CONLEY
ASSOCIATES

TRAFFIC IMPACT STUDY

PROPOSED RESIDENTIAL DEVELOPMENT
Grafton, MA and Westborough, MA

FEBRUARY 2016

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CONLEY ASSOCIATES

Executive Summary

Conley Associates, Inc. assessed the traffic impacts associated with a 58 unit residential development to be located between Adams Road in Grafton and Harvest Way in Westborough, Massachusetts. The proposed residential development will have full-access driveways on Adams Road and Harvest Way.

The Traffic Impact Study (TIS) follows the Town of Grafton Subdivision Rules and Regulations.

Conley Associates, Inc. developed the study area based on the planned site access points and areas of impact. The study area includes the intersections of Appleseed Drive at Harvest Way and Adams Road at the proposed driveway.

Conley Associates, Inc. analyzed the existing transportation conditions, determined the future transportation conditions for the study area, calculated the number of trips associated with the proposed residential development, distributed those vehicle trips to area roadways, and determined the impact of the site traffic.

Conley Associates, Inc. analyzed the weekday AM (7:00 AM to 9:00 AM) and weekday PM (4:00 PM to 6:00 PM) peak periods as these are the typical peak periods for a residential development. During the weekday AM peak hour, the proposed residential development is expected to generate approximately 51 new vehicle trips (13 trips in and 38 trips out). The proposed development is anticipated to generate 65 new vehicle trips (41 trips in and 24 trips out) during the PM peak hour.

Introduction

Conley Associates, Inc. assessed the traffic impacts associated with a proposed 58 unit residential development to be located between Adams Road in Grafton and Harvest Way in Westborough, Massachusetts. The proposed residential development will have full-access driveways on Harvest Way and Adams Road. The study area included the intersections of Appleseed Drive at Harvest Way and Adams Road at the access to the proposed residential development.

The weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods are analyzed in the Traffic Impact Study as these are the critical peak time periods for a typical residential development.

Conley Associates, Inc. analyzed the existing transportation conditions, determined the future transportation conditions for the study area, determined the number of trips associated with the proposed residential development, distributed those vehicle trips to area roadways, and determined the impact of the site traffic.

Existing Conditions

Conley Associates, Inc. assessed the existing transportation conditions in January of 2016. As outlined in the Introduction, the study area included the intersections of Appleseed Drive at Harvest Way and Adams Road at the access to the proposed residential development.

Conley Associates, Inc. conducted a field visit to inventory the existing roadway geometry, collected existing traffic volume data at the study area intersections, and researched seasonal variations in traffic volumes.

Existing Roadway Geometry

The study area consists of Adams Road to the west and Harvest Way to the east. Harvest Way, posted at 25 miles per hour, runs east and west through the Town of Grafton and Westborough. Harvest Way consists of one lane in each direction. Harvest Way is a no through road to the west. Pedestrian accommodations include a sidewalk on the north side of Harvest Way.

Adams Road generally consists of one lane in each direction. Adams Road, posted at 25 miles per hour, runs north and south through the Town of Grafton between Old Westboro Road to the north and Merriam Road to the south.

Appleseed Drive at Harvest Way

Appleseed Drive at Harvest Way is a three-way, unsignalized intersection. The east and west legs of Harvest Way consist of one lane in each direction. The north leg of Appleseed Drive consists of one lane in each direction. A sidewalk is provided along the north edge of Harvest Way. A sidewalk is provided on the west side of Appleseed Drive.

Adams Road

Adams Road consists of one lane in each direction from Old Westboro Road to the north and Merriam Road to the south. No sidewalks are provided along Adams Road.

Traffic Volume Data

Conley Associates, Inc. collected traffic volume data on Wednesday, January 6, 2016. An Automatic Traffic Recorder (ATR) collected traffic volume data on Adams Road just north of Massachusetts Turnpike overpass in Grafton. Adams Road had a daily volume of 1,070 vehicles (538 southbound and 532 northbound). The weekday AM peak occurred between 8:00 AM and 9:00 AM when 90 vehicles (8 southbound and 82 northbound) traveled on Adams Road. The weekday PM peak occurred between 5:00 PM and 6:00 PM when 106 vehicles (75 southbound and 31 northbound) traveled on Adams Road.

Turning Movement Counts (TMCs) were conducted at the intersection of Harvest Way and Appleseed Drive during the weekday AM (7:00 AM to 9:00 AM) and weekday PM (4:00 PM to 6:00 PM) peak periods. Data collected indicated that the weekday AM peak occurred between

8:00 AM and 9:00 AM when approximately 4 vehicles passed the proposed site on Harvest Way westbound. The TMC data shows that the weekday PM peak hour occurred from 4:00 PM to 5:00 PM when approximately 5 vehicles passed the proposed site on Harvest Way westbound.

Seasonal Adjustment

Conley Associates, Inc. researched Massachusetts Department of Transportation (MassDOT) continuous count data to determine an appropriate seasonal adjustment for the traffic volumes collected in January of 2016. Conley Associates, Inc. identified the two closest permanent count stations with adequate data, to calculate seasonal variation. Station 307 is located on Route 9 in Westborough and station 3321 is located on Interstate 495 (I-495) in Milford, south of the ramp from Route 85 to I-495 southbound.

Based on data from station 307, January traffic volumes were six percent lower than average month volumes from 2010 through 2014. Data from station 3321 indicates that January traffic volumes were fourteen percent lower than average month volumes from 2010 through 2014. Since January traffic volumes are historically lower than average month volumes, a ten percent increase in traffic volumes was necessary. The MassDOT traffic volume data can be found in the Appendix.

Existing Traffic Volumes

The traffic volume data collected in January was increased by ten percent to represent the 2016 Existing traffic volumes. The 2016 Existing weekday AM and weekday PM balanced peak hour traffic volumes can be found in Figure 1.

No Build Condition

The future transportation conditions expected in the study area without the development of the proposed project were determined. As is standard for this type of project, traffic volumes were projected seven years into the future. The traffic from background traffic growth were added to the 2016 Existing condition traffic volumes to determine the 2023 No Build condition traffic volumes.

Background Traffic Growth

Conley Associates, Inc. researched traffic growth rates for the Towns of Grafton and Westborough. Traffic volume data was obtained from MassDOT. The closest temporary count stations with adequate traffic volumes for analysis include station 307 and station 3321 described above. In addition station 3133 located on West Main Street at Adams Street in Westborough was researched. Over the past five years, the average traffic growth rate for these three stations was -0.01 percent per year. The average growth rate for station 3133, located at West Main Street at Adams Street within the residential area the site is proposed, was one percent per year over the past five years. To be conservative, Conley Associates, Inc. used a one percent annual traffic growth rate. Calculations are provided in the appendix.

Site Specific Development

Conley Associates, Inc. contacted the Town of Grafton and Westborough to determine if there were any approved developments or planned roadway improvement projects located near the proposed residential development that would affect 2023 traffic volumes. Conley Associates, Inc. was informed that there is one other project in Westborough and there are seven other projects in Grafton that may affect traffic volumes in the study area.

The project in Westborough included three residential units and was located just south of West Main Street to the northeast the proposed site. The projects in Grafton included approximately 127 residential units and 20,000 square feet of commercial space. Conley Associates, Inc. researched the locations, trip generation, and trip distribution of these developments. Conley Associates, Inc. determined that it is unlikely any trip generation impacts of those projects would affect the study area intersections.

No Build Traffic Volumes

The Existing peak hour traffic volumes were increased by 1.0 percent per year compounded for seven years in order to determine 2023 No Build Condition peak hour traffic volumes. The 2023 No Build weekday AM and weekday PM peak hour traffic volumes can be found in Figure 2.

Build Condition

The transportation conditions expected in the study area in 2023 with the development were determined. The proposed development consists of a 58 unit residential development. The site will be accessed via an extension of Harvest Way to the east and a new driveway off of Adams Road to the west. The anticipated traffic generated from the proposed development was calculated and added to the 2023 No Build condition traffic volumes to determine the 2023 Build condition traffic volumes.

Trip Generation

As per industry standard, Conley Associates, Inc. determined the trip generation of the proposed development based on the ITE Trip Generation Manual. Land Use Code (LUC) 210, Single Family Detached Housing, is the most appropriate description of this site. Conley Associates, Inc. calculated the trip generation based on a 58 unit single family home development. The vehicle trips anticipated to be generated by the proposed development are shown in Table 1.

Table 1: ITE Trip Generation Summary

Period	In	Out	Total
Weekday Daily	318	318	636
Weekday AM Peak Hour	13	38	51
Weekday PM Peak Hour	41	24	65

Note: Trip generation based on Trip Generation Manual, 9th Edition, published by Institute of Transportation Engineers, 2012. Assumes 58 dwelling units of LUC 210, Single Family Detached Housing.

As shown in Table 1, the proposed development is anticipated to generate approximately 636 vehicle trips (318 trips in and 318 trips out) over the course of a weekday. The project is anticipated to generate 51 vehicle trips (13 trips in and 38 trips out) during the weekday AM peak hour and approximately 65 vehicle trips (41 trips in and 24 trips out) during the weekday PM peak hour.

Trip Distribution

The trip generation of the development was distributed through the study area based on existing census commuting to work data, existing traffic count data, and engineering judgment. Approximately 70 percent of the site traffic is expected to travel to and from points north of the site. Approximately 30 percent is expected to travel to and from Adams Road north of the site. Approximately 40 percent is expected to travel to and from Appleseed Drive. The remaining traffic is expected to travel to and from points south of the site on Adams Road.

Build Traffic Volumes

The trip generation associated with proposed residential development was added to the 2023 No Build condition peak hour traffic volumes to determine the 2023 Build condition peak hour traffic volumes. The 2023 Build weekday AM and weekday PM peak hours can be found in the Appendix.

Traffic Operations Analysis

The traffic operations of the study area intersections were determined. Analysis was based on methodologies outlined in the Highway Capacity Manual (HCM). Level of service (LOS) and delays were calculated and are summarized below.

Level of Service

LOS is a calculation of control delay for an intersection. LOS is an indication of driver discomfort, frustration, fuel consumption, and lost time. LOS is defined by an index from A (free flow) to F (long delays). LOS control delay values are given in Table 2.

For unsignalized intersections, delay values apply only to the controlled movements, since the main street movements are not restricted. Control delay is the elapsed time for deceleration,

queue time, stopped delay, and final acceleration. Average control delay for unsignalized intersections is a function of the capacity of the approach and the degree of saturation.

Table 2: Level of Service Criteria – Unsignalized Intersections

Level of Service	Average Delay (seconds)
A	≤ 10
B	>10 and ≤ 15
C	>15 and ≤ 25
D	>25 and ≤ 35
E	>35 and ≤ 50
F	>50

Source: 2010 Highway Capacity Manual

Synchro 8 software was used as the analysis tool for determining the LOS at the study area intersections. Synchro implements the methods of the 2010 Highway Capacity Manual (HCM) to analyze intersection capacity and determine LOS.

Intersection Operations Analysis

The level of service procedures described above were used to determine peak hour operating LOS at the study area intersections. The existing unsignalized and future site driveway intersections were analyzed. All backup calculations are provided in the Appendix.

Table 3: Unsignalized Intersection Operations Analysis Summary

	2016 Existing		2023 No Build		2023 Build	
	LOS	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**
Harvest Way at Appleseed Drive (Southbound Approach)						
AM Peak Hour	A	8.4	A	8.4	A	8.4
PM Peak Hour	A	8.5	A	8.5	A	8.5
Harvest Way at Appleseed Drive (Eastbound Left Turns)						
AM Peak Hour	A	7.2	A	7.2	A	7.2
PM Peak Hour	A	7.2	A	7.2	A	7.2
Harvest Way at Adams Road (Westbound Approach)						
AM Peak Hour	N/A	N/A	N/A	N/A	A	9.1
PM Peak Hour	N/A	N/A	N/A	N/A	A	9.0
Harvest Way at Adams Road (Southbound Left Turns)						
AM Peak Hour	N/A	N/A	N/A	N/A	A	7.4
PM Peak Hour	N/A	N/A	N/A	N/A	A	7.3

As shown in Table 3, the three way intersection of Harvest Way at Appleseed Drive is operating at a LOS A condition during the weekday AM and PM peak hours. Due to the light traffic currently on Harvest Way at Appleseed Drive the addition of background traffic growth will not increase the delays. The addition of site traffic will not increase the delays. The new intersection of Harvest Way at Adams Road will operate at a LOS A with a delay of under 10 seconds.

Sight Distance

Conley Associates, Inc. assessed the available stopping sight distance (SSD) at the proposed site access on Adams Road in January of 2016. Stopping sight distance is the distance required for an approaching vehicle to perceive and act accordingly to a vehicle exiting the site drive. Stopping sight distance requirements are presented in the manual, "A Policy on Geometric Design of Highways and Streets" (American Association of State Highway and Transportation Officials, 2011).

Adams Road has a posted speed limit of 30 miles per hour (mph). The speed data collected by the ATR indicates that the 85th percentile speed along Adams Road is 37 mph in the northbound and southbound directions. That is, 85 percent of the vehicles traveling along Adams Road are traveling at or below 37 mph.

Stopping sight distance was measured to be approximately 250 feet approaching the driveway from the north, which meets the AASHTO requirements for a 30 mph zone. Approaching the driveway from the south, the existing SSD is limited by a number of large trees and was measured to be 135 feet which only meets the AASHTO requirements for a 20 mph zone. Once clearing takes place within the right of way the available sight lines should be measured again. In the event that the sight lines remain limited based on trees on private property or based on topography, Conley Associates, Inc. recommends that an advance warning sign with an 20 mph placard be located on Adams Road, in advance of of the proposed site driveway from the south.

Conclusion

Conley Associates, Inc. has analyzed the traffic impacts of the development of a proposed 58 unit residential development to be located between Harvest Road in Grafton, Massachusetts and Harvest Way in Westborough, Massachusetts.

During the weekday AM peak hour, the proposed residential developmentis expected to generate approximately 51 new vehicle trips (13 trips in and 38 trips out). It is expected to generate 65 new trips (41 trips in and 24 trips out) during the weekday PM peak hour.

The intersection of Harvest Way at Appleseed Drive is currently operating at LOS A during the weekday AM and PM peak hours. In the future, with background traffic growth and site related traffic, the intersection will operate at LOS A during both peak hours. Site related delay

increases are expected to be less than one second. The new intersection of Adams Road at Harvest Way is also expected to operate at LOS A in the Build condition.

Based on the measured sight lines available in the field, the required stopping sight distance is met for the intersection of Adams Road and the proposed site driveway from the north. Based on the measured sight lines available in the field, the required stopping sight distance is not met for the intersection of Adams Road and the proposed driveway from the south. Sight lines from the south along Adams Road have the potential to be met once clearing of trees and shrubs takes place and should be measured again. Conley Associates, Inc. recommends that the speed be changed to 20 mph in the event that clearing does not mitigate the problem.

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Adams Road (near #90)
north of Mass Pike Overpass
City, State: Grafton, MA
Client: Conley Associates/ J. Conley

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

154864 A Volume
Site Code: 1574

Start	SB				NB				Combined				06-Jan-16
Time	A.M.		P.M.		A.M.		P.M.		A.M.		P.M.		Wed
12:00	4		6		0		1		4		7		
12:15	0		2		0		11		0		13		
12:30	2		9		0		8		2		17		
12:45	2	8	7	24	2	2	11	31	4	10	18	55	
01:00	2		4		0		2		2		6		
01:15	0		11		0		8		0		19		
01:30	1		7		0		5		1		12		
01:45	0	3	0	22	0	0	8	23	0	3	8	45	
02:00	0		9		0		6		0		15		
02:15	0		11		0		5		0		16		
02:30	0		4		0		6		0		10		
02:45	0	0	3	27	0	0	8	25	0	0	11	52	
03:00	0		4		0		7		0		11		
03:15	0		5		0		6		0		11		
03:30	0		8		0		10		0		18		
03:45	0	0	12	29	0	0	10	33	0	0	22	62	
04:00	0		12		0		9		0		21		
04:15	0		9		0		4		0		13		
04:30	1		7		0		5		1		12		
04:45	0	1	13	41	0	0	11	29	0	1	24	70	
05:00	0		18		1		7		1		25		
05:15	0		16		1		8		1		24		
05:30	0		14		0		12		0		26		
05:45	0	0	27	75	2	4	4	31	2	4	31	106	
06:00	1		25		2		13		3		38		
06:15	1		27		1		7		2		34		
06:30	0		19		6		6		6		25		
06:45	2	4	20	91	4	13	8	34	6	17	28	125	
07:00	0		11		12		5		12		16		
07:15	2		15		5		8		7		23		
07:30	3		12		13		8		16		20		
07:45	2	7	11	49	13	43	6	27	15	50	17	76	
08:00	3		11		16		7		19		18		
08:15	1		8		20		3		21		11		
08:30	1		5		20		4		21		9		
08:45	3	8	7	31	26	82	3	17	29	90	10	48	
09:00	8		11		19		3		27		14		
09:15	3		5		12		2		15		7		
09:30	3		6		20		4		23		10		
09:45	8	22	3	25	14	65	3	12	22	87	6	37	
10:00	6		6		16		0		22		6		
10:15	6		8		5		1		11		9		
10:30	4		5		9		1		13		6		
10:45	7	23	2	21	7	37	2	4	14	60	4	25	
11:00	6		2		4		0		10		2		
11:15	5		1		4		0		9		1		
11:30	4		0		5		0		9		0		
11:45	6	21	3	6	5	18	2	2	11	39	5	8	
Total	97		441		264		268		361		709		
Percent	26.9%		62.2%		73.1%		37.8%						
Day Total		538				532				1070			
Peak	09:45	-	05:45	-	08:15	-	04:45	-	08:15	-	05:30	-	-	-
Vol.	24	-	98	-	85	-	38	-	98	-	129	-	-	-
P.H.F.	0.750		0.907		0.817		0.792		0.845		0.849			

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Adams Road (near #90)
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154864 A Speed
Site Code: 1574

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
01/06/ 16	0	0	0	2	3	2	0	**1**	0	0	0	0	0	8	38	34
01:00	0	0	0	1	1	0	1	0	0	0	0	0	0	3	41	34
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	28	27
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	0	0	0	3	0	0	0	0	**1**	0	0	0	4	56	38
07:00	0	0	**1**	2	3	1	0	0	0	0	0	0	0	7	33	30
08:00	0	0	0	1	6	1	0	0	0	0	0	0	0	8	33	32
09:00	**1**	**1**	1	2	**13**	3	1	0	0	0	0	0	0	22	35	30
10:00	0	0	1	**4**	7	**8**	**2**	1	0	0	0	0	0	**23**	38	34
11:00	1	1	1	4	13	1	0	0	0	0	0	0	0	21	33	29
12 PM	0	0	2	5	12	5	0	0	0	0	0	0	0	24	35	31
13:00	0	0	0	6	10	6	0	0	0	0	0	0	0	22	36	32
14:00	0	2	0	2	15	6	1	**1**	0	0	0	0	0	27	37	33
15:00	**2**	0	1	9	11	6	0	0	0	0	0	0	0	29	35	29
16:00	1	1	0	3	21	12	2	1	0	0	0	0	0	41	37	33
17:00	0	0	1	7	47	**18**	2	0	0	0	0	0	0	75	36	33
18:00	1	**3**	**4**	**14**	**54**	12	2	1	0	0	0	0	0	**91**	34	31
19:00	0	1	1	8	25	11	2	1	0	0	0	0	0	49	37	33
20:00	0	0	0	6	15	6	**4**	0	0	0	0	0	0	31	38	33
21:00	0	0	0	6	5	13	1	0	0	0	0	0	0	25	37	34
22:00	0	0	0	7	10	4	0	0	0	0	0	0	0	21	35	31
23:00	0	0	0	0	4	2	0	0	0	0	0	0	0	6	36	34
Total	6	9	13	90	278	117	18	6	0	1	0	0	0	538		
%	1.1%	1.7%	2.4%	16.7%	51.7%	21.7%	3.3%	1.1%	0.0%	0.2%	0.0%	0.0%	0.0%			
AM Peak	09:00	09:00	07:00	10:00	09:00	10:00	10:00	00:00		06:00				10:00		
Vol.	1	1	1	4	13	8	2	1		1				23		
PM Peak	15:00	18:00	18:00	18:00	18:00	17:00	20:00	14:00						18:00		
Vol.	2	3	4	14	54	18	4	1						91		

Stats

15th Percentile :	26 MPH
50th Percentile :	31 MPH
85th Percentile :	36 MPH
95th Percentile :	38 MPH
Mean Speed(Average) :	32 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	395
Percent in Pace :	73.4%
Number of Vehicles > 30 MPH :	364
Percent of Vehicles > 30 MPH :	67.7%

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01/06/ 16	0	0	0	0	1	1	0	0	0	0	0	0	0	2	37	35
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	1	2	1	0	0	0	0	0	0	0	4	36	32
06:00	0	0	0	4	4	4	1	0	0	0	0	0	0	13	37	33
07:00	0	**3**	**3**	8	18	8	2	**1**	0	0	0	0	0	43	36	31
08:00	0	0	0	**15**	**31**	**27**	**9**	0	0	0	0	0	0	**82**	38	34
09:00	0	0	1	8	30	21	5	0	0	0	0	0	0	65	37	34
10:00	0	0	0	4	9	18	5	0	**1**	0	0	0	0	37	39	36
11:00	0	0	2	4	7	4	1	0	0	0	0	0	0	18	36	31
12 PM	**3**	0	0	6	**15**	5	2	0	0	0	0	0	0	31	36	30
13:00	1	0	1	2	10	8	1	0	0	0	0	0	0	23	37	32
14:00	0	0	1	6	9	9	0	0	0	0	0	0	0	25	36	32
15:00	0	1	**4**	9	6	8	**4**	1	0	0	0	0	0	33	39	32
16:00	0	0	0	4	13	**10**	1	1	0	0	0	0	0	29	37	34
17:00	0	0	1	6	15	7	0	**2**	0	0	0	0	0	31	37	33
18:00	0	1	0	**14**	13	4	2	0	0	0	0	0	0	**34**	35	31
19:00	1	**2**	1	3	12	4	4	0	0	0	0	0	0	27	38	31
20:00	0	0	1	4	8	4	0	0	0	0	0	0	0	17	35	31
21:00	0	0	0	4	7	1	0	0	0	0	0	0	0	12	33	31
22:00	0	0	1	2	1	0	0	0	0	0	0	0	0	4	31	27
23:00	0	0	0	1	1	0	0	0	0	0	0	0	0	2	32	30
Total	5	7	16	105	212	144	37	5	1	0	0	0	0	532		
%	0.9%	1.3%	3.0%	19.7%	39.8%	27.1%	7.0%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%			
AM Peak		07:00	07:00	08:00	08:00	08:00	08:00	07:00	10:00					08:00		
Vol.		3	3	15	31	27	9	1	1					82		
PM Peak	12:00	19:00	15:00	18:00	12:00	16:00	15:00	17:00						18:00		
Vol.	3	2	4	14	15	10	4	2						34		

Stats

15th Percentile :	26 MPH
50th Percentile :	32 MPH
85th Percentile :	37 MPH
95th Percentile :	41 MPH
Mean Speed(Average) :	33 MPH
10 MPH Pace Speed :	30-39 MPH
Number in Pace :	356
Percent in Pace :	66.9%
Number of Vehicles > 30 MPH :	357
Percent of Vehicles > 30 MPH :	67.0%

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

N/S: Appleseed Drive/ Driveway
E/W: Harvest Way
City, State: Westborough, MA
Client: Conley Associates/ J. Conley

File Name : 154864 A
Site Code : 1574
Start Date : 1/6/2016
Page No : 1

Groups Printed- Cars - Heavy Vehicles

	Appleseed Drive From North				Harvest Way From East				Driveway From South				Harvest Way From West				
Start Time	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Right	Thru	Left	U-Turn	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	2
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	3
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
08:45 AM	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	3
Total	2	0	1	0	2	0	0	0	0	0	0	0	0	0	2	0	7
Grand Total	3	0	1	0	3	0	0	0	0	0	0	0	0	0	3	0	10
Apprch %	75	0	25	0	100	0	0	0	0	0	0	0	0	0	100	0	
Total %	30	0	10	0	30	0	0	0	0	0	0	0	0	0	30	0	
Cars	3	0	1	0	1	0	0	0	0	0	0	0	0	0	3	0	8
% Cars	100	0	100	0	33.3	0	0	0	0	0	0	0	0	0	100	0	80
Heavy Vehicles	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	2
% Heavy Vehicles	0	0	0	0	66.7	0	0	0	0	0	0	0	0	0	0	0	20

	Appleseed Drive From North					Harvest Way From East					Driveway From South					Harvest Way 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	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	**1**	0	0	0	1	**1**	0	0	0	**1**	0	0	0	0	0	0	0	**1**	0	**1**	**3**
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
08:45 AM	1	0	**1**	0	**2**	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3
Total Volume	2	0	1	0	3	2	0	0	0	2	0	0	0	0	0	0	0	2	0	2	7
% App. Total	66.7	0	33.3	0		100	0	0	0		0	0	0	0		0	0	100	0		
PHF	.500	.000	.250	.000	.375	.500	.000	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.500	.000	.500	.583
Cars	2	0	1	0	3	1	0	0	0	1	0	0	0	0	0	0	0	2	0	2	6
% Cars	100	0	100	0	100	50.0	0	0	0	50.0	0	0	0	0	0	0	0	100	0	100	85.7
Heavy Vehicles	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
% Heavy Vehicles	0	0	0	0	0	50.0	0	0	0	50.0	0	0	0	0	0	0	0	0	0	0	14.3

PRECISION
D A T A
INDUSTRIES, LLC
P.O. Box 301 Berlin, MA 01503
Office: 508.481.3999 Fax: 508.545.1234
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N/S: Appleseed Drive/ Driveway
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Site Code : 1574
Start Date : 1/6/2016
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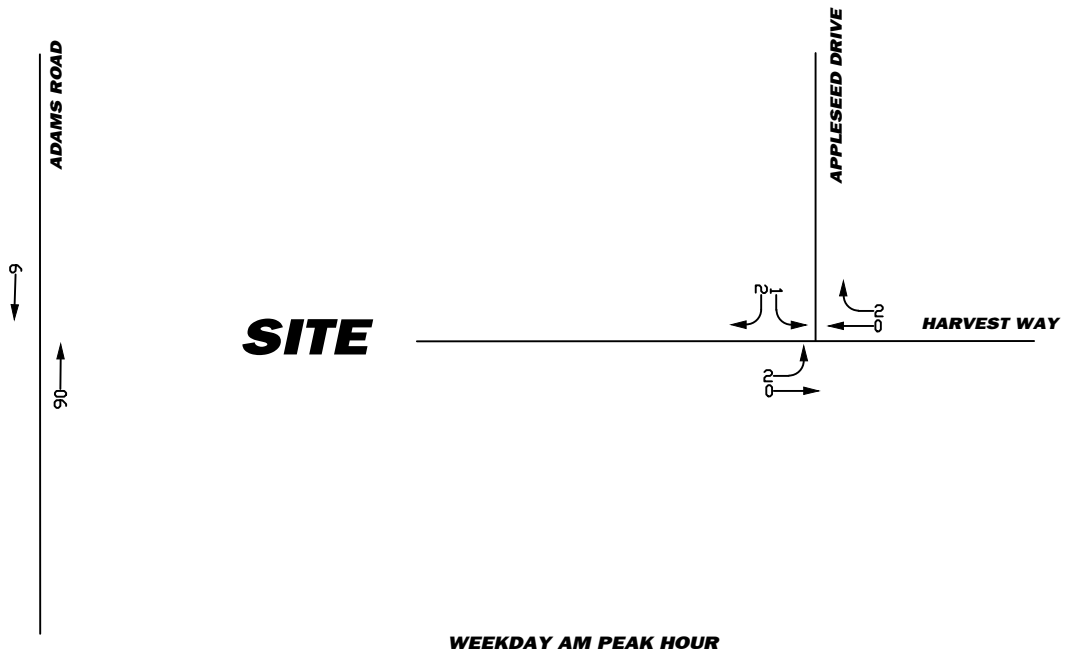
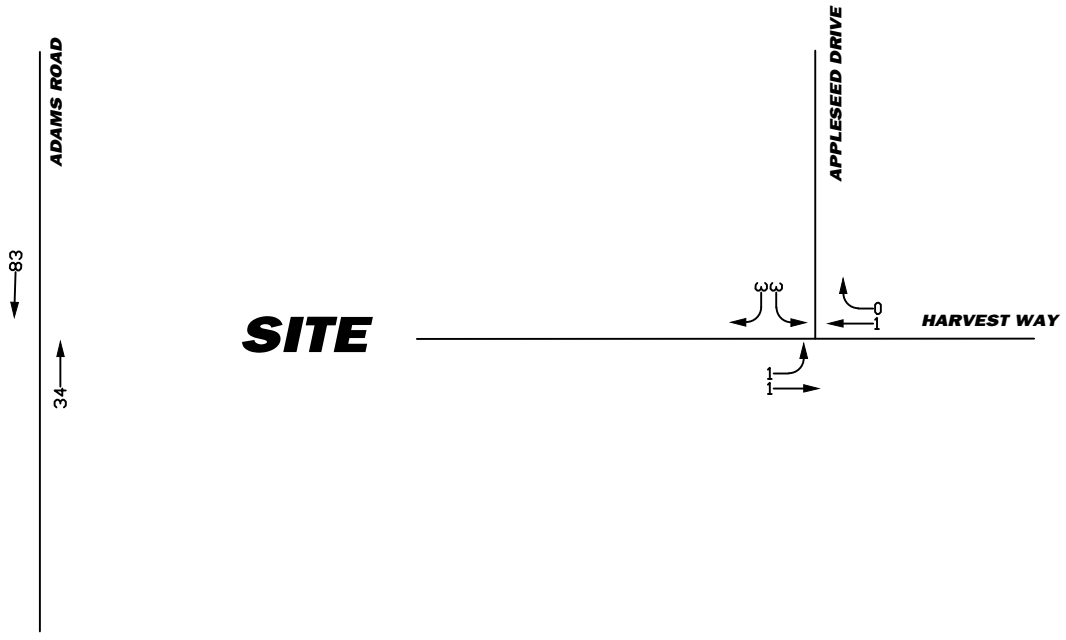
Groups Printed- Cars - Heavy Vehicles

	Appleseed Drive From North				Harvest Way From East				Driveway From South				Harvest Way 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	1	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	4
Total	3	0	2	1	1	1	0	0	0	0	0	0	0	1	0	0	9
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1
05:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:30 PM	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	3
05:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	3
Total	2	1	1	0	0	0	0	0	0	0	0	0	0	0	4	0	8
Grand Total	5	1	3	1	1	1	0	0	0	0	0	0	0	1	4	0	17
Apprch %	50	10	30	10	50	50	0	0	0	0	0	0	0	20	80	0	
Total %	29.4	5.9	17.6	5.9	5.9	5.9	0	0	0	0	0	0	0	5.9	23.5	0	
Cars	5	1	2	0	1	1	0	0	0	0	0	0	0	1	4	0	15
% Cars	100	100	66.7	0	100	100	0	0	0	0	0	0	0	100	100	0	88.2
Heavy Vehicles	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2
% Heavy Vehicles	0	0	33.3	100	0	0	0	0	0	0	0	0	0	0	0	0	11.8

	Appleseed Drive From North					Harvest Way From East					Driveway From South					Harvest Way 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	**1**	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:15 PM	**1**	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
04:30 PM	1	0	**2**	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	1	0	0	0	1	**1**	**1**	0	0	**2**	0	0	0	0	0	0	**1**	0	0	**1**	**4**
Total Volume	3	0	2	1	6	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	9
% App. Total	50	0	33.3	16.7		50	50	0	0		0	0	0	0		0	100	0	0		
PHF	.750	.000	.250	.250	.500	.250	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.563
Cars	3	0	1	0	4	1	1	0	0	2	0	0	0	0	0	0	1	0	0	1	7
% Cars	100	0	50.0	0	66.7	100	100	0	0	100	0	0	0	0	0	0	100	0	0	100	77.8
Heavy Vehicles	0	0	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
% Heavy Vehicles	0	0	50.0	100	33.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22.2



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

CONLEY ASSOCIATES

40 Warren St, #346
Boston, MA 02129
(617) 742-5111
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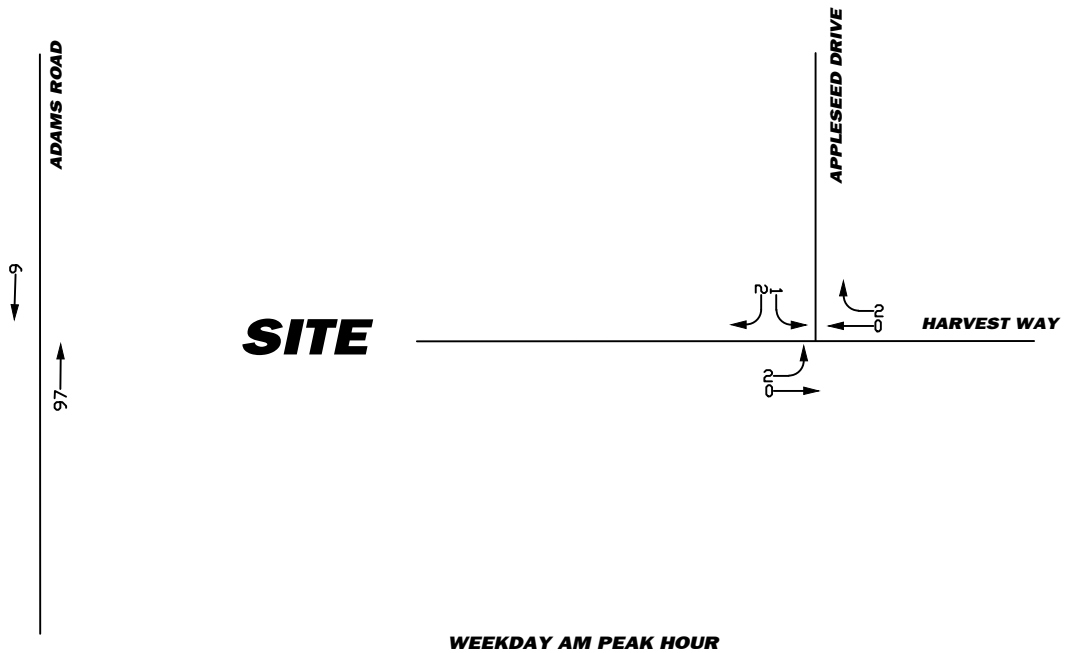
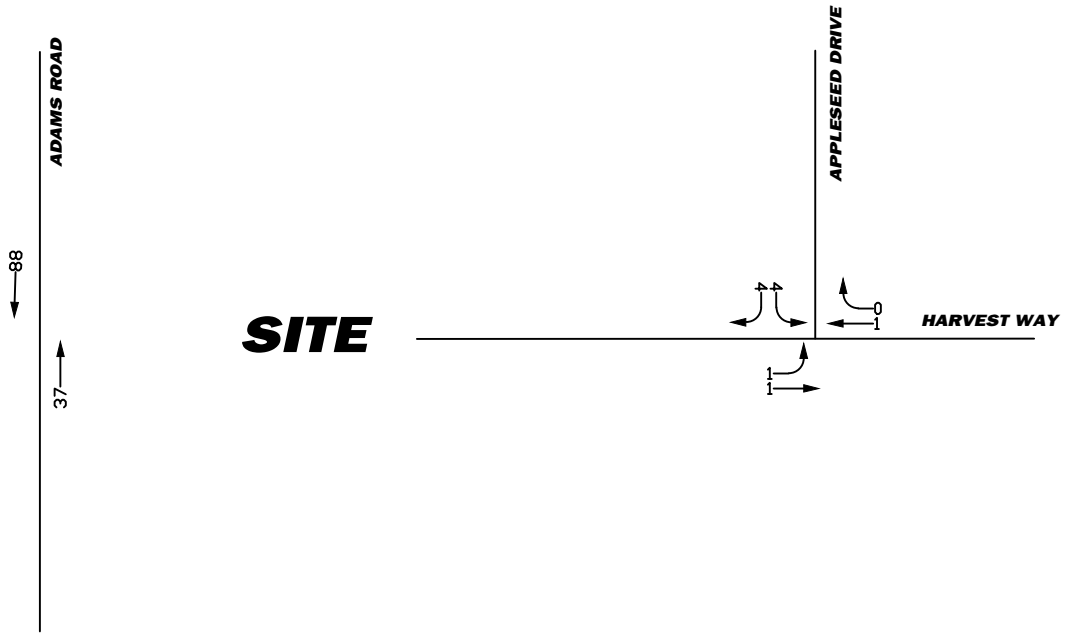
1574cadNetworks.dwg

FIGURE 1
EXISTING CONDITIONS
PEAK HOUR TRAFFIC VOLUMES
RESIDENTIAL
GRAFTON/WESTBOROUGH

PROJ. NO. 1574 DATE: JANUARY 2016 NOT TO SCALE



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

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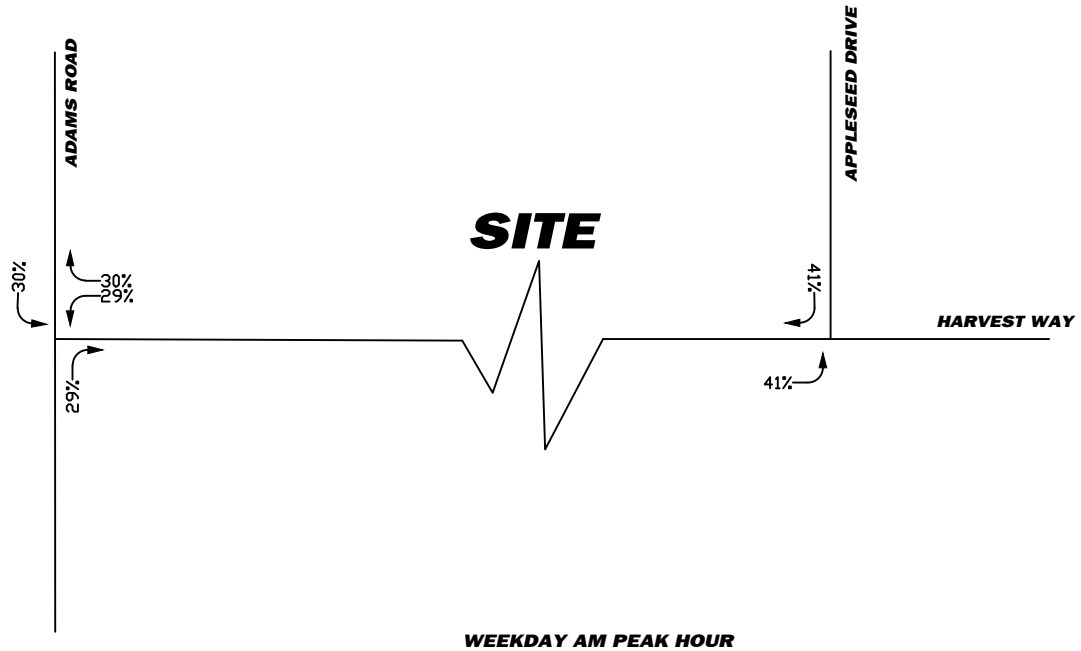
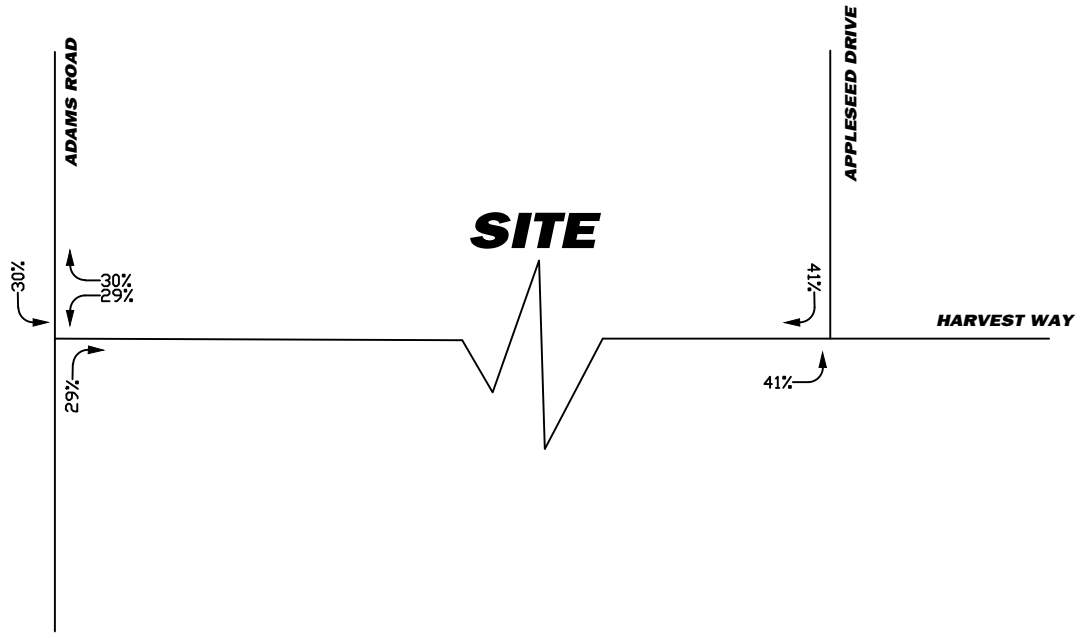
FIGURE 2
NO BUILD CONDITION
PEAK HOUR TRAFFIC VOLUMES
RESIDENTIAL
GRAFTON/WESTBOROUGH

PROJ. NO. 1574 DATE: JANUARY 2016 NOT TO SCALE



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

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Boston, MA 02129
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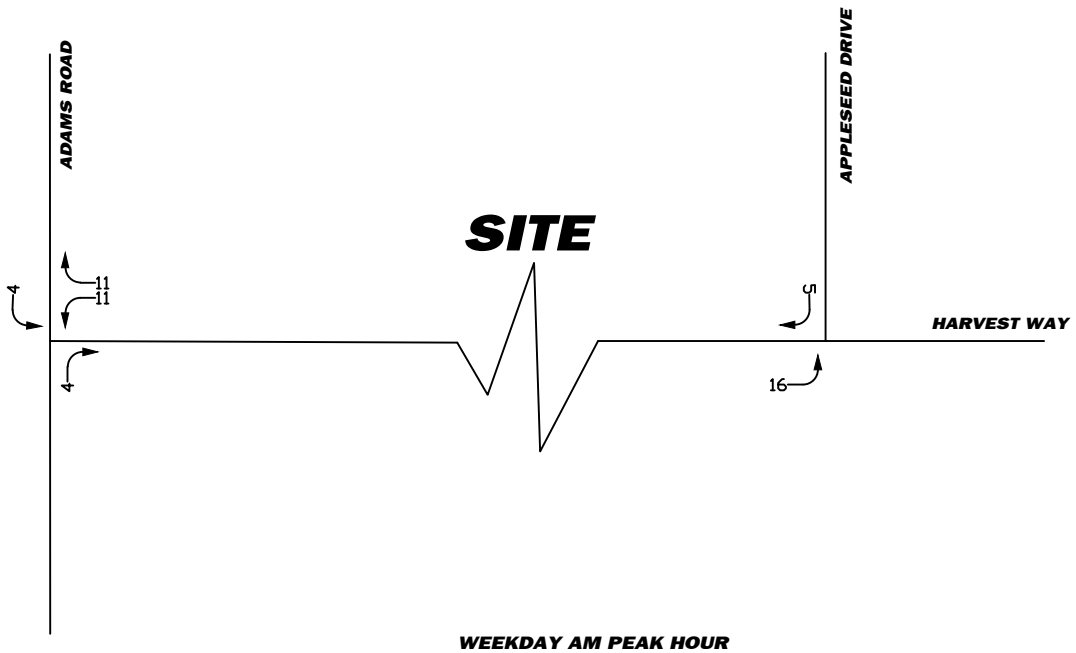
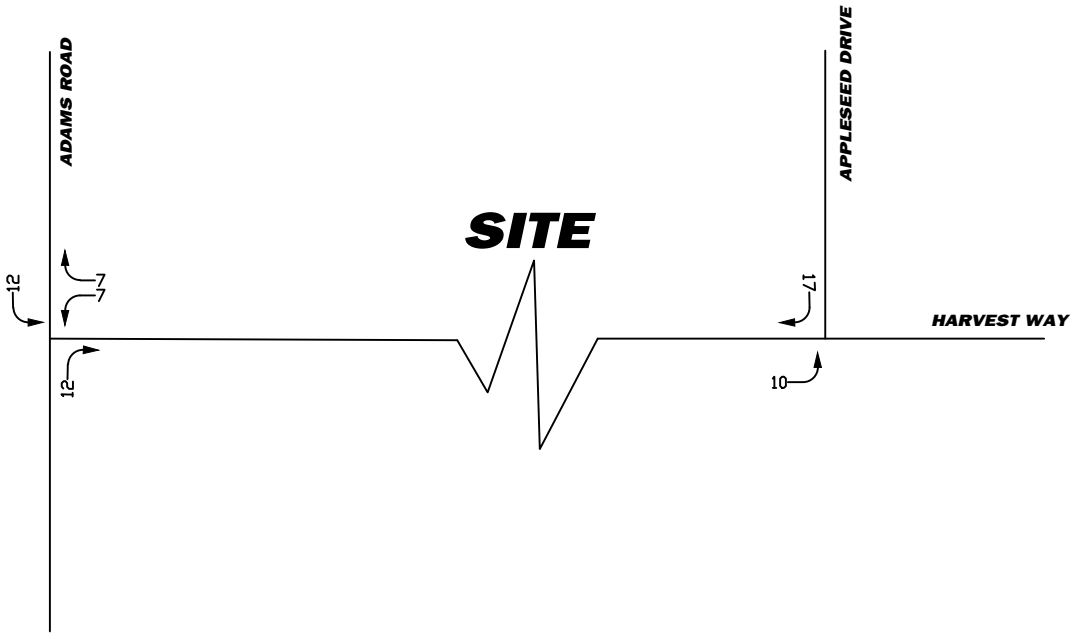
FIGURE 3
TRIP DISTRIBUTION
PEAK HOUR TRAFFIC VOLUMES
RESIDENTIAL
GRAFTON/WESTBOROUGH

PROJ. NO. 1574 DATE: JANUARY 2016 NOT TO SCALE



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

CONLEY ASSOCIATES

40 Warren St, #346
Boston, MA 02129
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www.ConleyAssociates.com

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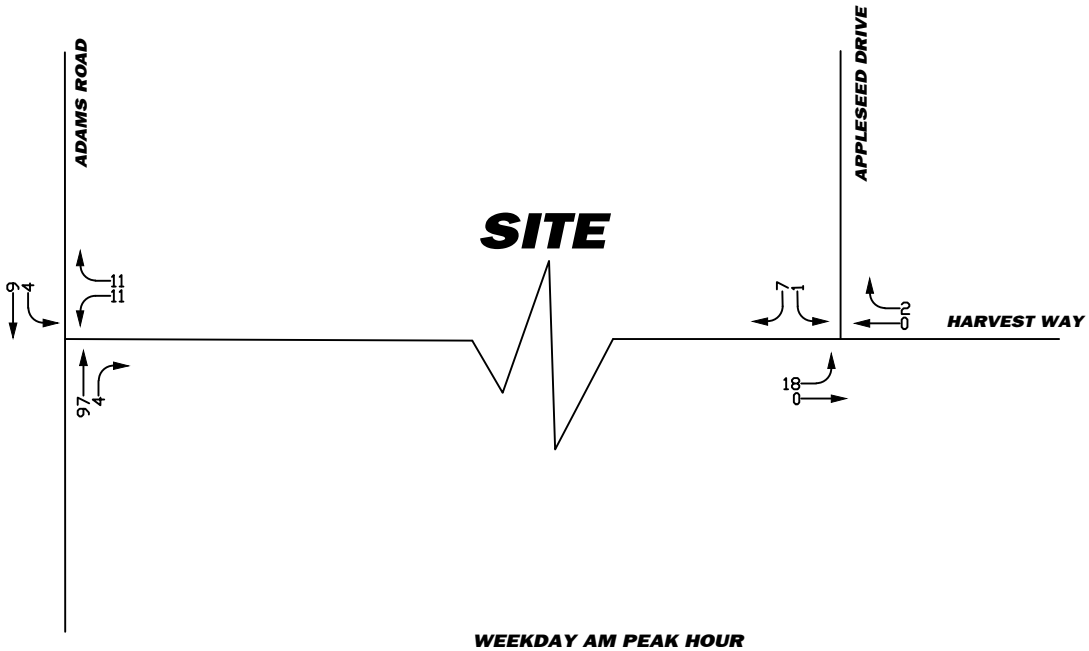
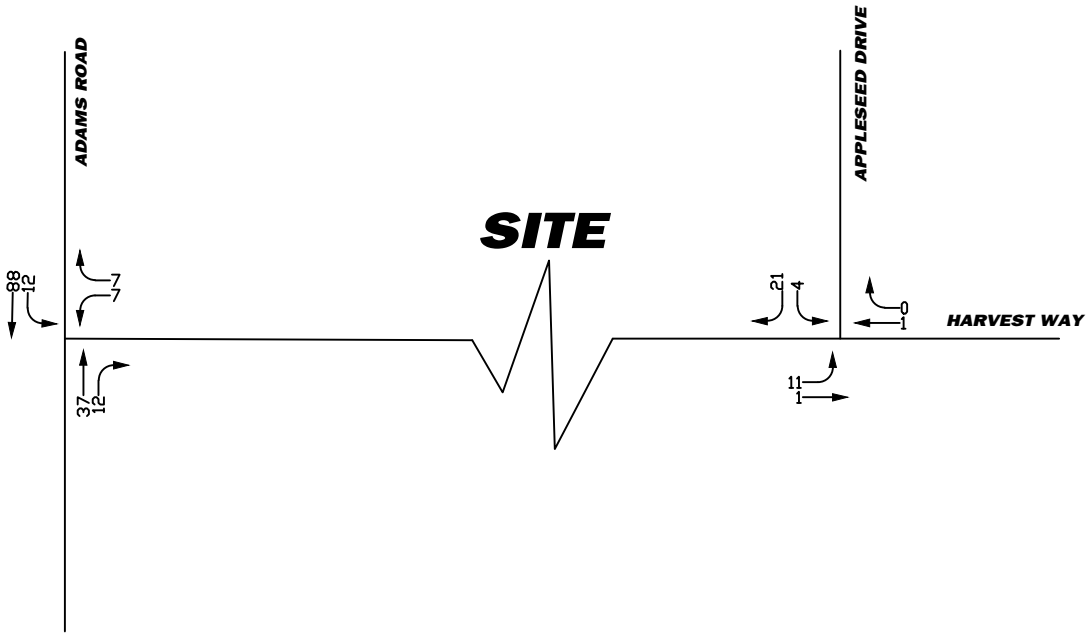
FIGURE 4
TRIP GENERATION
PEAK HOUR TRAFFIC VOLUMES
RESIDENTIAL
GRAFTON/WESTBOROUGH

PROJ. NO. 1574 DATE: JANUARY 2016 NOT TO SCALE



WEEKDAY AM PEAK HOUR



WEEKDAY PM PEAK HOUR

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FIGURE 5
BUILD CONDITION
PEAK HOUR TRAFFIC VOLUMES
RESIDENTIAL
GRAFTON/WESTBOROUGH

PROJ. NO. 1574 DATE: JANUARY 2016 NOT TO SCALE

AM Peak Hour Traffic Volumes

Adams Rd & Harvest Way (Site Drive)						
			1.072135			
	1	Existing	Growth	No Build	Trips	Build
EB L		0	0	0	0	0
EB T		0	0	0	0	0
EB R		0	0	0	0	0
WB L		0	0	0	11	11
WB T		0	0	0	0	0
WB R		0	0	0	11	11
NB L		0	0	0	0	0
NB T	82	90	97	97	0	97
NB R		0	0	0	4	4
SB L		0	0	0	4	4
SB T	8	9	9	9	0	9
SB R		0	0	0	0	0

Harvest Way (Site Drive) & Appleseed Drive						
		Existing	Growth	No Build	Trips	Build
EB L	2	2	2	2	16	18
EB T		0	0	0	0	0
EB R	0	0	0	0	0	0
WB L	0	0	0	0	0	0
WB T	0	0	0	0	0	0
WB R	2	2	2	2	0	2
NB L		0	0	0	0	0
NB T		0	0	0	0	0
NB R		0	0	0	0	0
SB L	1	1	1	1	0	1
SB T		0	0	0	0	0
SB R	2	2	2	2	5	7

PM Peak Hour Traffic Volumes

Adams Rd & Harvest Way (Site Drive)						
			1.072135			
	1	Existing	Growth	No Build	Trips	Build
EB L	0	0		0	0	0
EB T	0	0		0	0	0
EB R	0	0		0	0	0
WB L	0	0		0	7	7
WB T	0	0		0	0	0
WB R	0	0		0	7	7
NB L	0	0		0	0	0
NB T	31	34	37	37	0	37
NB R	0	0		0	12	12
SB L	0	0		0	12	12
SB T	75	83	88	88	0	88
SB R	0	0		0	0	0

Harvest Way (Site Drive) & Appleseed Drive						
		Existing	Growth	No Build	Trips	Build
EB L	1	1	1	1	10	11
EB T	1	1	1	1	0	1
EB R	0	0	0	0	0	0
WB L		0		0	0	0
WB T	1	1	1	1	0	1
WB R		0		0	0	0
NB L		0		0	0	0
NB T		0		0	0	0
NB R		0		0	0	0
SB L	3	3	4	4	0	4
SB T		0		0	0	0
SB R	3	3	4	4	17	21

Loc ID	County	Community	On	From	To	At	Dir
307	WORCESTER	WESTBOROUGH	BOSTON WORCESTER TURNPIKE			NORTHBOROUGH	2-WAY

Month of Year	Average	Fraction
January	45,427	0.94
February	46,752	0.96
March	48,082	0.99
April	49,463	1.02
May	50,628	1.04
June	50,017	1.03
July	48,448	1
August	46,671	0.96
September	49,159	1.01
October	50,122	1.03
November	49,534	1.02
December	47,614	0.98

CONLEY ASSOCIATES

Loc ID	County	Community	On	From	To	At	Dir
3321	WORCESTER	MILFORD	INTERSTATE 495			RAMP-RT 85 TO RT 495 SB	2-WAY

Month of Year	Average	Fraction
January	65,814	0.86
February	66,413	0.87
March	68,471	0.89
April	73,687	0.96
May	77,319	1.01
June	84,193	1.1
July	82,104	1.07
August	86,857	1.13
September	80,962	1.06
October	79,269	1.03
November	75,548	0.99
December	71,634	0.93

CONLEY ASSOCIATES

Loc ID	County	Community	On	From	To	At	Dir
3133	WORCESTER	WESTBOROUGH	WEST MAIN STREET			ADAMS ST.	2-WAY

Year	AADT	Annual Growth
2014	6,010	1%
2013	5,976	1%
2012	5,905	-1%
2011	5,992	4%
2010	5,774	0%

Average Growth 2014 to 2010
0.01021822 1.021822

Loc ID	County	Community	On	From	To	At	Dir
307	WORCESTER	WESTBOROUGH	BOSTON WORCESTER TURNPIKE			NORTHBOROUGH	2-WAY

Year	AADT	Annual Growth
2014	44,037	-10%
2013	49,195	0%
2012	49,008	2%
2011	48,234	0%
2010	48,089	9%

Average Growth 2014 to 2010
-0.02106511 -2.10651

Loc ID	County	Community	On	From	To	At	Dir
3321	WORCESTER	MILFORD	INTERSTATE 495			RAMP-RT 85 TO RT 495 SB	2-WAY

Year	AADT	Annual Growth
2014	79,081	21%
2013	65,363	-15%
2012	76,636	-1%
2011	77,052	2%
2010	75,858	19%

Average Growth 2013 to 2009
0.01062182 1.062182

Average Growth, 3321, 3133, 307
-7.5023E-05 -0.0075

CONLEY
ASSOCIATES

TRIP GENERATION WORKSHEET

x= 58 Dwelling Units LUC: Single-Family Detached Housing (210)

WEEKDAY

Average Rate =	9.52	Fitted Curve Equation =	Ln (T) = 0.92* Ln(X) +2.72
Total Trips =	552.16	Total Trips =	636.26

AM PEAK HOUR of ADJACENT STREET

Average Rate =	0.75	Fitted Curve Equation =	T = 0.70*X + 9.74
Total Trips =	43.5	Total Trips =	50.34
25% of Trips In =	11	25% of Trips In =	13
75% of Trips Out =	33	75% of Trips Out =	38

PM PEAK HOUR of ADJACENT STREET

Average Rate =	1.00	Fitted Curve Equation =	Ln (T) = 0.90* Ln(X) + 0.51
Total Trips =	58	Total Trips =	64.35
63% of Trips In =	37	63% of Trips In =	41
37% of Trips Out =	21	37% of Trips Out =	24

AM PEAK HOUR of GENERATOR

Average Rate =	0.77	Fitted Curve Equation =	T = 0.70*X + 12.12
Total Trips =	44.66	Total Trips =	52.72
26% of Trips In =	12	26% of Trips In =	14
74% of Trips Out =	33	74% of Trips Out =	39

PM PEAK HOUR of GENERATOR

Average Rate =	1.02	Fitted Curve Equation =	Ln (T) = 0.88* Ln(X) + 0.62
Total Trips =	59.16	Total Trips =	66.23
64% of Trips In =	38	64% of Trips In =	42
36% of Trips Out =	21	36% of Trips Out =	24

SATURDAY

Average Rate =	9.91	Fitted Curve Equation =	Ln (T) = 0.93* Ln(X) +2.64
Total Trips =	574.78	Total Trips =	611.68

PEAK HOUR of GENERATOR

Average Rate =	0.93	Fitted Curve Equation =	T = 0.89*X + 8.77
Total Trips =	53.94	Total Trips =	60.39
54% of Trips In =	29	54% of Trips In =	33
46% of Trips Out =	25	46% of Trips Out =	28

SUNDAY

Average Rate =	8.62	Fitted Curve Equation =	T = 8.63*X - 0.63
Total Trips =	499.96	Total Trips =	499.91

PEAK HOUR of GENERATOR

Average Rate =	0.86	Fitted Curve Equation =	Ln (T) = 0.91* Ln(X) + 0.31
Total Trips =	49.88	Total Trips =	54.87
53% of Trips In =	26	53% of Trips In =	29
47% of Trips Out =	23	47% of Trips Out =	26

ITE TRIP GENERATION
9TH EDITION

CONLEY
ASSOCIATES

Residence MCD/County to Workplace MCD/County Flows for Massachusetts: 2000
Sorted by Workplace State-County, or State-County-County Subdivision (in 12 states)

Residence State-County-MCD Name	Workplace State-County-MCD Name	Count	h	Left Appleseed	Left Adams Rd	Right Adams Rd
Grafton town Worcester Co. MA	Mansfield town Bristol Co. MA	10		10	0	0
Grafton town Worcester Co. MA	Seekonk town Bristol Co. MA	10		0	5	5
Grafton town Worcester Co. MA	Somerset town Bristol Co. MA	7		4	4	0
Grafton town Worcester Co. MA	Andover town Essex Co. MA	23		23	0	0
Grafton town Worcester Co. MA	Beverly city Essex Co. MA	7		7	0	0
Grafton town Worcester Co. MA	Lawrence city Essex Co. MA	16		16	0	0
Grafton town Worcester Co. MA	North Andover town Essex Co. MA	11		11	0	0
Grafton town Worcester Co. MA	Chicopee city Hampden Co. MA	11		0	0	11
Grafton town Worcester Co. MA	Springfield city Hampden Co. MA	19		0	0	19
Grafton town Worcester Co. MA	Westfield city Hampden Co. MA	7		0	0	7
Grafton town Worcester Co. MA	Amherst town Hampshire Co. MA	5		0	0	5
Grafton town Worcester Co. MA	Acton town Middlesex Co. MA	15		15	0	0
Grafton town Worcester Co. MA	Ashland town Middlesex Co. MA	53		53	0	0
Grafton town Worcester Co. MA	Ayer town Middlesex Co. MA	4		4	0	0
Grafton town Worcester Co. MA	Bedford town Middlesex Co. MA	19		19	0	0
Grafton town Worcester Co. MA	Billerica town Middlesex Co. MA	22		22	0	0
Grafton town Worcester Co. MA	Boxbor. town Middlesex Co. MA	11		11	0	0
Grafton town Worcester Co. MA	Burlington town Middlesex Co. MA	9		9	0	0
Grafton town Worcester Co. MA	Cambridge city Middlesex Co. MA	60		60	0	0
Grafton town Worcester Co. MA	Chelmsford town Middlesex Co. MA	30		30	0	0
Grafton town Worcester Co. MA	Concord town Middlesex Co. MA	15		15	0	0
Grafton town Worcester Co. MA	Dracut town Middlesex Co. MA	10		10	0	0
Grafton town Worcester Co. MA	Framingham town Middlesex Co. MA	368		368	0	0
Grafton town Worcester Co. MA	Holliston town Middlesex Co. MA	46		46	0	0
Grafton town Worcester Co. MA	Hopkinton town Middlesex Co. MA	146		146	0	0
Grafton town Worcester Co. MA	Hudson town Middlesex Co. MA	56		56	0	0
Grafton town Worcester Co. MA	Lexington town Middlesex Co. MA	18		18	0	0
Grafton town Worcester Co. MA	Littleton town Middlesex Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Lowell city Middlesex Co. MA	18		18	0	0
Grafton town Worcester Co. MA	Marlbor. city Middlesex Co. MA	303		303	0	0
Grafton town Worcester Co. MA	Medford city Middlesex Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Melrose city Middlesex Co. MA	17		17	0	0
Grafton town Worcester Co. MA	Natick town Middlesex Co. MA	80		80	0	0
Grafton town Worcester Co. MA	Newton city Middlesex Co. MA	39		39	0	0
Grafton town Worcester Co. MA	North Reading town Middlesex Co. MA	7		7	0	0
Grafton town Worcester Co. MA	Shirley town Middlesex Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Stoneham town Middlesex Co. MA	7		7	0	0
Grafton town Worcester Co. MA	Sudbury town Middlesex Co. MA	17		17	0	0
Grafton town Worcester Co. MA	Tewksbury town Middlesex Co. MA	9		9	0	0
Grafton town Worcester Co. MA	Tyngsbor. town Middlesex Co. MA	5		5	0	0
Grafton town Worcester Co. MA	Waltham city Middlesex Co. MA	109		109	0	0
Grafton town Worcester Co. MA	Wayland town Middlesex Co. MA	1		1	0	0
Grafton town Worcester Co. MA	Westford town Middlesex Co. MA	26		26	0	0
Grafton town Worcester Co. MA	Weston town Middlesex Co. MA	19		19	0	0
Grafton town Worcester Co. MA	Wilmington town Middlesex Co. MA	24		24	0	0
Grafton town Worcester Co. MA	Winchester town Middlesex Co. MA	15		15	0	0
Grafton town Worcester Co. MA	Woburn city Middlesex Co. MA	30		30	0	0
Grafton town Worcester Co. MA	Avon town Norfolk Co. MA	15		15	0	0
Grafton town Worcester Co. MA	Bellingham town Norfolk Co. MA	30		30	0	0
Grafton town Worcester Co. MA	Dedham town Norfolk Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Foxbor. town Norfolk Co. MA	5		5	0	0
Grafton town Worcester Co. MA	Franklin city Norfolk Co. MA	26		26	0	0
Grafton town Worcester Co. MA	Medfield town Norfolk Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Needham town Norfolk Co. MA	21		21	0	0
Grafton town Worcester Co. MA	Norwood town Norfolk Co. MA	33		33	0	0
Grafton town Worcester Co. MA	Quincy city Norfolk Co. MA	9		9	0	0
Grafton town Worcester Co. MA	Wellesley town Norfolk Co. MA	58		58	0	0
Grafton town Worcester Co. MA	Westwood town Norfolk Co. MA	7		7	0	0
Grafton town Worcester Co. MA	Weymouth town Norfolk Co. MA	10		10	0	0
Grafton town Worcester Co. MA	Wrentham town Norfolk Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Bridgewater town Plymouth Co. MA	6		6	0	0
Grafton town Worcester Co. MA	Brockton city Plymouth Co. MA	5		5	0	0
Grafton town Worcester Co. MA	Boston city Suffolk Co. MA	304		304	0	0

Residence State-County-MCD Name	Workplace State-County-MCD Name	Count	h	F	Left Appleseed	Left Adams Rd	Right Adams Rd
Grafton town Worcester Co. MA	Athol town Worcester Co. MA	21			11	0	11
Grafton town Worcester Co. MA	Auburn town Worcester Co. MA	178			0	0	178
Grafton town Worcester Co. MA	Barre town Worcester Co. MA	7			0	4	4
Grafton town Worcester Co. MA	Boylston town Worcester Co. MA	20			0	0	20
Grafton town Worcester Co. MA	Brookfield town Worcester Co. MA	9			0	0	9
Grafton town Worcester Co. MA	Charlton town Worcester Co. MA	11			0	0	11
Grafton town Worcester Co. MA	Clinton town Worcester Co. MA	54			0	0	54
Grafton town Worcester Co. MA	Douglas town Worcester Co. MA	18			0	18	0
Grafton town Worcester Co. MA	Dudley town Worcester Co. MA	7			0	0	7
Grafton town Worcester Co. MA	Fitchburg city Worcester Co. MA	42			42	0	0
Grafton town Worcester Co. MA	Gardner city Worcester Co. MA	8			0	0	8
Grafton town Worcester Co. MA	Grafton town Worcester Co. MA	1357			0	1357	0
Grafton town Worcester Co. MA	Holden town Worcester Co. MA	28			0	0	28
Grafton town Worcester Co. MA	Hopedale town Worcester Co. MA	28			0	0	0
Grafton town Worcester Co. MA	Leicester town Worcester Co. MA	16			0	0	16
Grafton town Worcester Co. MA	Leominster city Worcester Co. MA	63			32	0	32
Grafton town Worcester Co. MA	Mendon town Worcester Co. MA	6			0	6	0
Grafton town Worcester Co. MA	Milford town Worcester Co. MA	142			0	71	0
Grafton town Worcester Co. MA	Millbury town Worcester Co. MA	42			0	21	21
Grafton town Worcester Co. MA	Millville town Worcester Co. MA	14			0	0	14
Grafton town Worcester Co. MA	New Braintree town Worcester Co. MA	5			0	5	0
Grafton town Worcester Co. MA	Northbor. town Worcester Co. MA	135			0	0	135
Grafton town Worcester Co. MA	Northbridge town Worcester Co. MA	127			0	127	0
Grafton town Worcester Co. MA	North Brookfield town Worcester Co. MA	27			0	0	27
Grafton town Worcester Co. MA	Oxford town Worcester Co. MA	14			0	7	7
Grafton town Worcester Co. MA	Paxton town Worcester Co. MA	17			0	17	0
Grafton town Worcester Co. MA	Rutland town Worcester Co. MA	6			0	3	3
Grafton town Worcester Co. MA	Shrewsbury town Worcester Co. MA	364			0	0	364
Grafton town Worcester Co. MA	Southbor. town Worcester Co. MA	153			153	0	0
Grafton town Worcester Co. MA	Spencer town Worcester Co. MA	11			0	0	11
Grafton town Worcester Co. MA	Sturbridge town Worcester Co. MA	7			0	4	4
Grafton town Worcester Co. MA	Sutton town Worcester Co. MA	72			0	72	0
Grafton town Worcester Co. MA	Upton town Worcester Co. MA	18			0	18	0
Grafton town Worcester Co. MA	Uxbridge town Worcester Co. MA	63			0	63	0
Grafton town Worcester Co. MA	Webster town Worcester Co. MA	66			0	0	66
Grafton town Worcester Co. MA	Westbor. town Worcester Co. MA	691			0	346	346
Grafton town Worcester Co. MA	West Boylston town Worcester Co. MA	17			0	0	17
Grafton town Worcester Co. MA	Westminster town Worcester Co. MA	15			0	8	8
Grafton town Worcester Co. MA	Worcester city Worcester Co. MA	1493			0	747	747
Westbor. town Worcester Co. MA	Barnstable Town city Barnstable Co. MA	9			9	0	0
Westbor. town Worcester Co. MA	Bourne town Barnstable Co. MA	11			11	0	0
Westbor. town Worcester Co. MA	Fall River city Bristol Co. MA	8			8	0	0
Westbor. town Worcester Co. MA	Mansfield town Bristol Co. MA	14			14	0	0
Westbor. town Worcester Co. MA	North Attlebor. town Bristol Co. MA	10			10	0	0
Westbor. town Worcester Co. MA	Norton town Bristol Co. MA	8			8	0	0
Westbor. town Worcester Co. MA	Taunton city Bristol Co. MA	5			5	0	0
Westbor. town Worcester Co. MA	Andover town Essex Co. MA	29			29	0	0
Westbor. town Worcester Co. MA	Beverly city Essex Co. MA	10			10	0	0
Westbor. town Worcester Co. MA	Gloucester city Essex Co. MA	10			10	0	0
Westbor. town Worcester Co. MA	Lynn city Essex Co. MA	35			35	0	0
Westbor. town Worcester Co. MA	Lynnfield town Essex Co. MA	4			4	0	0
Westbor. town Worcester Co. MA	Rockport town Essex Co. MA	9			9	0	0
Westbor. town Worcester Co. MA	Acton town Middlesex Co. MA	8			8	0	0
Westbor. town Worcester Co. MA	Arlington town Middlesex Co. MA	8			8	0	0
Westbor. town Worcester Co. MA	Ashland town Middlesex Co. MA	52			52	0	0
Westbor. town Worcester Co. MA	Ayer town Middlesex Co. MA	9			9	0	0
Westbor. town Worcester Co. MA	Bedford town Middlesex Co. MA	21			21	0	0
Westbor. town Worcester Co. MA	Belmont town Middlesex Co. MA	6			6	0	0
Westbor. town Worcester Co. MA	Billerica town Middlesex Co. MA	42			42	0	0
Westbor. town Worcester Co. MA	Boxbor. town Middlesex Co. MA	6			6	0	0
Westbor. town Worcester Co. MA	Burlington town Middlesex Co. MA	44			44	0	0
Westbor. town Worcester Co. MA	Cambridge city Middlesex Co. MA	109			109	0	0
Westbor. town Worcester Co. MA	Chelmsford town Middlesex Co. MA	28			28	0	0
Westbor. town Worcester Co. MA	Concord town Middlesex Co. MA	43			43	0	0
Westbor. town Worcester Co. MA	Everett city Middlesex Co. MA	13			13	0	0
Westbor. town Worcester Co. MA	Framingham town Middlesex Co. MA	520			520	0	0
Westbor. town Worcester Co. MA	Groton town Middlesex Co. MA	13			13	0	0

Residence State-County-MCD Name	Workplace State-County-MCD Name	Count	h	Left Appleseed	Left Adams Rd	Right Adams Rd
Westbor. town Worcester Co. MA	Holliston town Middlesex Co. MA	54		54	0	0
Westbor. town Worcester Co. MA	Hopkinton town Middlesex Co. MA	198		198	0	0
Westbor. town Worcester Co. MA	Hudson town Middlesex Co. MA	86		86	0	0
Westbor. town Worcester Co. MA	Lexington town Middlesex Co. MA	24		24	0	0
Westbor. town Worcester Co. MA	Littleton town Middlesex Co. MA	37		37	0	0
Westbor. town Worcester Co. MA	Lowell city Middlesex Co. MA	50		50	0	0
Westbor. town Worcester Co. MA	Malden city Middlesex Co. MA	29		29	0	0
Westbor. town Worcester Co. MA	Marlbor. city Middlesex Co. MA	617		617	0	0
Westbor. town Worcester Co. MA	Maynard town Middlesex Co. MA	19		19	0	0
Westbor. town Worcester Co. MA	Medford city Middlesex Co. MA	24		24	0	0
Westbor. town Worcester Co. MA	Melrose city Middlesex Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Natick town Middlesex Co. MA	193		193	0	0
Westbor. town Worcester Co. MA	Newton city Middlesex Co. MA	83		83	0	0
Westbor. town Worcester Co. MA	North Reading town Middlesex Co. MA	6		6	0	0
Westbor. town Worcester Co. MA	Somerville city Middlesex Co. MA	24		24	0	0
Westbor. town Worcester Co. MA	Stoneham town Middlesex Co. MA	6		6	0	0
Westbor. town Worcester Co. MA	Stow town Middlesex Co. MA	31		31	0	0
Westbor. town Worcester Co. MA	Sudbury town Middlesex Co. MA	21		21	0	0
Westbor. town Worcester Co. MA	Tewksbury town Middlesex Co. MA	36		36	0	0
Westbor. town Worcester Co. MA	Tyngsbor. town Middlesex Co. MA	11		11	0	0
Westbor. town Worcester Co. MA	Wakefield town Middlesex Co. MA	14		14	0	0
Westbor. town Worcester Co. MA	Waltham city Middlesex Co. MA	137		137	0	0
Westbor. town Worcester Co. MA	Watertown city Middlesex Co. MA	16		16	0	0
Westbor. town Worcester Co. MA	Wayland town Middlesex Co. MA	10		10	0	0
Westbor. town Worcester Co. MA	Westford town Middlesex Co. MA	46		46	0	0
Westbor. town Worcester Co. MA	Weston town Middlesex Co. MA	21		21	0	0
Westbor. town Worcester Co. MA	Wilmington town Middlesex Co. MA	17		17	0	0
Westbor. town Worcester Co. MA	Winchester town Middlesex Co. MA	21		21	0	0
Westbor. town Worcester Co. MA	Woburn city Middlesex Co. MA	12		12	0	0
Westbor. town Worcester Co. MA	Braintree town Norfolk Co. MA	15		15	0	0
Westbor. town Worcester Co. MA	Canton town Norfolk Co. MA	11		11	0	0
Westbor. town Worcester Co. MA	Dedham town Norfolk Co. MA	6		6	0	0
Westbor. town Worcester Co. MA	Foxbor. town Norfolk Co. MA	4		4	0	0
Westbor. town Worcester Co. MA	Franklin city Norfolk Co. MA	42		42	0	0
Westbor. town Worcester Co. MA	Medfield town Norfolk Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Medway town Norfolk Co. MA	6		6	0	0
Westbor. town Worcester Co. MA	Milton town Norfolk Co. MA	7		7	0	0
Westbor. town Worcester Co. MA	Needham town Norfolk Co. MA	18		18	0	0
Westbor. town Worcester Co. MA	Norwood town Norfolk Co. MA	12		12	0	0
Westbor. town Worcester Co. MA	Plainville town Norfolk Co. MA	10		10	0	0
Westbor. town Worcester Co. MA	Quincy city Norfolk Co. MA	21		21	0	0
Westbor. town Worcester Co. MA	Randolph town Norfolk Co. MA	8		0	0	8
Westbor. town Worcester Co. MA	Wellesley town Norfolk Co. MA	90		90	0	0
Westbor. town Worcester Co. MA	Westwood town Norfolk Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Brockton city Plymouth Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Plymouth town Plymouth Co. MA	7		7	0	0
Westbor. town Worcester Co. MA	Boston city Suffolk Co. MA	520		520	0	0
Westbor. town Worcester Co. MA	Chelsea city Suffolk Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Revere city Suffolk Co. MA	5		5	0	0
Westbor. town Worcester Co. MA	Ashburnham town Worcester Co. MA	6		3	0	3
Westbor. town Worcester Co. MA	Athol town Worcester Co. MA	45		23	0	23
Westbor. town Worcester Co. MA	Auburn town Worcester Co. MA	58		0	0	58
Westbor. town Worcester Co. MA	Berlin town Worcester Co. MA	8		8	0	0
Westbor. town Worcester Co. MA	Bolton town Worcester Co. MA	4		4	0	0
Westbor. town Worcester Co. MA	Charlton town Worcester Co. MA	8		0	0	8
Westbor. town Worcester Co. MA	Clinton town Worcester Co. MA	35		0	0	35
Westbor. town Worcester Co. MA	Dudley town Worcester Co. MA	5		0	0	5
Westbor. town Worcester Co. MA	Fitchburg city Worcester Co. MA	12		12	0	0
Westbor. town Worcester Co. MA	Gardner city Worcester Co. MA	14		0	0	14
Westbor. town Worcester Co. MA	Grafton town Worcester Co. MA	57		0	57	0
Westbor. town Worcester Co. MA	Holden town Worcester Co. MA	12		0	0	12
Westbor. town Worcester Co. MA	Hopedale town Worcester Co. MA	25		0	25	0
Westbor. town Worcester Co. MA	Lancaster town Worcester Co. MA	14		14	0	0
Westbor. town Worcester Co. MA	Leicester town Worcester Co. MA	5		0	0	5
Westbor. town Worcester Co. MA	Leominster city Worcester Co. MA	19		10	0	10
Westbor. town Worcester Co. MA	Lunenburg town Worcester Co. MA	9		5	0	5
Westbor. town Worcester Co. MA	Mendon town Worcester Co. MA	14		0	14	0

Residence State-County-MCD Name	Workplace State-County-MCD Name	Count	h	F	Left Appleseed	Left Adams Rd	Right Adams Rd
Westbor. town Worcester Co. MA	Milford town Worcester Co. MA	92	S		0	46	46
Westbor. town Worcester Co. MA	Millbury town Worcester Co. MA	26	S		0	13	13
Westbor. town Worcester Co. MA	New Braintree town Worcester Co. MA	6			0	6	0
Westbor. town Worcester Co. MA	Northbor. town Worcester Co. MA	263			0	0	263
Westbor. town Worcester Co. MA	Northbridge town Worcester Co. MA	8			0	8	0
Westbor. town Worcester Co. MA	North Brookfield town Worcester Co. MA	10			0	0	10
Westbor. town Worcester Co. MA	Oakham town Worcester Co. MA	7	S		0	4	4
Westbor. town Worcester Co. MA	Oxford town Worcester Co. MA	7	S		0	4	4
Westbor. town Worcester Co. MA	Rutland town Worcester Co. MA	4	S		0	2	2
Westbor. town Worcester Co. MA	Shrewsbury town Worcester Co. MA	252			0	0	252
Westbor. town Worcester Co. MA	Southbor. town Worcester Co. MA	237			237	0	0
Westbor. town Worcester Co. MA	Southbridge town Worcester Co. MA	21			0	0	21
Westbor. town Worcester Co. MA	Spencer town Worcester Co. MA	4			0	0	4
Westbor. town Worcester Co. MA	Sturbridge town Worcester Co. MA	4	S		0	2	2
Westbor. town Worcester Co. MA	Uxbridge town Worcester Co. MA	9			0	9	0
Westbor. town Worcester Co. MA	Webster town Worcester Co. MA	28			0	0	28
Westbor. town Worcester Co. MA	Westbor. town Worcester Co. MA	2389	S		0	1195	1195
Westbor. town Worcester Co. MA	West Boylston town Worcester Co. MA	12			0	0	12
Westbor. town Worcester Co. MA	West Brookfield town Worcester Co. MA	6			0	0	6
Westbor. town Worcester Co. MA	Westminster town Worcester Co. MA	13	S		0	7	7
Westbor. town Worcester Co. MA	Worcester city Worcester Co. MA	896	S		0	448	448
		16064			6539	4743	4698
					0.409198999	0.296808511	0.293992491
					40.91989987	29.68085106	29.39924906
					41%	30%	29%

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	0	0	2	1	2
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	2	0	0	2	1	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2	0	-	0	5	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	4	-
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	1620	-	-	-	1017	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1620	-	-	-	1016	1084
Mov Cap-2 Maneuver	-	-	-	-	1016	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	SB
HCM Control Delay, s	7.2	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1620	-	-	-	1060
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	1	1	1	0	3	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1	0	3	3

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	1622	-	-	-	1018	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1020	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1622	-	-	-	1017	1084
Mov Cap-2 Maneuver	-	-	-	-	1017	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1019	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	1049
HCM Lane V/C Ratio	0.001	-	-	-	0.006
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	5.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	0	0	2	1	2
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	2	0	0	2	1	2

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2	0	-	0	5	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	4	-
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	1620	-	-	-	1017	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1019	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1620	-	-	-	1016	1084
Mov Cap-2 Maneuver	-	-	-	-	1016	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1018	-

Approach	EB	WB	SB
HCM Control Delay, s	7.2	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1620	-	-	-	1060
HCM Lane V/C Ratio	0.001	-	-	-	0.003
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	1	1	1	0	4	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1	1	1	0	4	4

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	4	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	3	-
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	1622	-	-	-	1018	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1020	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1622	-	-	-	1017	1084
Mov Cap-2 Maneuver	-	-	-	-	1017	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	1019	-

Approach	EB	WB	SB
HCM Control Delay, s	3.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	1049
HCM Lane V/C Ratio	0.001	-	-	-	0.008
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	11	11	97	4	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	12	12	105	4	4	10

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	126	108	0	0	110	0
Stage 1	108	-	-	-	-	-
Stage 2	18	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	869	946	-	-	1480	-
Stage 1	916	-	-	-	-	-
Stage 2	1005	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	866	946	-	-	1480	-
Mov Cap-2 Maneuver	866	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	1002	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9.1	0	2.3
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	904	1480	-
HCM Lane V/C Ratio	-	-	0.026	0.003	-
HCM Control Delay (s)	-	-	9.1	7.4	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	18	0	0	2	1	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	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	0	0	2	1	8

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	2	0	-	0	40	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	39	-
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	1620	-	-	-	972	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	983	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1620	-	-	-	960	1084
Mov Cap-2 Maneuver	-	-	-	-	960	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	971	-

Approach	EB	WB	SB
HCM Control Delay, s	7.2	0	8.4
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1620	-	-	-	1067
HCM Lane V/C Ratio	0.012	-	-	-	0.008
HCM Control Delay (s)	7.2	0	-	-	8.4
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	7	7	37	12	12	88
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
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	8	8	40	13	13	96

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	169	47	0	0	53	0
Stage 1	47	-	-	-	-	-
Stage 2	122	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	821	1022	-	-	1553	-
Stage 1	975	-	-	-	-	-
Stage 2	903	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	814	1022	-	-	1553	-
Mov Cap-2 Maneuver	814	-	-	-	-	-
Stage 1	975	-	-	-	-	-
Stage 2	895	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	9	0	0.9
HCM LOS	A		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	906	1553	-
HCM Lane V/C Ratio	-	-	0.017	0.008	-
HCM Control Delay (s)	-	-	9	7.3	0
HCM Lane LOS	-	-	A	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0	-

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	11	1	1	0	4	21
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	12	1	1	0	4	23

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1	0	-	0	26	1
Stage 1	-	-	-	-	1	-
Stage 2	-	-	-	-	25	-
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	1622	-	-	-	989	1084
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	998	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1622	-	-	-	982	1084
Mov Cap-2 Maneuver	-	-	-	-	982	-
Stage 1	-	-	-	-	1022	-
Stage 2	-	-	-	-	991	-

Approach	EB	WB	SB
HCM Control Delay, s	6.6	0	8.5
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1622	-	-	-	1066
HCM Lane V/C Ratio	0.007	-	-	-	0.025
HCM Control Delay (s)	7.2	0	-	-	8.5
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1