. Both mast arms appear to be located on private property.

Alternative 2:

1. The YIELD condition, where vehicles on both approaches of East Union Street southbound merge, introduces a potentially dangerous condition. A driver must turn his head approximately 150 degrees to the right in order to have a view of oncoming traffic before merging.

2. Vollmer recommends that the proponent consider removing the free right turn lane in favor of an exclusive right turn lane at the intersection, perhaps with a smaller channelizing island. Vehicles using the channelized right turn should be require to YIELD to vehicles turning left from Waverly Street westbound. The intersection should be reanalyzed for this condition.

3. The proponent should show the locations of any driveways along East Union Street in order to detail the probable reconfigurations required.

Traffic Signal Management Study

1. The recommendations for Chestnut Street and Union Street indicate that signal heads are to be moved and/or replaced. However, the report does not indicate whether the design calculations for the strain pole foundations have been checked to confirm that the foundations will withstand the new dead, wind, and ice loads as configured.

2. The recommendations for Union Street and Main Street include the installation of dilemma zone detection on all approaches. Although the accident history shows several rear end collisions, Vollmer does not agree that this is an appropriate usage of dilemma zone detection. Dilemma zone detection is intended to protect motorists from a rear-end collision at *high speed* locations. Vollmer does not believe this location fits into that category. The proponent should indicate the posted speed limits and/or 85th-percentile speeds on both roadways. This information is not provided.

3. Although dilemma zone detection is recommended at the intersection of Union Street and Main Street, Figure 15 of the report does not show the spacing of the detectors. The proponent should indicate the spacing, either in graphic or text form. The distance between signalized intersections on some approaches may not be great enough to allow for dilemma zone detection.

4. The recommendations for Union Street and West Union Street/Summer Street include moving signal heads along the span wire, moving one signal head onto the span pole, and replacing one 3-section head located on a span pole with a 4-section head. The report does not indicate whether the design calculations for the strain pole foundations have been checked to confirm that the foundations will withstand the new dead, wind, and ice loads as configured.

<u>Chestnut Street at Union Street Plans:</u>

1. The Designer should verify that the existing strain pole foundations can withstand the new loads caused by the proposed signal head/sign configurations.

2. Will the signal be equipped for emergency preemption?

3. Because the stop line is located approximately 20 feet back from the crosswalk, Vollmer recommends installing an R10-6 sign (STOP HERE ON RED) on the Chestnut Street northbound approach.

4. Vollmer recommends moving the first pair of loop detectors on the Chestnut Street northbound approach north of the stop line so that any vehicle that does not stop at the prescribed location will still be detected by the signal.

103 Beds - 15,250 sf
Under Review

TABLE 8
SUMMARY OF LEVEL OF SERVICE ANALYSIS

Intersections	Existing Conditions Delay[a]	LOS[b]	95th Q[c]	No-Build Conditions Delay[a]	LOS[b]	95th Q[c]	Build Conditions Delay[a]	LOS[b]	95th Q[c]
AM Peak Hour									
West Union Street (Route 135) at Marathon Deli[1]									
WB Left/ Thru	9.6	A	0	9.8	A	0	-	-	-
NB Exit	15.1	C	0	15.9	C	0	-	-	-
West Union Street (Route 135) at Driveway 1 (Western Driveway)									
WB Left/ Thru	-	-	-	-	-	-	10.1	B	0
NB Exit	-	-	-	-	-	-	20.6	C	0
West Union Street (Route 135) at Driveway 2 (Eastern Driveway)									
WB Left/ Thru	-	-	-	-	-	-	10.2	B	0
NB Exit	-	-	-	-	-	-	23.8	C	0
West Union Street (Route 135) at Frankland Road/ Olive Street									
EB Left/Thru/ Right	8.0	A	0	8.0	A	0	8.1	A	0
WB Left/Thru/Right	9.8	A	0	10.1	A	0	10.1	B	0
NB Left	30.7	D	0	35.0	D	0	36.3	E	0
NB Thru/Right	26.3	D	100	32.3	D	125	32.7	D	125
SB Left	>100	F	225	>100	F	425	>100	F	425
SB Thru/Right	10.1	B	0	10.3	B	0	10.4	B	0
PM Peak Hour									
West Union Street (Route 135) at Marathon Deli[1]									
WB Left/ Thru	8.1	A	0	8.2	A	0	-	-	-
NB Exit	18.7	C	0	20.4	C	0	-	-	-
West Union Street (Route 135) at Driveway 1 (Western Driveway)									
WB Left/ Thru	-	-	-	-	-	-	8.3	A	0
NB Exit	-	-	-	-	-	-	30.5	D	25
West Union Street (Route 135) at Driveway 2 (Eastern Driveway)									
WB Left/ Thru	-	-	-	-	-	-	8.3	A	0
NB Exit	-	-	-	-	-	-	18.0	C	0
West Union Street (Route 135) at Frankland Road/ Olive Street									
EB Left/Thru/ Right	9.6	A	0	9.9	A	0	9.9	A	0
WB Left/Thru/Right	8.5	A	25	8.7	A	25	8.7	A	25
NB Left	57.9	F	0	72.9	F	0	81.6	F	0
NB Thru/Right	12.7	B	0	13.5	B	0	13.9	B	0
SB Left	>100	F	100	>100	F	175	>100	F	200
SB Thru/Right	28.2	D	0	29.6	D	0	30.9	D	0

[a] Avg. Total Delay for the Lane Group or Movement (sec/veh) [b] Level of Service [c] 95th Percentile Queue Length (ft)
Note:[1] The existing Marathon Deli driveway intersections with Rte 135 were analyzed as a single intersection under existing and no-build conditions.

The Level of Service (LOS) analysis indicated that:

- The site driveways will operate at acceptable levels of service during the morning and evening peak hours. Queue lengths for vehicles exiting the site will also be minimal during the morning and evening peak hours.

- Under Build condition, the intersection of West Union Street (Route 135) will continue to operate with little change in Level of Service as compared to No-Build conditions. Exiting movements from the side streets (Frankland Road and Olive Street) approaching West Union Street (Route 135) that currently experience long delays will continue to experience these long delays in the future, regardless of the proposed development.

The capacity analysis has thus indicated that traffic from the proposed #250 West Union Street development can be accommodated on study area intersections/roadways without creating significantly new traffic related operational deficiencies.

3. Safety Analysis

Adequate sight distance is an important safety consideration at intersections. As part of this study, a sight distance analysis was conducted at West Union Street (Route 135) relative to the proposed site driveways.

Stopping sight distance (SSD), which is 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 oncoming 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 (AASTO)[7]. SSD relates specifically to safety. As indicated in AASHTO, if CSD meets or exceeds the SSD criteria, then there is adequate safe sight distance available for motorists to avoid collisions.

The posted speed limit on West Union Street (Route 135) in the immediate area of site is 35 mph. AASHTO recommended minimum approach stopping sight distance (SSD) requirement for vehicles traveling at this speed is 250 feet. Speed data collected on West Union Street (Route 135) near the project indicated vehicles are traveling an average speed of approximately 44 mph and an 85th percentile speed of approximately 49 mph. For analysis purposes 45 mph and 50 mph were used. AASHTO recommended minimum approach stopping sight distance (SSD) requirement for vehicles

[7]. American Association of State Highway and Transportation Officials (AASHTO), A Policy on Geometric Design of Highways and Streets, Washington, D.C., 2004.

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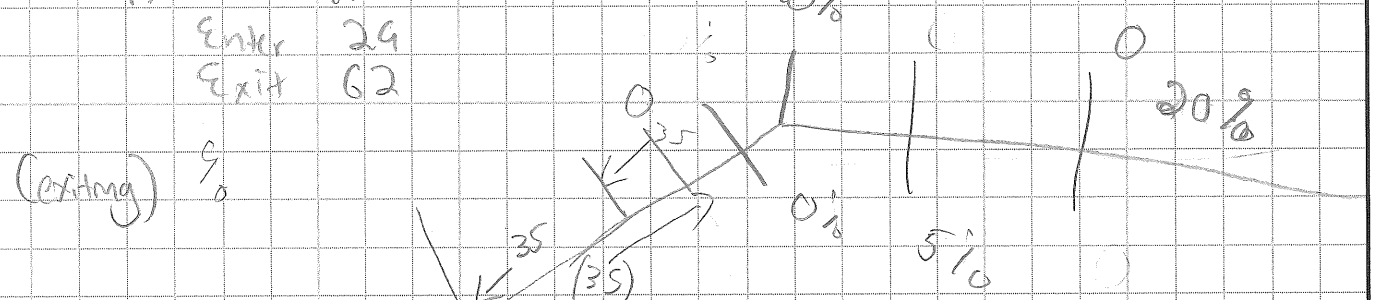
JOB Ashland 40B 13sus
SHEET NO. 1 OF 3
CALCULATED BY SBK DATE 5/1/14
CHECKED BY DATE
SCALE NTS

250 West Union Street

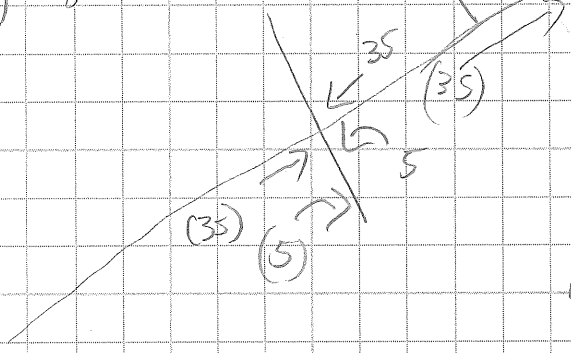
From 903 TIAS - final (MS trans)

Trips
Daily 584
Enter 292
Exit 292
AM 48
Enter 36
Exit 12
PM 91
Enter 29
Exit 62

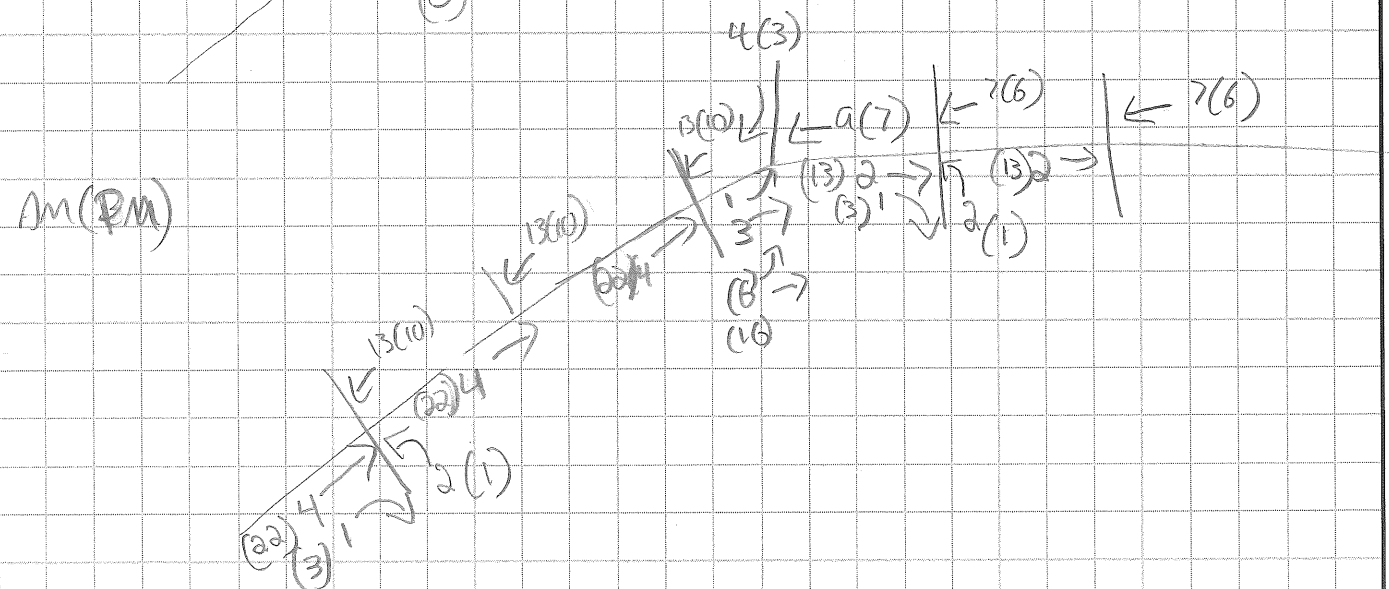
60% from west
5% from Gilwestreet
turn Left
NBL / EBR
35% WBT / EBT from east



(existing) %



AM (PM)



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JOB Ashland HOB
SHEET NO. 2 OF 3
CALCULATED BY SBK DATE 5/1/14
CHECKED BY ______ DATE ______
SCALE NTS

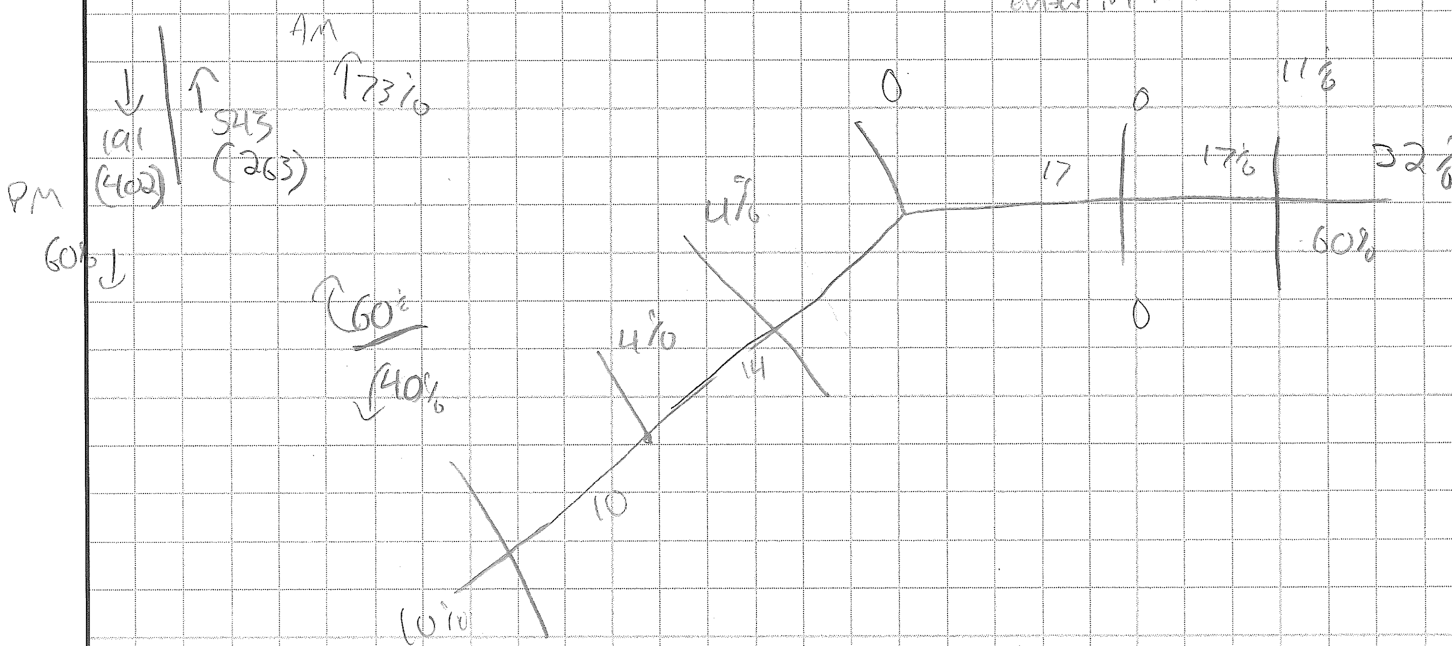
Villiage of Americas
- 36 units → from town planner
- single family homes

LUC 210

AM
T = 0.7x + 9.74
T = 35 trips
25% entering : 9
75% exiting : 26

PM
ln(T) = 0.9(ln(x)) + 0.51
T = 42 trips
63% entering : 26
37% exiting : 16

Distribution — more leave in AM, enter in PM



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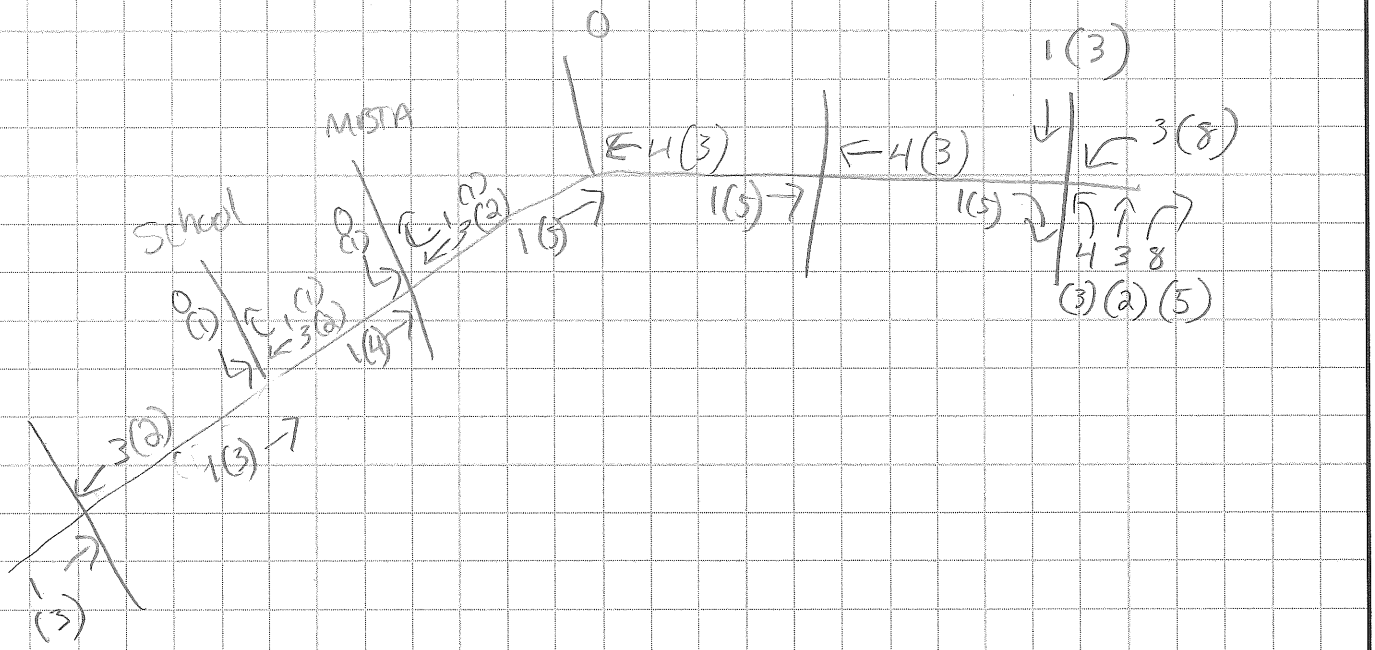
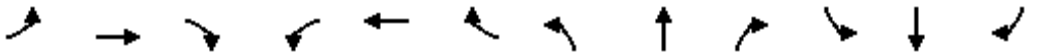
JOB Ashland 40B 13045
SHEET NO. 3 OF 3
CALCULATED BY SBC DATE 5/14/14
CHECKED BY DATE
SCALE NTS

Village of American

Distribution



APPENDIX D- LEVEL OF SERVICE COMPUTATION SHEETS



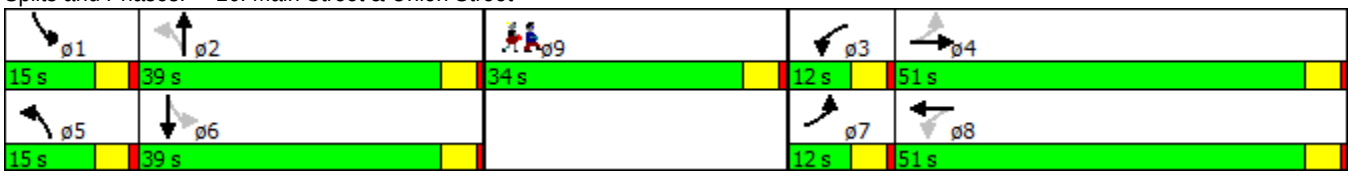
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	652	166	21	466	26	184	453	24	35	334	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.970			0.992			0.992			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1807	0	1770	1848	0	1770	1848	0	1770	1855	0
Flt Permitted	0.208			0.084			0.180			0.130		
Satd. Flow (perm)	387	1807	0	156	1848	0	335	1848	0	242	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			2			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	709	180	23	507	28	200	492	26	38	363	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	889	0	23	535	0	200	518	0	38	374	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	20.0		9.0	20.0		9.0	20.0		9.0	20.0	
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	51.2	47.5		51.1	47.5		42.0	36.6		35.4	28.2	
Actuated g/C Ratio	0.45	0.42		0.45	0.42		0.37	0.32		0.31	0.25	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.10	1.16		0.14	0.69		0.78	0.86		0.22	0.81	
Control Delay	21.6	117.9		22.8	36.1		50.1	54.1		29.4	55.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	117.9		22.8	36.1		50.1	54.1		29.4	55.5	
LOS	C	F		C	D		D	D		C	E	
Approach Delay		115.2			35.6			53.0			53.1	
Approach LOS		F			D			D			D	
Queue Length 50th (ft)	9	~786		8	319		96	365		17	248	
Queue Length 95th (ft)	37	#1499		35	#741		#298	#858		55	#541	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	265	766		174	779		256	600		222	577	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	1.16		0.13	0.69		0.78	0.86		0.17	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 112.8
Natural Cycle: 145
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.16
Intersection Signal Delay: 71.1 Intersection LOS: E
Intersection Capacity Utilization 85.5% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 16: Main Street & Union Street



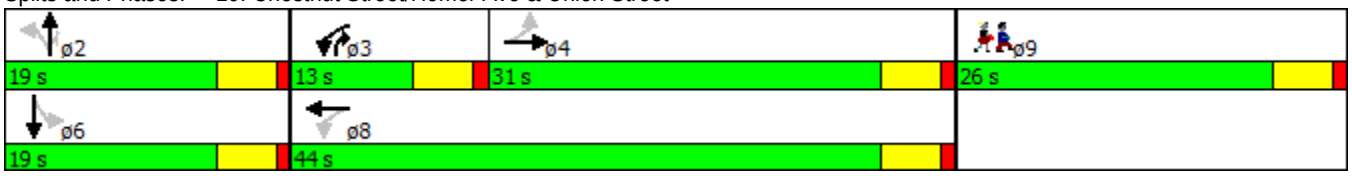
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	705	17	147	332	61	49	65	464	101	39	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.977				0.850		0.996	
Flt Protected	0.950			0.950				0.979			0.966	
Satd. Flow (prot)	1770	1857	0	1770	1820	0	0	1824	1583	0	1792	0
Flt Permitted	0.514			0.125				0.821			0.702	
Satd. Flow (perm)	957	1857	0	233	1820	0	0	1529	1583	0	1302	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			13				504		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	766	18	160	361	66	53	71	504	110	42	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	784	0	160	427	0	0	124	504	0	157	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		7.0	7.0	4.0	7.0	7.0	
Minimum Split (s)	21.0	21.0		9.0	21.0		19.0	19.0	9.0	19.0	19.0	
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.8	26.8		40.2	40.2			13.0	26.4		13.0	
Actuated g/C Ratio	0.32	0.32		0.49	0.49			0.16	0.32		0.16	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.00	1.30		0.60	0.48			0.52	0.60		0.77	
Control Delay	22.0	177.7		26.5	18.8			42.9	5.7		60.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	22.0	177.7		26.5	18.8			42.9	5.7		60.4	
LOS	C	F		C	B			D	A		E	
Approach Delay		177.5			20.9			13.0			60.4	
Approach LOS		F			C			B			E	
Queue Length 50th (ft)	0	~611		54	165			65	0		84	
Queue Length 95th (ft)	4	#835		#119	253			121	72		#184	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	309	601		266	889			266	847		228	
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	0.00	1.30		0.60	0.48			0.47	0.60		0.69	

Intersection Summary

Area Type: Other
Cycle Length: 89
Actuated Cycle Length: 82.8
Natural Cycle: 100
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 78.5 Intersection LOS: E
Intersection Capacity Utilization 87.3% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 19: Chestnut Street/Homer Ave & Union Street



Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	802	2	38	411	5	224
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	827	2	39	424	5	231

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	829	0	1330	828
Stage 1	-	-	-	-	828	-
Stage 2	-	-	-	-	502	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	786	-	170	369
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	606	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	786	-	159	369
Mov Cap-2 Maneuver	-	-	-	-	159	-
Stage 1	-	-	-	-	427	-
Stage 2	-	-	-	-	567	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	29.7
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	159	369	-	-	786	-
HCM Lane V/C Ratio	0.032	0.626	-	-	0.05	-
HCM Control Delay (s)	28.4	29.7	-	-	9.8	0
HCM Lane LOS	D	D	-	-	A	A
HCM 95th %tile Q(veh)	0.1	4.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	6	1020	442	47	41	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	6	1052	456	48	42	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	504	0	-	0	1544	480
Stage 1	-	-	-	-	480	-
Stage 2	-	-	-	-	1064	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1045	-	-	-	128	590
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	335	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1045	-	-	-	126	590
Mov Cap-2 Maneuver	-	-	-	-	126	-
Stage 1	-	-	-	-	627	-
Stage 2	-	-	-	-	330	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	43.3
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1045	-	-	-	142
HCM Lane V/C Ratio	0.006	-	-	-	0.348
HCM Control Delay (s)	8.5	0	-	-	43.3
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	1.4

Intersection	
Int Delay, s/veh	39.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	47	1031	475	189	127	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	51	1121	516	205	138	35

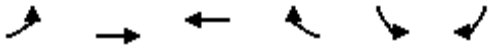
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	722	0	-	0	1842	619
Stage 1	-	-	-	-	619	-
Stage 2	-	-	-	-	1223	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	880	-	-	-	~ 83	489
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	278	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	880	-	-	-	~ 70	489
Mov Cap-2 Maneuver	-	-	-	-	~ 70	-
Stage 1	-	-	-	-	537	-
Stage 2	-	-	-	-	235	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	$ 466.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	880	-	-	-	70	489
HCM Lane V/C Ratio	0.058	-	-	-	1.972	0.071
HCM Control Delay (s)	9.3	0	-	-	$ 580.9	12.9
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	12.6	0.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	478	806	467	28	20	220
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	493	831	481	29	21	227
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	572	1186	646	39	24	264
Arrive On Green	0.19	0.65	0.39	0.39	0.19	0.19
Sat Flow, veh/h	1740	1827	1643	99	129	1389
Grp Volume(v), veh/h	493	831	0	510	249	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1742	1524	0
Q Serve(g_s), s	9.4	18.2	0.0	15.6	9.8	0.0
Cycle Q Clear(g_c), s	9.4	18.2	0.0	15.6	9.8	0.0
Prop In Lane	1.00			0.06	0.08	0.91
Lane Grp Cap(c), veh/h	572	1186	0	685	290	0
V/C Ratio(X)	0.86	0.70	0.00	0.74	0.86	0.00
Avail Cap(c_a), veh/h	631	1380	0	812	563	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	10.9	7.0	0.0	16.2	24.4	0.0
Incr Delay (d2), s/veh	10.9	1.3	0.0	3.1	7.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.1	9.4	0.0	8.1	4.7	0.0
LnGrp Delay(d),s/veh	21.8	8.4	0.0	19.3	31.7	0.0
LnGrp LOS	C	A		B	C	
Approach Vol, veh/h		1324	510		249	
Approach Delay, s/veh		13.4	19.3		31.7	
Approach LOS		B	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		45.4		16.8	15.9	29.5		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		47.0		23.0	14.0	29.0		
Max Q Clear Time (g_c+I1), s		20.2		11.8	11.4	17.6		
Green Ext Time (p_c), s		11.4		0.0	0.5	6.9		

Intersection Summary	
HCM 2010 Ctrl Delay	17.0
HCM 2010 LOS	B

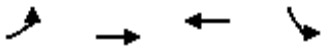
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	179	992	1	4	499	187	4	3	25	259	1	159
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	190	1055	1	4	531	199	4	3	27	276	1	169
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	507	1238	1	64	1199	1024	80	40	194	0	278	236
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.15	0.15	0.15	0.00	0.15	0.15
Sat Flow, veh/h	709	1825	2	2	1768	1509	69	267	1297	0	1863	1583
Grp Volume(v), veh/h	190	0	1056	535	0	199	34	0	0	0	1	169
Grp Sat Flow(s),veh/h/ln	709	0	1827	1770	0	1509	1634	0	0	0	1863	1583
Q Serve(g_s), s	9.8	0.0	25.5	0.0	0.0	2.8	0.0	0.0	0.0	0.0	0.0	5.9
Cycle Q Clear(g_c), s	17.8	0.0	25.5	8.0	0.0	2.8	1.0	0.0	0.0	0.0	0.0	5.9
Prop In Lane	1.00		0.00	0.01		1.00	0.12		0.79	0.00		1.00
Lane Grp Cap(c), veh/h	507	0	1239	1263	0	1024	313	0	0	0	278	236
V/C Ratio(X)	0.38	0.00	0.85	0.42	0.00	0.19	0.11	0.00	0.00	0.00	0.00	0.72
Avail Cap(c_a), veh/h	552	0	1355	1374	0	1120	513	0	0	0	1189	1011
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	8.4	0.0	7.1	4.3	0.0	3.5	21.4	0.0	0.0	0.0	21.0	23.5
Incr Delay (d2), s/veh	0.5	0.0	5.1	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	4.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	14.1	3.9	0.0	1.2	0.5	0.0	0.0	0.0	0.0	2.8
LnGrp Delay(d),s/veh	8.9	0.0	12.2	4.5	0.0	3.5	21.6	0.0	0.0	0.0	21.0	27.5
LnGrp LOS	A		B	A		A	C				C	C
Approach Vol, veh/h		1246			734			34			170	
Approach Delay, s/veh		11.7			4.3			21.6			27.5	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		13.6		44.3	0.0	13.6		44.3
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		7.9		10.0	0.0	3.0		27.5
Green Ext Time (p_c), s		0.8		20.4	0.0	0.6		11.8

Intersection Summary	
HCM 2010 Ctrl Delay	10.6
HCM 2010 LOS	B



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	493	831	510	248
v/c Ratio	0.79	0.66	0.77	0.62
Control Delay	20.2	8.6	24.9	12.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.2	8.6	24.9	12.7
Queue Length 50th (ft)	63	111	141	7
Queue Length 95th (ft)	#275	302	284	65
Internal Link Dist (ft)		1013	1554	1450
Turn Bay Length (ft)	180			
Base Capacity (vph)	623	1501	886	758
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.79	0.55	0.58	0.33

Intersection Summary

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	190	1056	535	199	34	277	169
v/c Ratio	0.72	1.21	0.90	0.26	0.05	no cap	0.23
Control Delay	36.9	130.5	42.8	8.1	7.8		3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	36.9	130.5	42.8	8.1	7.8	Error	3.6
Queue Length 50th (ft)	82	~740	267	31	2	~331	0
Queue Length 95th (ft)	#200	#978	#479	72	20	#484	37
Internal Link Dist (ft)		795	1013		1069	1758	
Turn Bay Length (ft)	150			60			100
Base Capacity (vph)	265	872	594	771	693	1	750
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	0.72	1.21	0.90	0.26	0.05	277.00	0.23

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.

Intersection	
Int Delay, s/veh	4.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	806	3	40	429	5	224
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	831	3	41	442	5	231

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	834	0	1357	832
Stage 1	-	-	-	-	832	-
Stage 2	-	-	-	-	525	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	782	-	163	368
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	591	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	782	-	152	368
Mov Cap-2 Maneuver	-	-	-	-	152	-
Stage 1	-	-	-	-	426	-
Stage 2	-	-	-	-	550	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.8	29.9
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	368	-	-	782	-
HCM Lane V/C Ratio	0.034	0.628	-	-	0.053	-
HCM Control Delay (s)	29.5	29.9	-	-	9.9	0
HCM Lane LOS	D	D	-	-	A	A
HCM 95th %tile Q(veh)	0.1	4.1	-	-	0.2	-

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	6	1024	464	49	41	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	6	1056	478	51	42	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	529	0	-	0	1572	504
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	1068	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1023	-	-	-	123	572
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	333	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1023	-	-	-	121	572
Mov Cap-2 Maneuver	-	-	-	-	121	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	328	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	45.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1023	-	-	-	137
HCM Lane V/C Ratio	0.006	-	-	-	0.361
HCM Control Delay (s)	8.5	0	-	-	45.4
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	1.5

Intersection	
Int Delay, s/veh	45.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	48	1070	485	189	127	32
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	52	1163	527	205	138	35

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	733	0	-	0	1897	630
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	1267	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	872	-	-	-	~ 76	482
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	265	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	872	-	-	-	~ 63	482
Mov Cap-2 Maneuver	-	-	-	-	~ 63	-
Stage 1	-	-	-	-	531	-
Stage 2	-	-	-	-	220	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	$ 552.3
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	872	-	-	-	63	482
HCM Lane V/C Ratio	0.06	-	-	-	2.191	0.072
HCM Control Delay (s)	9.4	0	-	-	$ 688.2	13
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	13.3	0.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

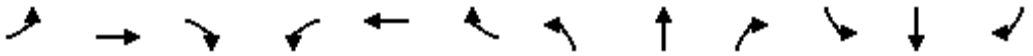
Intersection	
Int Delay, s/veh	2.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	1118	507	10	40	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	1215	551	11	43	24

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	562	0	-	0	1781	557
Stage 1	-	-	-	-	557	-
Stage 2	-	-	-	-	1224	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1009	-	-	-	90	530
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	278	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1009	-	-	-	89	530
Mov Cap-2 Maneuver	-	-	-	-	89	-
Stage 1	-	-	-	-	574	-
Stage 2	-	-	-	-	275	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	62.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1009	-	-	-	126
HCM Lane V/C Ratio	0.004	-	-	-	0.535
HCM Control Delay (s)	8.6	0	-	-	62.4
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	2.6



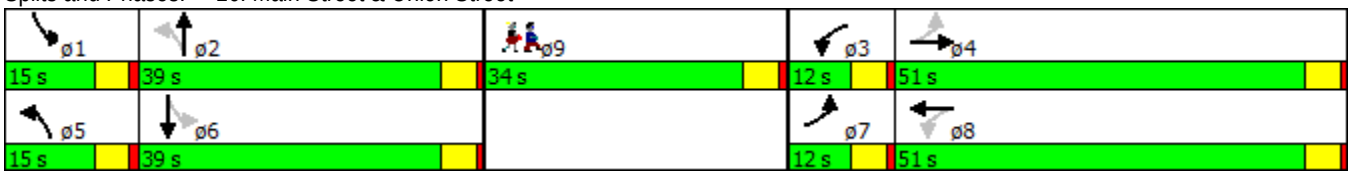
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	669	172	21	471	26	185	471	26	35	334	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.992			0.992			0.996	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1805	0	1770	1848	0	1770	1848	0	1770	1855	0
Flt Permitted	0.203			0.084			0.180			0.130		
Satd. Flow (perm)	378	1805	0	156	1848	0	335	1848	0	242	1855	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			2			2			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	26	727	187	23	512	28	201	512	28	38	363	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	914	0	23	540	0	201	540	0	38	374	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	20.0		9.0	20.0		9.0	21.0		9.0	20.0	
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	51.2	47.5		51.1	47.5		42.0	36.6		35.4	28.2	
Actuated g/C Ratio	0.45	0.42		0.45	0.42		0.37	0.32		0.31	0.25	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.10	1.19		0.14	0.69		0.79	0.90		0.22	0.81	
Control Delay	21.6	131.1		22.8	36.3		50.5	58.3		29.4	55.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.6	131.1		22.8	36.3		50.5	58.3		29.4	55.5	
LOS	C	F		C	D		D	E		C	E	
Approach Delay		128.1			35.8			56.2			53.1	
Approach LOS		F			D			E			D	
Queue Length 50th (ft)	9	~826		8	323		97	386		17	248	
Queue Length 95th (ft)	37	#1553		35	#751		#300	#905		55	#541	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	261	765		174	779		256	600		222	577	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.10	1.19		0.13	0.69		0.79	0.90		0.17	0.65	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 112.8
Natural Cycle: 145
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 76.8 Intersection LOS: E
Intersection Capacity Utilization 87.9% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 16: Main Street & Union Street



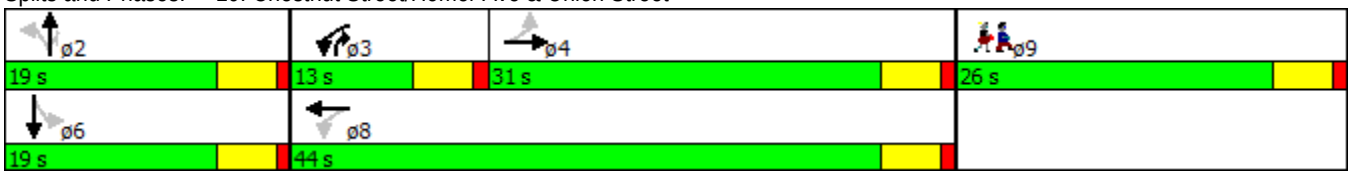
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	721	18	147	336	61	50	65	464	101	36	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.977				0.850		0.996	
Flt Protected	0.950			0.950				0.979			0.966	
Satd. Flow (prot)	1770	1855	0	1770	1820	0	0	1824	1583	0	1792	0
Flt Permitted	0.512			0.125				0.823			0.695	
Satd. Flow (perm)	954	1855	0	233	1820	0	0	1533	1583	0	1289	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			13				503		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	784	20	160	365	66	54	71	504	110	39	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	804	0	160	431	0	0	125	504	0	154	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		7.0	7.0	4.0	7.0	7.0	
Minimum Split (s)	21.0	21.0		9.0	21.0		19.0	19.0	9.0	19.0	19.0	
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.8	26.8		40.2	40.2			12.9	26.3		12.9	
Actuated g/C Ratio	0.32	0.32		0.49	0.49			0.16	0.32		0.16	

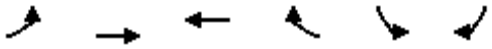
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.00	1.34		0.60	0.48			0.52	0.60		0.76	
Control Delay	22.0	192.1		26.5	18.9			43.0	5.7		60.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	22.0	192.1		26.5	18.9			43.0	5.7		60.3	
LOS	C	F		C	B			D	A		E	
Approach Delay		191.9			21.0			13.1			60.3	
Approach LOS		F			C			B			E	
Queue Length 50th (ft)	0	~636		54	167			65	0		83	
Queue Length 95th (ft)	4	#862		#119	256			122	73		#182	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	308	600		266	890			267	846		226	
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	0.00	1.34		0.60	0.48			0.47	0.60		0.68	

Intersection Summary

Area Type: Other
Cycle Length: 89
Actuated Cycle Length: 82.8
Natural Cycle: 100
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.34
Intersection Signal Delay: 84.6 Intersection LOS: F
Intersection Capacity Utilization 88.1% ICU Level of Service E
Analysis Period (min) 15
~ 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.

Splits and Phases: 19: Chestnut Street/Homer Ave & Union Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	490	829	473	28	20	223
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	505	855	488	29	21	230
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	570	1189	647	38	24	267
Arrive On Green	0.19	0.65	0.39	0.39	0.19	0.19
Sat Flow, veh/h	1740	1827	1644	98	127	1391
Grp Volume(v), veh/h	505	855	0	517	252	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1742	1524	0
Q Serve(g_s), s	9.9	19.5	0.0	16.2	10.2	0.0
Cycle Q Clear(g_c), s	9.9	19.5	0.0	16.2	10.2	0.0
Prop In Lane	1.00			0.06	0.08	0.91
Lane Grp Cap(c), veh/h	570	1189	0	686	292	0
V/C Ratio(X)	0.89	0.72	0.00	0.75	0.86	0.00
Avail Cap(c_a), veh/h	616	1353	0	796	552	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	11.2	7.3	0.0	16.6	24.8	0.0
Incr Delay (d2), s/veh	13.8	1.6	0.0	3.5	7.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	10.0	0.0	8.4	4.9	0.0
LnGrp Delay(d),s/veh	25.0	8.9	0.0	20.1	32.3	0.0
LnGrp LOS	C	A		C	C	
Approach Vol, veh/h		1360	517		252	
Approach Delay, s/veh		14.9	20.1		32.3	
Approach LOS		B	C		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		46.3		17.2	16.3	30.0		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		47.0		23.0	14.0	29.0		
Max Q Clear Time (g_c+I1), s		21.5		12.2	11.9	18.2		
Green Ext Time (p_c), s		11.6		0.0	0.4	6.7		

Intersection Summary	
HCM 2010 Ctrl Delay	18.2
HCM 2010 LOS	B

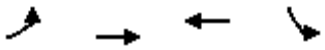
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	183	1027	1	4	508	187	4	3	25	259	1	160
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	195	1093	1	4	540	199	4	3	27	276	1	170
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	503	1246	1	63	1207	1030	78	40	193	0	277	236
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.15	0.15	0.15	0.00	0.15	0.15
Sat Flow, veh/h	703	1825	2	2	1768	1509	69	268	1297	0	1863	1583
Grp Volume(v), veh/h	195	0	1094	544	0	199	34	0	0	0	1	170
Grp Sat Flow(s),veh/h/ln	703	0	1827	1770	0	1509	1634	0	0	0	1863	1583
Q Serve(g_s), s	10.4	0.0	28.1	0.0	0.0	2.9	0.0	0.0	0.0	0.0	0.0	6.1
Cycle Q Clear(g_c), s	18.7	0.0	28.1	8.3	0.0	2.9	1.1	0.0	0.0	0.0	0.0	6.1
Prop In Lane	1.00		0.00	0.01		1.00	0.12		0.79	0.00		1.00
Lane Grp Cap(c), veh/h	503	0	1247	1269	0	1030	311	0	0	0	277	236
V/C Ratio(X)	0.39	0.00	0.88	0.43	0.00	0.19	0.11	0.00	0.00	0.00	0.00	0.72
Avail Cap(c_a), veh/h	532	0	1324	1343	0	1094	502	0	0	0	1162	988
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	8.6	0.0	7.5	4.3	0.0	3.4	21.9	0.0	0.0	0.0	21.5	24.1
Incr Delay (d2), s/veh	0.5	0.0	6.7	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	0.0	16.0	4.0	0.0	1.2	0.5	0.0	0.0	0.0	0.0	2.9
LnGrp Delay(d),s/veh	9.1	0.0	14.2	4.5	0.0	3.5	22.1	0.0	0.0	0.0	21.5	28.2
LnGrp LOS	A		B	A		A	C				C	C
Approach Vol, veh/h		1289			743			34			171	
Approach Delay, s/veh		13.4			4.3			22.1			28.2	
Approach LOS		B			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		13.8		45.5	0.0	13.8		45.5
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		8.1		10.3	0.0	3.1		30.1
Green Ext Time (p_c), s		0.8		21.1	0.0	0.6		10.4

Intersection Summary	
HCM 2010 Ctrl Delay	11.6
HCM 2010 LOS	B



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	505	855	517	251
v/c Ratio	0.82	0.67	0.78	0.62
Control Delay	22.4	9.0	25.0	12.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.4	9.0	25.0	12.8
Queue Length 50th (ft)	70	117	144	7
Queue Length 95th (ft)	#292	321	291	65
Internal Link Dist (ft)		1013	1554	1450
Turn Bay Length (ft)	180			
Base Capacity (vph)	618	1491	881	756
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.82	0.57	0.59	0.33

Intersection Summary

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	195	1094	544	199	34	277	170
v/c Ratio	0.76	1.25	0.92	0.26	0.05	no cap	0.23
Control Delay	40.9	148.7	45.0	8.2	7.8		3.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	40.9	148.7	45.0	8.2	7.8	Error	3.6
Queue Length 50th (ft)	87	~786	275	32	2	~331	0
Queue Length 95th (ft)	#211	#1025	#491	73	20	#484	37
Internal Link Dist (ft)		795	1013		1069	1758	
Turn Bay Length (ft)	150			60			100
Base Capacity (vph)	258	872	594	770	693	1	750
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	0.76	1.25	0.92	0.26	0.05	277.00	0.23

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.

Intersection	
Int Delay, s/veh	1.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	448	6	148	630	4	66
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	462	6	153	649	4	68

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	468	0	1420	465
Stage 1	-	-	-	-	465	-
Stage 2	-	-	-	-	955	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	1073	-	150	595
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	372	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1073	-	117	595
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	630	-
Stage 2	-	-	-	-	289	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	13.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	117	595	-	-	1073	-
HCM Lane V/C Ratio	0.035	0.114	-	-	0.142	-
HCM Control Delay (s)	36.9	11.8	-	-	8.9	0
HCM Lane LOS	E	B	-	-	A	A
HCM 95th %tile Q(veh)	0.1	0.4	-	-	0.5	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	7	527	773	50	44	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	7	543	797	52	45	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	848	0	-	0	1381	823
Stage 1	-	-	-	-	823	-
Stage 2	-	-	-	-	558	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	777	-	-	-	160	377
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	577	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	777	-	-	-	158	377
Mov Cap-2 Maneuver	-	-	-	-	158	-
Stage 1	-	-	-	-	435	-
Stage 2	-	-	-	-	569	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	35.4
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	777	-	-	-	168
HCM Lane V/C Ratio	0.009	-	-	-	0.301
HCM Control Delay (s)	9.7	0	-	-	35.4
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0	-	-	-	1.2

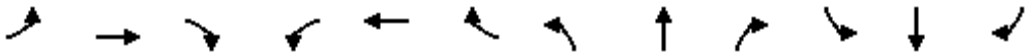
Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	3	555	829	16	20	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	603	901	17	22	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	918	0	-	0	1520	910
Stage 1	-	-	-	-	910	-
Stage 2	-	-	-	-	610	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	743	-	-	-	131	333
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	542	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	743	-	-	-	130	333
Mov Cap-2 Maneuver	-	-	-	-	130	-
Stage 1	-	-	-	-	393	-
Stage 2	-	-	-	-	539	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	29.2
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	743	-	-	-	130	333
HCM Lane V/C Ratio	0.004	-	-	-	0.167	0.046
HCM Control Delay (s)	9.9	0	-	-	38.2	16.3
HCM Lane LOS	A	A	-	-	E	C
HCM 95th %tile Q(veh)	0	-	-	-	0.6	0.1



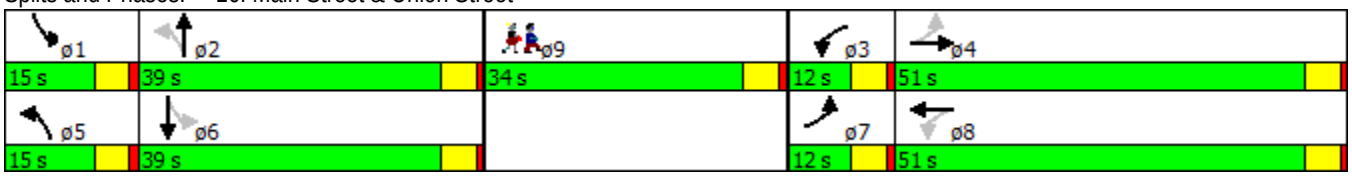
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	72	354	186	25	439	37	186	330	26	24	456	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.948			0.988			0.989			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1766	0	1770	1840	0	1770	1842	0	1770	1842	0
Flt Permitted	0.185			0.163			0.097			0.332		
Satd. Flow (perm)	345	1766	0	304	1840	0	181	1842	0	618	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		18			3			2			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	78	385	202	27	477	40	202	359	28	26	496	39
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	587	0	27	517	0	202	387	0	26	535	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	12.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	55.7	51.6		52.8	46.5		48.1	42.2		41.1	34.3	
Actuated g/C Ratio	0.45	0.42		0.43	0.38		0.39	0.34		0.33	0.28	

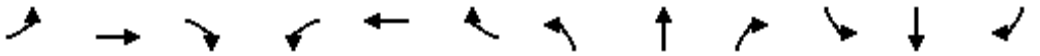
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.33	0.78		0.13	0.74		1.01	0.61		0.10	1.04	
Control Delay	24.8	41.2		22.6	42.4		98.9	41.9		27.5	94.5	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	24.8	41.2		22.6	42.4		98.9	41.9		27.5	94.5	
LOS	C	D		C	D		F	D		C	F	
Approach Delay		39.3			41.4			61.4			91.4	
Approach LOS		D			D			E			F	
Queue Length 50th (ft)	30	380		10	323		107	249		11	402	
Queue Length 95th (ft)	87	#857		38	#703		#375	#557		41	#896	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	237	748		215	694		200	631		316	513	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.33	0.78		0.13	0.74		1.01	0.61		0.08	1.04	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 123.5
Natural Cycle: 145
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 57.7 Intersection LOS: E
Intersection Capacity Utilization 86.5% ICU Level of Service E
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Main Street & Union Street





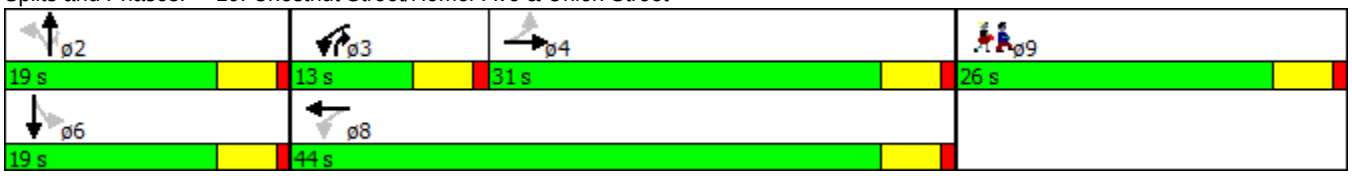
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	366	23	299	432	85	23	43	197	97	80	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991			0.975				0.850		0.995	
Flt Protected	0.950			0.950				0.983			0.974	
Satd. Flow (prot)	1770	1846	0	1770	1816	0	0	1831	1583	0	1805	0
Flt Permitted	0.423			0.230				0.837			0.797	
Satd. Flow (perm)	788	1846	0	428	1816	0	0	1559	1583	0	1477	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			14				214		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	398	25	325	470	92	25	47	214	105	87	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	423	0	325	562	0	0	72	214	0	200	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		9.0	20.0		12.0	12.0	9.0	12.0	12.0	
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.7	26.7		40.0	40.0			13.4	26.7		13.4	
Actuated g/C Ratio	0.32	0.32		0.48	0.48			0.16	0.32		0.16	

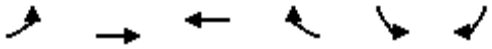
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.02	0.71		0.96	0.64			0.29	0.33		0.83	
Control Delay	23.0	35.3		63.7	22.5			36.7	5.1		65.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	23.0	35.3		63.7	22.5			36.7	5.1		65.4	
LOS	C	D		E	C			D	A		E	
Approach Delay		35.1			37.6			13.0			65.4	
Approach LOS		D			D			B			E	
Queue Length 50th (ft)	2	215		~133	242			36	0		110	
Queue Length 95th (ft)	10	#357		#306	364			77	49		#233	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	253	595		338	881			269	654		257	
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	0.02	0.71		0.96	0.64			0.27	0.33		0.78	

Intersection Summary

Area Type: Other
Cycle Length: 89
Actuated Cycle Length: 83.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 36.2 Intersection LOS: D
Intersection Capacity Utilization 66.4% ICU Level of Service C
Analysis Period (min) 15
~ 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.

Splits and Phases: 19: Chestnut Street/Homer Ave & Union Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	138	497	561	47	110	269
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	142	512	578	48	113	277
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	310	1010	666	55	124	304
Arrive On Green	0.07	0.55	0.42	0.42	0.28	0.28
Sat Flow, veh/h	1740	1827	1603	133	450	1104
Grp Volume(v), veh/h	142	512	0	626	391	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1736	1558	0
Q Serve(g_s), s	2.5	10.1	0.0	19.2	14.1	0.0
Cycle Q Clear(g_c), s	2.5	10.1	0.0	19.2	14.1	0.0
Prop In Lane	1.00			0.08	0.29	0.71
Lane Grp Cap(c), veh/h	310	1010	0	721	429	0
V/C Ratio(X)	0.46	0.51	0.00	0.87	0.91	0.00
Avail Cap(c_a), veh/h	310	1068	0	776	429	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	12.1	8.1	0.0	15.5	20.4	0.0
Incr Delay (d2), s/veh	1.1	0.4	0.0	9.8	23.5	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	5.1	0.0	11.0	8.8	0.0
LnGrp Delay(d),s/veh	13.1	8.5	0.0	25.4	43.9	0.0
LnGrp LOS	B	A		C	D	
Approach Vol, veh/h		654	626		391	
Approach Delay, s/veh		9.5	25.4		43.9	
Approach LOS		A	C		D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.2		21.0	8.0	29.2		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		34.0		16.0	4.0	26.0		
Max Q Clear Time (g_c+I1), s		12.1		16.1	4.5	21.2		
Green Ext Time (p_c), s		8.2		0.0	0.0	3.0		

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

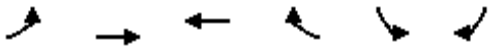
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	25	556	5	15	779	36	4	1	9	59	2	76
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	27	591	5	16	829	38	4	1	10	63	2	81
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	408	1226	10	93	1188	1023	130	24	94	0	165	140
Arrive On Green	0.68	0.68	0.68	0.68	0.68	0.68	0.09	0.09	0.09	0.00	0.09	0.09
Sat Flow, veh/h	624	1809	15	10	1753	1509	267	266	1066	0	1863	1583
Grp Volume(v), veh/h	27	0	596	845	0	38	15	0	0	0	2	81
Grp Sat Flow(s),veh/h/ln	624	0	1824	1763	0	1509	1599	0	0	0	1863	1583
Q Serve(g_s), s	1.2	0.0	6.7	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	2.1
Cycle Q Clear(g_c), s	13.7	0.0	6.7	12.5	0.0	0.4	0.3	0.0	0.0	0.0	0.0	2.1
Prop In Lane	1.00		0.01	0.02		1.00	0.27		0.67	0.00		1.00
Lane Grp Cap(c), veh/h	408	0	1236	1280	0	1023	248	0	0	0	165	140
V/C Ratio(X)	0.07	0.00	0.48	0.66	0.00	0.04	0.06	0.00	0.00	0.00	0.01	0.58
Avail Cap(c_a), veh/h	614	0	1836	1851	0	1519	690	0	0	0	1613	1371
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	8.5	0.0	3.3	4.2	0.0	2.3	17.9	0.0	0.0	0.0	17.8	18.7
Incr Delay (d2), s/veh	0.1	0.0	0.3	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	3.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	3.4	6.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0	1.1
LnGrp Delay(d),s/veh	8.5	0.0	3.6	4.8	0.0	2.3	18.0	0.0	0.0	0.0	17.8	22.5
LnGrp LOS	A		A	A		A	B				B	C
Approach Vol, veh/h		623			883			15			83	
Approach Delay, s/veh		3.8			4.7			18.0			22.3	
Approach LOS		A			A			B			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		8.8		33.9	0.0	8.8		33.9
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		4.1		14.5	0.0	2.3		15.7
Green Ext Time (p_c), s		0.3		13.5	0.0	0.2		13.2

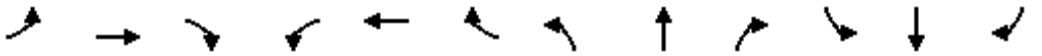
Intersection Summary	
HCM 2010 Ctrl Delay	5.4
HCM 2010 LOS	A



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (vph)	138	497	561	47	110	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.990		0.904	
Flt Protected	0.950				0.986	
Satd. Flow (prot)	1736	1827	1742	0	1583	0
Flt Permitted	0.193				0.986	
Satd. Flow (perm)	353	1827	1742	0	1583	0
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)			9		201	
Link Speed (mph)		30	30		30	
Link Distance (ft)		1093	1634		1530	
Travel Time (s)		24.8	37.1		34.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	4%	4%	8%	8%	7%	7%
Adj. Flow (vph)	142	512	578	48	113	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	512	626	0	390	0
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		12	12		12	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15			9	15	9
v/c Ratio	0.44	0.51	0.82		0.75	
Control Delay	9.8	9.3	24.9		19.9	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	9.8	9.3	24.9		19.9	
Queue Length 50th (ft)	17	84	167		57	
Queue Length 95th (ft)	41	165	#367		#149	
Internal Link Dist (ft)		1013	1554		1450	
Turn Bay Length (ft)	180					
Base Capacity (vph)	321	1256	986		680	
Starvation Cap Reductn	0	0	0		0	
Spillback Cap Reductn	0	0	0		0	
Storage Cap Reductn	0	0	0		0	
Reduced v/c Ratio	0.44	0.41	0.63		0.57	

Intersection Summary	
Area Type:	Other

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



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	556	5	15	779	36	4	1	9	59	2	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	0		60	0		0	0		100
Storage Lanes	1		0	0		1	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999				0.850		0.910				0.850
Flt Protected	0.950				0.999			0.987			0.954	
Satd. Flow (prot)	1736	1825	0	0	1774	1509	0	1707	0	0	1777	1583
Flt Permitted	0.136				0.987			0.959			0.765	
Satd. Flow (perm)	248	1825	0	0	1753	1509	0	1658	0	0	1425	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1				85		10				81
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		875			1093			1149			1838	
Travel Time (s)		19.9			24.8			26.1			41.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	4%	4%	4%	7%	7%	7%	0%	0%	0%	2%	2%	2%
Adj. Flow (vph)	27	591	5	16	829	38	4	1	10	63	2	81
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	596	0	0	845	38	0	15	0	0	65	81
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
v/c Ratio	0.19	0.56			0.83	0.04		0.03			no cap	0.13
Control Delay	18.4	19.5			31.2	0.3		10.4				4.7
Queue Delay	0.0	0.0			0.0	0.0		0.0				0.0
Total Delay	18.4	19.5			31.2	0.3		10.4			Error	4.7
Queue Length 50th (ft)	9	252			~473	0		2			~78	0
Queue Length 95th (ft)	30	374			#733	2		13			#160	26
Internal Link Dist (ft)		795			1013			1069			1758	
Turn Bay Length (ft)	150					60						100
Base Capacity (vph)	144	1063			1020	914		693			1	872
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	0.19	0.56			0.83	0.04		0.02			65.00	0.09

Intersection Summary

Area Type: Other

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

95th percentile volume exceeds capacity, queue may be longer.

Intersection	
Int Delay, s/veh	4.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	746	1	37	304	3	216
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	769	1	38	313	3	223

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	770	0	1160	770
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	390	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	827	-	215	399
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	682	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	827	-	203	399
Mov Cap-2 Maneuver	-	-	-	-	203	-
Stage 1	-	-	-	-	455	-
Stage 2	-	-	-	-	644	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1	24.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	203	399	-	-	827	-
HCM Lane V/C Ratio	0.015	0.558	-	-	0.046	-
HCM Control Delay (s)	23	24.8	-	-	9.6	0
HCM Lane LOS	C	C	-	-	A	A
HCM 95th %tile Q(veh)	0	3.3	-	-	0.1	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	6	956	334	45	40	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	6	986	344	46	41	7

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	391	0	-	0	1366	368
Stage 1	-	-	-	-	368	-
Stage 2	-	-	-	-	998	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	1151	-	-	-	164	682
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	360	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1151	-	-	-	162	682
Mov Cap-2 Maneuver	-	-	-	-	162	-
Stage 1	-	-	-	-	704	-
Stage 2	-	-	-	-	356	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	31.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1151	-	-	-	183
HCM Lane V/C Ratio	0.005	-	-	-	0.265
HCM Control Delay (s)	8.1	0	-	-	31.6
HCM Lane LOS	A	A	-	-	D
HCM 95th %tile Q(veh)	0	-	-	-	1

Intersection	
Int Delay, s/veh	22.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	45	967	367	182	123	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	49	1051	399	198	134	34

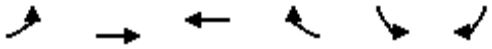
Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	597	0	-	0	1647	498
Stage 1	-	-	-	-	498	-
Stage 2	-	-	-	-	1149	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	980	-	-	-	~ 109	572
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	302	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	980	-	-	-	~ 96	572
Mov Cap-2 Maneuver	-	-	-	-	~ 96	-
Stage 1	-	-	-	-	611	-
Stage 2	-	-	-	-	266	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	248.2
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	980	-	-	-	96	572
HCM Lane V/C Ratio	0.05	-	-	-	1.393	0.059
HCM Control Delay (s)	8.9	0	-	-	$ 307.8	11.7
HCM Lane LOS	A	A	-	-	F	B
HCM 95th %tile Q(veh)	0.2	-	-	-	9.8	0.2

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	371	722	412	27	19	175
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	382	744	425	28	20	180
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	596	1169	651	43	25	226
Arrive On Green	0.16	0.64	0.40	0.40	0.17	0.17
Sat Flow, veh/h	1740	1827	1633	108	152	1367
Grp Volume(v), veh/h	382	744	0	453	201	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1740	1527	0
Q Serve(g_s), s	5.8	12.7	0.0	10.9	6.5	0.0
Cycle Q Clear(g_c), s	5.8	12.7	0.0	10.9	6.5	0.0
Prop In Lane	1.00			0.06	0.10	0.90
Lane Grp Cap(c), veh/h	596	1169	0	693	253	0
V/C Ratio(X)	0.64	0.64	0.00	0.65	0.80	0.00
Avail Cap(c_a), veh/h	785	1671	0	982	683	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	8.0	5.6	0.0	12.6	20.6	0.0
Incr Delay (d2), s/veh	1.2	0.6	0.0	1.0	5.7	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.4	0.0	5.4	3.1	0.0
LnGrp Delay(d),s/veh	9.2	6.2	0.0	13.6	26.3	0.0
LnGrp LOS	A	A		B	C	
Approach Vol, veh/h		1126	453		201	
Approach Delay, s/veh		7.2	13.6		26.3	
Approach LOS		A	B		C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		37.9		13.5	12.4	25.5		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		47.0		23.0	14.0	29.0		
Max Q Clear Time (g_c+I1), s		14.7		8.5	7.8	12.9		
Green Ext Time (p_c), s		10.4		0.0	0.7	7.6		

Intersection Summary	
HCM 2010 Ctrl Delay	11.0
HCM 2010 LOS	B

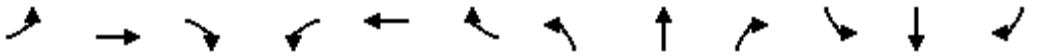
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	153	949	1	4	453	133	4	3	24	112	1	91
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	163	1010	1	4	482	141	4	3	26	119	1	97
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	599	1271	1	74	1231	1051	91	26	134	0	195	166
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.10	0.10	0.10	0.00	0.10	0.10
Sat Flow, veh/h	783	1825	2	2	1768	1509	99	247	1284	0	1863	1583
Grp Volume(v), veh/h	163	0	1011	486	0	141	33	0	0	0	1	97
Grp Sat Flow(s),veh/h/ln	783	0	1827	1770	0	1509	1630	0	0	0	1863	1583
Q Serve(g_s), s	5.5	0.0	18.9	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0	2.9
Cycle Q Clear(g_c), s	11.3	0.0	18.9	5.8	0.0	1.6	0.9	0.0	0.0	0.0	0.0	2.9
Prop In Lane	1.00		0.00	0.01		1.00	0.12		0.79	0.00		1.00
Lane Grp Cap(c), veh/h	599	0	1272	1305	0	1051	251	0	0	0	195	166
V/C Ratio(X)	0.27	0.00	0.79	0.37	0.00	0.13	0.13	0.00	0.00	0.00	0.01	0.58
Avail Cap(c_a), veh/h	723	0	1562	1581	0	1290	591	0	0	0	1370	1165
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	5.5	0.0	5.2	3.2	0.0	2.6	20.6	0.0	0.0	0.0	20.2	21.5
Incr Delay (d2), s/veh	0.2	0.0	2.4	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.0	3.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	10.1	2.8	0.0	0.7	0.4	0.0	0.0	0.0	0.0	1.4
LnGrp Delay(d),s/veh	5.8	0.0	7.6	3.4	0.0	2.6	20.8	0.0	0.0	0.0	20.2	24.7
LnGrp LOS	A		A	A		A	C				C	C
Approach Vol, veh/h		1174			627			33			98	
Approach Delay, s/veh		7.3			3.2			20.8			24.7	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		10.3		40.0	0.0	10.3		40.0
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		4.9		7.8	0.0	2.9		20.9
Green Ext Time (p_c), s		0.5		18.7	0.0	0.3		14.1

Intersection Summary	
HCM 2010 Ctrl Delay	7.1
HCM 2010 LOS	A



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	584	150	20	289	25	173	437	23	34	323	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.988			0.992			0.995	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1805	0	1770	1840	0	1770	1848	0	1770	1853	0
Flt Permitted	0.407			0.082			0.184			0.134		
Satd. Flow (perm)	758	1805	0	153	1840	0	343	1848	0	250	1853	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			3			2			1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	635	163	22	314	27	188	475	25	37	351	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	798	0	22	341	0	188	500	0	37	362	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100		20	100	
Trailing Detector (ft)	0	0		0	0		0	0		0	0	
Detector 1 Position(ft)	0	0		0	0		0	0		0	0	
Detector 1 Size(ft)	20	6		20	6		20	6		20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	20.0		9.0	20.0		9.0	20.0		9.0	20.0	

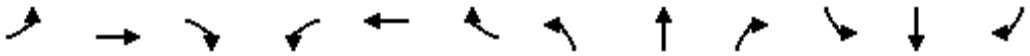
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	52.3	49.9		51.2	47.6		41.4	36.0		34.7	27.5	
Actuated g/C Ratio	0.47	0.44		0.46	0.42		0.37	0.32		0.31	0.24	
v/c Ratio	0.06	0.99		0.14	0.44		0.73	0.84		0.21	0.80	
Control Delay	21.0	62.2		22.6	29.8		45.8	52.7		29.6	55.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	21.0	62.2		22.6	29.8		45.8	52.7		29.6	55.4	
LOS	C	E		C	C		D	D		C	E	
Approach Delay		61.0			29.3			50.8			53.0	
Approach LOS		E			C			D			D	
Queue Length 50th (ft)	9	489		8	177		90	348		16	238	
Queue Length 95th (ft)	37	#1321		34	395		#267	#827		54	#521	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	418	806		174	780		257	592		224	580	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.06	0.99		0.13	0.44		0.73	0.84		0.17	0.62	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 112.4
Natural Cycle: 145
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 51.5 Intersection LOS: D
Intersection Capacity Utilization 80.1% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 16: Main Street & Union Street

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	636	15	139	291	59	43	60	440	94	37	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.975				0.850		0.995	
Flt Protected	0.950			0.950				0.979			0.966	
Satd. Flow (prot)	1770	1857	0	1770	1816	0	0	1824	1583	0	1790	0
Flt Permitted	0.536			0.129				0.825			0.724	
Satd. Flow (perm)	998	1857	0	240	1816	0	0	1537	1583	0	1342	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			15				478		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1	691	16	151	316	64	47	65	478	102	40	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1	707	0	151	380	0	0	112	478	0	147	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2		1	2		1	2	1	1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru	Right	Left	Thru	
Leading Detector (ft)	20	100		20	100		20	100	20	20	100	
Trailing Detector (ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Position(ft)	0	0		0	0		0	0	0	0	0	
Detector 1 Size(ft)	20	6		20	6		20	6	20	20	6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(ft)		94			94			94			94	
Detector 2 Size(ft)		6			6			6			6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		7.0	7.0	4.0	7.0	7.0	
Minimum Split (s)	21.0	21.0		9.0	21.0		19.0	19.0	9.0	19.0	19.0	



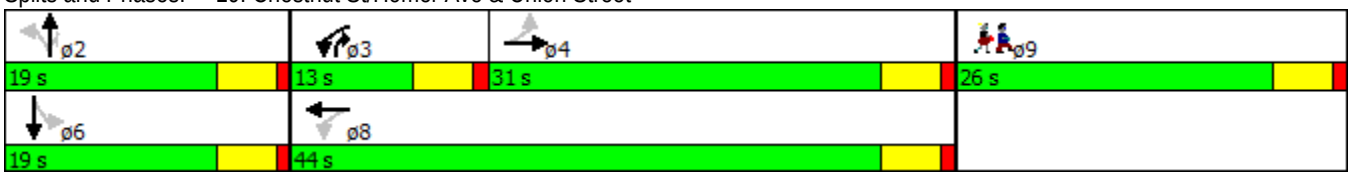
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.0	26.0		39.0	39.0			12.7	25.7		12.7	
Actuated g/C Ratio	0.30	0.30		0.44	0.44			0.14	0.29		0.14	
v/c Ratio	0.00	1.28		0.61	0.47			0.51	0.60		0.75	
Control Delay	22.0	170.0		27.0	18.9			43.1	5.9		60.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	22.0	170.0		27.0	18.9			43.1	5.9		60.3	
LOS	C	F		C	B			D	A		E	
Approach Delay		169.8			21.2			13.0			60.3	
Approach LOS		F			C			B			E	
Queue Length 50th (ft)	0	~518		51	140			58	0		78	
Queue Length 95th (ft)	4	#736		#103	219			111	70		#166	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	295	551		246	816			245	801		215	
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	0.00	1.28		0.61	0.47			0.46	0.60		0.68	

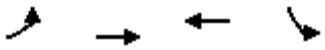
Intersection Summary			
Area Type:	Other		
Cycle Length: 89			
Actuated Cycle Length: 87.7			
Natural Cycle: 90			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.28			
Intersection Signal Delay: 74.9		Intersection LOS: E	
Intersection Capacity Utilization 81.6%		ICU Level of Service D	
Analysis Period (min) 15			

~ 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.

Splits and Phases: 19: Chestnut St/Homer Ave & Union Street





Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	382	744	453	200
v/c Ratio	0.59	0.61	0.74	0.54
Control Delay	8.5	7.6	23.8	12.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	8.5	7.6	23.8	12.1
Queue Length 50th (ft)	32	90	119	6
Queue Length 95th (ft)	108	229	236	59
Internal Link Dist (ft)		1013	1554	1450
Turn Bay Length (ft)	180			
Base Capacity (vph)	670	1582	965	779
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.47	0.47	0.26

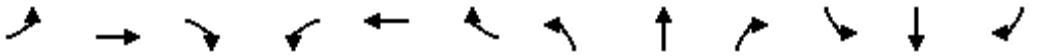
Intersection Summary

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	163	1011	486	141	33	120	97
v/c Ratio	0.54	1.16	0.82	0.18	0.05	no cap	0.14
Control Delay	24.9	109.5	33.7	6.6	7.9		4.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	24.9	109.5	33.7	6.6	7.9	Error	4.2
Queue Length 50th (ft)	63	~687	227	17	2	~143	0
Queue Length 95th (ft)	131	#922	#414	49	20	#252	28
Internal Link Dist (ft)		795	1013		1069	1758	
Turn Bay Length (ft)	150			60			100
Base Capacity (vph)	301	872	594	765	699	1	707
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	0.54	1.16	0.82	0.18	0.05	120.00	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.

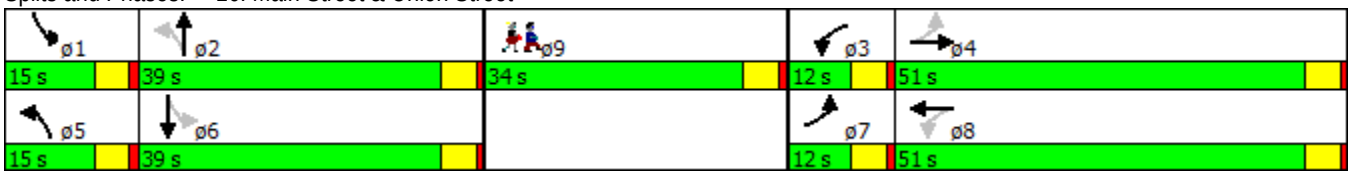


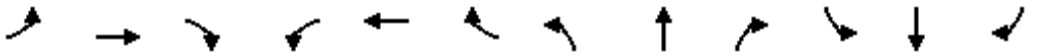
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	419	203	26	511	38	204	342	27	25	472	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.951			0.990			0.989			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1771	0	1770	1844	0	1770	1842	0	1770	1842	0
Flt Permitted	0.106			0.082			0.097			0.311		
Satd. Flow (perm)	197	1771	0	153	1844	0	181	1842	0	579	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			3			2			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	455	221	28	555	41	222	372	29	27	513	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	676	0	28	596	0	222	401	0	27	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	12.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	55.7	51.6		52.8	46.5		48.1	42.2		41.1	34.3	
Actuated g/C Ratio	0.45	0.42		0.43	0.38		0.39	0.34		0.33	0.28	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.46	0.90		0.19	0.86		1.11	0.64		0.10	1.08	
Control Delay	30.1	51.1		24.0	49.7		127.2	42.5		27.6	104.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	30.1	51.1		24.0	49.7		127.2	42.5		27.6	104.6	
LOS	C	D		C	D		F	D		C	F	
Approach Delay		48.8			48.6			72.7			101.0	
Approach LOS		D			D			E			F	
Queue Length 50th (ft)	32	475		11	396		~138	260		12	~446	
Queue Length 95th (ft)	91	#1048		40	#875		#422	#589		42	#937	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	178	749		159	695		200	630		305	513	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.46	0.90		0.18	0.86		1.11	0.64		0.09	1.08	

Intersection Summary			
Area Type:	Other		
Cycle Length: 151			
Actuated Cycle Length: 123.5			
Natural Cycle: 145			
Control Type: Semi Act-Uncoord			
Maximum v/c Ratio: 1.11			
Intersection Signal Delay: 66.2		Intersection LOS: E	
Intersection Capacity Utilization 92.8%		ICU Level of Service F	
Analysis Period (min) 15			
~ 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.			

Splits and Phases: 16: Main Street & Union Street





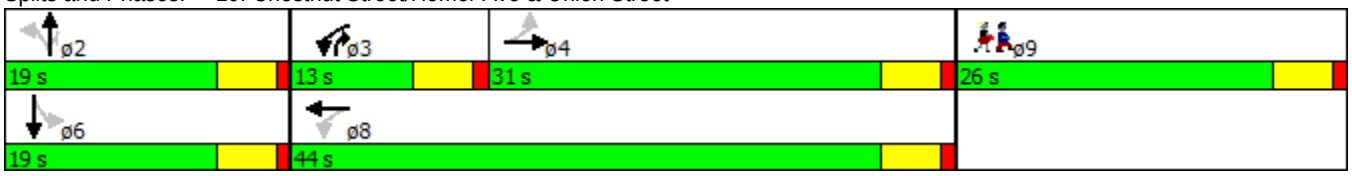
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	426	29	318	500	88	27	47	209	100	86	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.977				0.850		0.995	
Flt Protected	0.950			0.950				0.982			0.975	
Satd. Flow (prot)	1770	1844	0	1770	1820	0	0	1829	1583	0	1807	0
Flt Permitted	0.323			0.149				0.819			0.795	
Satd. Flow (perm)	602	1844	0	278	1820	0	0	1526	1583	0	1473	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			13				227		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	463	32	346	543	96	29	51	227	109	93	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	495	0	346	639	0	0	80	227	0	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		9.0	20.0		12.0	12.0	9.0	12.0	12.0	
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.6	26.6		39.9	39.9			13.8	27.1		13.8	
Actuated g/C Ratio	0.32	0.32		0.48	0.48			0.17	0.32		0.17	

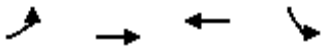
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.03	0.84		1.24	0.73			0.32	0.34		0.86	
Control Delay	23.2	43.6		158.3	25.8			37.4	5.0		68.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	23.2	43.6		158.3	25.8			37.4	5.0		68.7	
LOS	C	D		F	C			D	A		E	
Approach Delay		43.4			72.4			13.5			68.7	
Approach LOS		D			E			B			E	
Queue Length 50th (ft)	2	266		~200	294			40	0		116	
Queue Length 95th (ft)	10	#455		#371	#450			84	51		#249	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	191	591		279	877			262	667		254	
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	0.03	0.84		1.24	0.73			0.31	0.34		0.83	

Intersection Summary

Area Type: Other
Cycle Length: 89
Actuated Cycle Length: 83.4
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.24
Intersection Signal Delay: 55.7 Intersection LOS: E
Intersection Capacity Utilization 71.4% ICU Level of Service C
Analysis Period (min) 15
~ 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.

Splits and Phases: 19: Chestnut Street/Homer Ave & Union Street





Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	221	595	719	508
v/c Ratio	0.86	0.56	0.93	0.88
Control Delay	43.9	10.4	37.7	28.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	43.9	10.4	37.7	28.6
Queue Length 50th (ft)	33	123	235	77
Queue Length 95th (ft)	#112	205	#451	#238
Internal Link Dist (ft)		1013	1554	1450
Turn Bay Length (ft)	180			
Base Capacity (vph)	256	1105	810	641
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.86	0.54	0.89	0.79

Intersection Summary

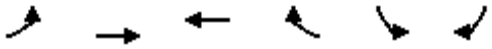
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	96	659	896	196	15	167	128
v/c Ratio	1.19	0.76	1.10	0.26	0.02	no cap	0.18
Control Delay	187.4	26.0	88.4	8.7	10.4		6.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	187.4	26.0	88.4	8.7	10.4	Error	6.5
Queue Length 50th (ft)	~66	294	~585	34	2	~200	11
Queue Length 95th (ft)	#121	436	#812	75	13	#324	45
Internal Link Dist (ft)		795	1013		1069	1758	
Turn Bay Length (ft)	150			60			100
Base Capacity (vph)	81	872	813	765	683	1	706
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	1.19	0.76	1.10	0.26	0.02	167.00	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	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	214	577	648	49	114	378
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	221	595	668	51	118	390
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	260	1035	700	53	96	316
Arrive On Green	0.07	0.57	0.43	0.43	0.27	0.27
Sat Flow, veh/h	1740	1827	1614	123	359	1186
Grp Volume(v), veh/h	221	595	0	719	509	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1738	1548	0
Q Serve(g_s), s	4.0	12.6	0.0	24.0	16.0	0.0
Cycle Q Clear(g_c), s	4.0	12.6	0.0	24.0	16.0	0.0
Prop In Lane	1.00			0.07	0.23	0.77
Lane Grp Cap(c), veh/h	260	1035	0	753	413	0
V/C Ratio(X)	0.85	0.57	0.00	0.95	1.23	0.00
Avail Cap(c_a), veh/h	260	1035	0	753	413	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.1	8.4	0.0	16.4	22.0	0.0
Incr Delay (d2), s/veh	22.6	0.8	0.0	22.4	124.2	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	6.5	0.0	16.1	21.0	0.0
LnGrp Delay(d),s/veh	36.7	9.1	0.0	38.8	146.2	0.0
LnGrp LOS	D	A		D	F	
Approach Vol, veh/h		816	719		509	
Approach Delay, s/veh		16.6	38.8		146.2	
Approach LOS		B	D		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		39.0		21.0	8.0	31.0		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		34.0		16.0	4.0	26.0		
Max Q Clear Time (g_c+I1), s		14.6		18.0	6.0	26.0		
Green Ext Time (p_c), s		9.3		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	56.7
HCM 2010 LOS	E

Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	90	615	5	16	826	184	4	1	9	155	2	120
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	96	654	5	17	879	196	4	1	10	165	2	128
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	329	1261	10	74	1218	1051	106	42	131	0	227	193
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.12	0.12	0.12	0.00	0.12	0.12
Sat Flow, veh/h	513	1811	14	11	1749	1509	191	349	1078	0	1863	1583
Grp Volume(v), veh/h	96	0	659	896	0	196	15	0	0	0	2	128
Grp Sat Flow(s),veh/h/ln	513	0	1824	1760	0	1509	1617	0	0	0	1863	1583
Q Serve(g_s), s	7.8	0.0	9.4	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.1	4.2
Cycle Q Clear(g_c), s	24.8	0.0	9.4	17.0	0.0	2.5	0.4	0.0	0.0	0.0	0.1	4.2
Prop In Lane	1.00		0.01	0.02		1.00	0.27		0.67	0.00		1.00
Lane Grp Cap(c), veh/h	329	0	1270	1292	0	1051	280	0	0	0	227	193
V/C Ratio(X)	0.29	0.00	0.52	0.69	0.00	0.19	0.05	0.00	0.00	0.00	0.01	0.66
Avail Cap(c_a), veh/h	374	0	1428	1442	0	1181	538	0	0	0	1254	1066
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	12.7	0.0	4.0	5.1	0.0	2.9	21.4	0.0	0.0	0.0	21.2	23.1
Incr Delay (d2), s/veh	0.5	0.0	0.3	1.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	3.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	4.7	8.4	0.0	1.0	0.2	0.0	0.0	0.0	0.0	2.1
LnGrp Delay(d),s/veh	13.2	0.0	4.3	6.4	0.0	3.0	21.5	0.0	0.0	0.0	21.2	27.0
LnGrp LOS	B		A	A		A	C				C	C
Approach Vol, veh/h		755			1092			15			130	
Approach Delay, s/veh		5.4			5.8			21.5			26.9	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		11.7		43.3	0.0	11.7		43.3
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		6.2		19.0	0.0	2.4		26.8
Green Ext Time (p_c), s		0.5		15.2	0.0	0.4		11.5

Intersection Summary	
HCM 2010 Ctrl Delay	7.1
HCM 2010 LOS	A

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	566	9	153	712	1	68
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	584	9	158	734	1	70

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	593	0	1637	588
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	1049	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	964	-	110	507
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	336	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	964	-	80	507
Mov Cap-2 Maneuver	-	-	-	-	80	-
Stage 1	-	-	-	-	553	-
Stage 2	-	-	-	-	243	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	13.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	80	507	-	-	964	-
HCM Lane V/C Ratio	0.013	0.138	-	-	0.164	-
HCM Control Delay (s)	50.6	13.2	-	-	9.5	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	0	0.5	-	-	0.6	-

Intersection	
Int Delay, s/veh	1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	7	627	860	52	46	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	7	646	887	54	47	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	940	0	-	0	1574	913
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	661	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	717	-	-	-	122	334
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	517	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	717	-	-	-	120	334
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	395	-
Stage 2	-	-	-	-	509	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	51.5
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	717	-	-	-	128
HCM Lane V/C Ratio	0.01	-	-	-	0.411
HCM Control Delay (s)	10.1	0	-	-	51.5
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	1.8

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	3	677	918	18	22	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	3	736	998	20	24	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1017	0	-	0	1750	1008
Stage 1	-	-	-	-	1008	-
Stage 2	-	-	-	-	742	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	682	-	-	-	94	292
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	471	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	682	-	-	-	93	292
Mov Cap-2 Maneuver	-	-	-	-	93	-
Stage 1	-	-	-	-	353	-
Stage 2	-	-	-	-	468	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	41.6
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	682	-	-	-	93	292
HCM Lane V/C Ratio	0.005	-	-	-	0.257	0.052
HCM Control Delay (s)	10.3	0	-	-	56.6	18
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0	-	-	-	0.9	0.2

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Vol, veh/h	583	9	153	722	1	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	50	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	3	3
Mvmt Flow	601	9	158	744	1	72

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	610	0	1666	606
Stage 1	-	-	-	-	606	-
Stage 2	-	-	-	-	1060	-
Critical Hdwy	-	-	4.16	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	-	-	2.254	-	3.527	3.327
Pot Cap-1 Maneuver	-	-	950	-	106	495
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	332	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	950	-	76	495
Mov Cap-2 Maneuver	-	-	-	-	76	-
Stage 1	-	-	-	-	543	-
Stage 2	-	-	-	-	238	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.7	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	76	495	-	-	950	-
HCM Lane V/C Ratio	0.014	0.146	-	-	0.166	-
HCM Control Delay (s)	53	13.5	-	-	9.5	0
HCM Lane LOS	F	B	-	-	A	A
HCM 95th %tile Q(veh)	0	0.5	-	-	0.6	-

Intersection	
Int Delay, s/veh	1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	7	646	871	53	48	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	5	5	6	6	0	0
Mvmt Flow	7	666	898	55	49	5

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	953	0	-	0	1605	925
Stage 1	-	-	-	-	925	-
Stage 2	-	-	-	-	680	-
Critical Hdwy	4.15	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	5.4	-
Follow-up Hdwy	2.245	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	709	-	-	-	117	329
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	507	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	709	-	-	-	115	329
Mov Cap-2 Maneuver	-	-	-	-	115	-
Stage 1	-	-	-	-	389	-
Stage 2	-	-	-	-	499	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	55.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	709	-	-	-	123
HCM Lane V/C Ratio	0.01	-	-	-	0.444
HCM Control Delay (s)	10.1	0	-	-	55.8
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0	-	-	-	2

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	697	954	18	22	15
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	758	1037	20	24	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1057	0	-	0	1813	1047
Stage 1	-	-	-	-	1047	-
Stage 2	-	-	-	-	766	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	659	-	-	-	86	277
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	459	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	659	-	-	-	85	277
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	338	-
Stage 2	-	-	-	-	454	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	45.2
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	659	-	-	-	85	277
HCM Lane V/C Ratio	0.007	-	-	-	0.281	0.059
HCM Control Delay (s)	10.5	0	-	-	63.2	18.8
HCM Lane LOS	B	A	-	-	F	C
HCM 95th %tile Q(veh)	0	-	-	-	1	0.2

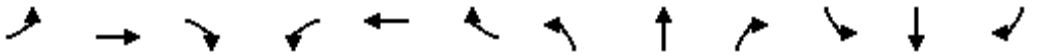
Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	21	701	943	37	21	12
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	762	1025	40	23	13

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1065	0	-	0	1853	1045
Stage 1	-	-	-	-	1045	-
Stage 2	-	-	-	-	808	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	654	-	-	-	81	278
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	438	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	654	-	-	-	76	278
Mov Cap-2 Maneuver	-	-	-	-	76	-
Stage 1	-	-	-	-	339	-
Stage 2	-	-	-	-	411	-

Approach	EB	WB	SB
HCM Control Delay, s	0.3	0	57.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	654	-	-	-	103
HCM Lane V/C Ratio	0.035	-	-	-	0.348
HCM Control Delay (s)	10.7	0	-	-	57.6
HCM Lane LOS	B	A	-	-	F
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4



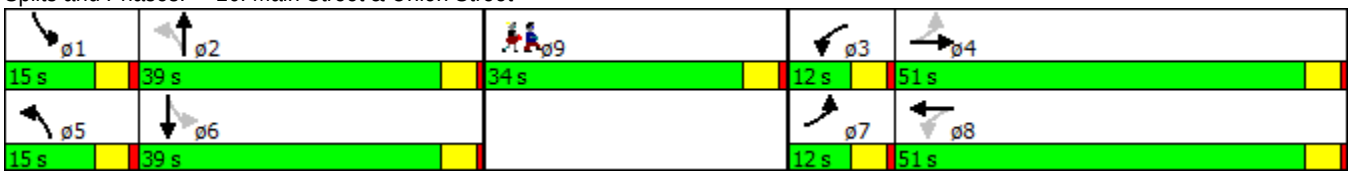
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	428	206	26	527	38	203	342	27	25	472	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.951			0.990			0.989			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1771	0	1770	1844	0	1770	1842	0	1770	1842	0
Flt Permitted	0.089			0.082			0.097			0.311		
Satd. Flow (perm)	166	1771	0	153	1844	0	181	1842	0	579	1842	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			2			2			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1634			1376			800			482	
Travel Time (s)		37.1			31.3			18.2			11.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	465	224	28	573	41	221	372	29	27	513	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	82	689	0	28	614	0	221	401	0	27	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	9.0	12.0		9.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	12.0	51.0		12.0	51.0		15.0	39.0		15.0	39.0	
Total Split (%)	7.9%	33.8%		7.9%	33.8%		9.9%	25.8%		9.9%	25.8%	
Maximum Green (s)	7.0	46.0		7.0	46.0		10.0	34.0		10.0	34.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		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	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Max		None	Max		None	None		None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	55.7	51.6		52.8	46.5		48.1	42.2		41.1	34.3	
Actuated g/C Ratio	0.45	0.42		0.43	0.38		0.39	0.34		0.33	0.28	

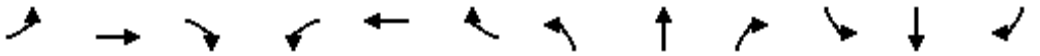
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.50	0.92		0.19	0.88		1.10	0.64		0.10	1.08	
Control Delay	32.2	53.4		24.0	52.5		125.6	42.5		27.6	104.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.2	53.4		24.0	52.5		125.6	42.5		27.6	104.6	
LOS	C	D		C	D		F	D		C	F	
Approach Delay		51.1			51.2			72.0			101.0	
Approach LOS		D			D			E			F	
Queue Length 50th (ft)	32	491		11	414		~136	260		12	~446	
Queue Length 95th (ft)	#96	#1077		40	#915		#420	#589		42	#937	
Internal Link Dist (ft)		1554			1296			720			402	
Turn Bay Length (ft)												
Base Capacity (vph)	166	749		159	694		200	630		305	513	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.49	0.92		0.18	0.88		1.10	0.64		0.09	1.08	

Intersection Summary

Area Type: Other
Cycle Length: 151
Actuated Cycle Length: 123.5
Natural Cycle: 145
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 67.2 Intersection LOS: E
Intersection Capacity Utilization 93.4% ICU Level of Service F
Analysis Period (min) 15
~ 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.

Splits and Phases: 16: Main Street & Union Street





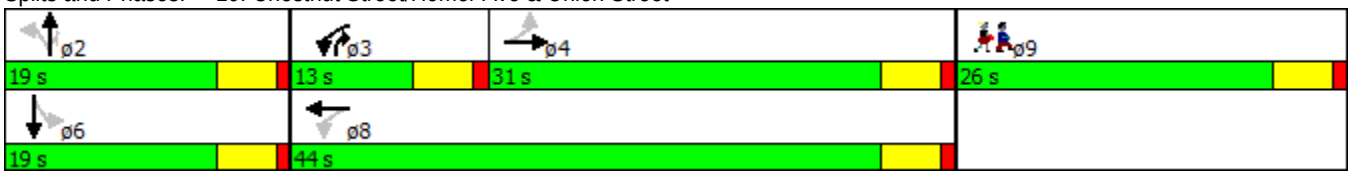
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	434	30	318	515	88	28	47	209	100	86	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990			0.978				0.850		0.995	
Flt Protected	0.950			0.950				0.982			0.975	
Satd. Flow (prot)	1770	1844	0	1770	1822	0	0	1829	1583	0	1807	0
Flt Permitted	0.302			0.139				0.814			0.794	
Satd. Flow (perm)	563	1844	0	259	1822	0	0	1516	1583	0	1472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			12				227		2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1376			328			877			402	
Travel Time (s)		31.3			7.5			19.9			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	472	33	346	560	96	30	51	227	109	93	8
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	505	0	346	656	0	0	81	227	0	210	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases		4		3	8			2	3		6	
Permitted Phases	4			8			2		2	6		
Detector Phase	4	4		3	8		2	2	3	6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0		9.0	20.0		12.0	12.0	9.0	12.0	12.0	
Total Split (s)	31.0	31.0		13.0	44.0		19.0	19.0	13.0	19.0	19.0	
Total Split (%)	34.8%	34.8%		14.6%	49.4%		21.3%	21.3%	14.6%	21.3%	21.3%	
Maximum Green (s)	26.0	26.0		8.0	39.0		14.0	14.0	8.0	14.0	14.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Lost Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	
Lead/Lag	Lag	Lag		Lead					Lead			
Lead-Lag Optimize?	Yes	Yes		Yes					Yes			
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None		Max	Max		None	None	Max	None	None	
Walk Time (s)												
Flash Dont Walk (s)												
Pedestrian Calls (#/hr)												
Act Effct Green (s)	26.6	26.6		39.9	39.9			13.8	27.1		13.8	
Actuated g/C Ratio	0.32	0.32		0.48	0.48			0.17	0.32		0.17	

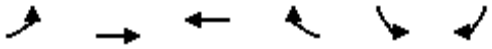
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
v/c Ratio	0.03	0.85		1.27	0.75			0.32	0.34		0.86	
Control Delay	23.2	45.2		170.9	26.7			37.6	5.0		68.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	23.2	45.2		170.9	26.7			37.6	5.0		68.7	
LOS	C	D		F	C			D	A		E	
Approach Delay		45.0			76.5			13.6			68.7	
Approach LOS		D			E			B			E	
Queue Length 50th (ft)	2	273		~208	307			41	0		116	
Queue Length 95th (ft)	10	#469		#379	#504			85	51		#249	
Internal Link Dist (ft)		1296			248			797			322	
Turn Bay Length (ft)												
Base Capacity (vph)	179	591		272	878			260	667		254	
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	0.03	0.85		1.27	0.75			0.31	0.34		0.83	

Intersection Summary

Area Type: Other
Cycle Length: 89
Actuated Cycle Length: 83.4
Natural Cycle: 90
Control Type: Semi Act-Uncoord
Maximum v/c Ratio: 1.27
Intersection Signal Delay: 58.3 Intersection LOS: E
Intersection Capacity Utilization 71.9% ICU Level of Service C
Analysis Period (min) 15
~ 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.

Splits and Phases: 19: Chestnut Street/Homer Ave & Union Street





Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	220	589	669	49	114	389
Number	5	2	6	16	7	14
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00			1.00	1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	175.9	190.0	177.6	190.0
Adj Flow Rate, veh/h	227	607	690	51	118	401
Adj No. of Lanes	1	1	1	0	0	0
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Percent Heavy Veh, %	4	4	8	8	0	0
Cap, veh/h	245	1035	701	52	94	318
Arrive On Green	0.07	0.57	0.43	0.43	0.27	0.27
Sat Flow, veh/h	1740	1827	1619	120	351	1193
Grp Volume(v), veh/h	227	607	0	741	520	0
Grp Sat Flow(s),veh/h/ln	1740	1827	0	1738	1548	0
Q Serve(g_s), s	4.0	12.9	0.0	25.3	16.0	0.0
Cycle Q Clear(g_c), s	4.0	12.9	0.0	25.3	16.0	0.0
Prop In Lane	1.00			0.07	0.23	0.77
Lane Grp Cap(c), veh/h	245	1035	0	753	413	0
V/C Ratio(X)	0.93	0.59	0.00	0.98	1.26	0.00
Avail Cap(c_a), veh/h	245	1035	0	753	413	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	0.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	14.7	8.4	0.0	16.8	22.0	0.0
Incr Delay (d2), s/veh	38.5	0.9	0.0	28.7	135.3	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	6.7	0.0	17.9	22.3	0.0
LnGrp Delay(d),s/veh	53.2	9.3	0.0	45.5	157.3	0.0
LnGrp LOS	D	A		D	F	
Approach Vol, veh/h		834	741		520	
Approach Delay, s/veh		21.2	45.5		157.3	
Approach LOS		C	D		F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		
Phs Duration (G+Y+Rc), s		39.0		21.0	8.0	31.0		
Change Period (Y+Rc), s		5.0		5.0	4.0	5.0		
Max Green Setting (Gmax), s		34.0		16.0	4.0	26.0		
Max Q Clear Time (g_c+I1), s		14.9		18.0	6.0	27.3		
Green Ext Time (p_c), s		9.5		0.0	0.0	0.0		

Intersection Summary	
HCM 2010 Ctrl Delay	63.6
HCM 2010 LOS	E

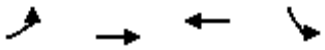
Notes

User approved volume balancing among the lanes for turning movement.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	92	633	5	16	858	184	4	1	9	155	2	124
Number	3	8	18	7	4	14	1	6	16	5	2	12
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	182.7	182.7	190.0	190.0	177.6	177.6	190.0	190.0	190.0	190.0	186.3	186.3
Adj Flow Rate, veh/h	98	673	5	17	913	196	4	1	10	165	2	132
Adj No. of Lanes	1	1	0	0	1	1	0	1	0	0	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	4	4	4	7	7	7	0	0	0	2	2	2
Cap, veh/h	311	1269	9	72	1225	1057	104	42	133	0	229	195
Arrive On Green	0.70	0.70	0.70	0.70	0.70	0.70	0.12	0.12	0.12	0.00	0.12	0.12
Sat Flow, veh/h	496	1811	13	11	1749	1509	194	344	1077	0	1863	1583
Grp Volume(v), veh/h	98	0	678	930	0	196	15	0	0	0	2	132
Grp Sat Flow(s),veh/h/ln	496	0	1825	1760	0	1509	1615	0	0	0	1863	1583
Q Serve(g_s), s	8.8	0.0	10.0	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.1	4.5
Cycle Q Clear(g_c), s	27.4	0.0	10.0	18.7	0.0	2.5	0.4	0.0	0.0	0.0	0.1	4.5
Prop In Lane	1.00		0.01	0.02		1.00	0.27		0.67	0.00		1.00
Lane Grp Cap(c), veh/h	311	0	1278	1298	0	1057	279	0	0	0	229	195
V/C Ratio(X)	0.31	0.00	0.53	0.72	0.00	0.19	0.05	0.00	0.00	0.00	0.01	0.68
Avail Cap(c_a), veh/h	340	0	1384	1397	0	1145	521	0	0	0	1215	1033
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	14.0	0.0	4.0	5.3	0.0	2.9	22.0	0.0	0.0	0.0	21.8	23.8
Incr Delay (d2), s/veh	0.6	0.0	0.3	1.6	0.0	0.1	0.1	0.0	0.0	0.0	0.0	4.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.2	0.0	5.0	9.4	0.0	1.1	0.2	0.0	0.0	0.0	0.0	2.2
LnGrp Delay(d),s/veh	14.5	0.0	4.4	7.0	0.0	3.0	22.1	0.0	0.0	0.0	21.8	27.8
LnGrp LOS	B		A	A		A	C				C	C
Approach Vol, veh/h		776			1126			15			134	
Approach Delay, s/veh		5.7			6.3			22.1			27.8	
Approach LOS		A			A			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs		2		4	5	6		8
Phs Duration (G+Y+Rc), s		12.0		44.7	0.0	12.0		44.7
Change Period (Y+Rc), s		5.0		5.0	5.0	5.0		5.0
Max Green Setting (Gmax), s		37.0		43.0	16.0	16.0		43.0
Max Q Clear Time (g_c+I1), s		6.5		20.7	0.0	2.4		29.4
Green Ext Time (p_c), s		0.5		15.0	0.0	0.4		10.3

Intersection Summary	
HCM 2010 Ctrl Delay	7.6
HCM 2010 LOS	A



Lane Group	EBL	EBT	WBT	SBL
Lane Group Flow (vph)	227	607	741	519
v/c Ratio	0.91	0.57	0.95	0.90
Control Delay	52.8	10.7	40.6	31.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	52.8	10.7	40.6	31.5
Queue Length 50th (ft)	34	126	247	86
Queue Length 95th (ft)	#119	211	#471	#252
Internal Link Dist (ft)		1013	1554	1450
Turn Bay Length (ft)	180			
Base Capacity (vph)	249	1069	784	622
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.91	0.57	0.95	0.83

Intersection Summary

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

Lane Group	EBL	EBT	WBT	WBR	NBT	SBT	SBR
Lane Group Flow (vph)	98	678	930	196	15	167	132
v/c Ratio	1.21	0.78	1.18	0.26	0.02	no cap	0.19
Control Delay	195.7	27.2	118.4	8.7	10.4		7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0
Total Delay	195.7	27.2	118.4	8.7	10.4	Error	7.6
Queue Length 50th (ft)	~69	307	~640	34	2	~200	15
Queue Length 95th (ft)	#124	456	#869	75	13	#324	51
Internal Link Dist (ft)		795	1013		1069	1758	
Turn Bay Length (ft)	150			60			100
Base Capacity (vph)	81	872	789	765	683	1	701
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	1.21	0.78	1.18	0.26	0.02	167.00	0.19

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.